Enacting Affordances: An investigation of digitally mediated multimodal assessment in Higher Education

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Candidate Declaration

I hereby declare that:

1. I have not been enrolled for another award of the University, or other academic or professional organisation, whilst undertaking my research degree.
2. None of the material contained in the thesis has been used in any other submission for an academic award.
3. I am aware of and understand the University's policy on plagiarism and certify that this thesis is my own work. The use of all published or other sources of material consulted have been properly and fully acknowledged.
4. The work undertaken towards the thesis has been conducted in accordance with the SHU Principles of Integrity in Research and the SHU Research Ethics Policy.
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Abstract

This thesis examines the incorporation of a digitally mediated audio-visual assignment into theoretical-contextual modules at a UK post-1992 University. A sample of seven student-produced artefacts has been analysed, highlighting the semiotic work undertaken, the expressive resources used, and the types of knowledge conveyed. Semi-structured interviews were conducted with sixteen participants, who provided accounts of their experiences and discussed the perceived value of the assignment.

These two sets of empirical material were analysed using grounded theory methods, providing the basis for developing a grounded theory of enacted affordances. The theory is substantive in that it is derived from researching only one specific educational context. However, the final categories are sufficiently abstract to allow transferability, adaptation and refinement in further research within other contexts. The interview analysis created a strong foundation for the theory, by developing a core category of "Assessing subjective task value", and its main properties and dimensions: academic emotions, relevance, materiality and self-regulation. Combining this with the insights from the artefact analysis, and with the concepts from Gibson's affordance theory, the thesis reconceptualises digitally mediated multimodal assessment as the dynamic process of affordance enactment

The study concludes that different kinds of positive and negative affordances are potentially present within any assignment, and their realisation depends both on the specific assignment features as affordance-bearers, and on the students' ability to perceive, select and implement beneficial action possibilities. The conclusion is that whilst digitally mediated multimodal assignments can offer additional advantages compared to traditional written coursework, it is not a given that students will engage in an academically meaningful way or have beneficial and motivating experiences. Careful consideration of assessment design is therefore crucial for the successful incorporation of such assignments, weighing up the relevant affordance bearers and their potential impact on students with diverse skills, strategies and prior experiences.

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List of abbreviations

AfL - Assessment for Learning

AVM - Audio-Visual Material

AVO - Audio-Visual Objects

BERA - British Education Research Association

CGT – Constructivist Grounded Theory

GT – Grounded Theory

GTM – Grounded Theory Methods

HCI – Human-Computer Interaction

HE – Higher Education

ICT - Information and Communications Technology

LPV – Let's-Play Video

LRQ – Literature Review Question

LTA – Learning, Teaching and Assessment

MMAV – A software package for video analysis (Multimodal Analysis Video)

MRCs - Meta-Representational Competences

NLG – New London Group

OER – Open Educational Resources

RQ – Research Question

SE – Student Engagement

SRL – Self-Regulated Learning

STV – Subjective Task Value

VLE – Virtual Learning Environment

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PART I: SETTING THE SCENE

The thesis in front of you investigates the new multimodal assignment format in Higher Education, where students create digital audio-visual artefacts to demonstrate the learning outcomes traditionally assessed by written assignments. Using grounded theory methodology, it analyses two sets of empirical material: firstly, a sample of student-produced artefacts created for assessment in one UK university, and secondly, the students' own accounts of their experiences with the assignment.

The topic involves several underlying pre-occupations in education practice and research: the changing expectations of university education, the impact of new literacies and technologies, and the increasing emphasis on student engagement. The proliferation of digital multimodal artefacts in online environments for such diverse purposes as e-learning, marketing, grassroots activism and popular-cultural fandom has blurred the boundaries between professional and amateur media-making. All these developments represent an important context for pedagogic experimentation and the diversification of assessment practices, including multimodal assessment.

The spread of digital, interactive and mobile technologies, with the increasing accessibility of digital content creation and sharing tools, was initially accompanied by considerable enthusiasm about their transformative potential. Yet several commentators questioned the claims about its affordances for education, arguing that the introduction of digital technologies into classrooms was often underpinned by business interests and the drive to increase administrative efficiency. Despite "some wild statements from opinion-formers about technology revolutionizing how students will learn in the 21st century", the existing pedagogies have not adapted to the new possibilities (Laurillard 2013, p xvi). Further, Buckingham (2013) argued that the ways in which these technologies are used by students were not sufficiently researched and understood, resulting in "a significant gap between the imagination of policy-makers" and "the realities of teaching and learning" (Buckingham 2013, p 30). As a common-place feature in today's classrooms, technology was often taken for granted as "something that is simply 'got on with' [and] does not merit particular critical scrutiny" (Selwyn 2011, p1). Various initiatives and interventions were "launched with inflated

claims about their educational value, and then quietly abandoned in favour of new ones, with little evaluation of their success or failure" (Buckingham 2013, p 29).

This critique provided a point of departure for the present study, with the intention to carefully examine a specific pedagogic innovation which introduced a digitally mediated multimodal assessment as an alternative to a traditional written coursework. At the danger of overstretching the time and space available, I was determined from the very outset to pay equal attention to the produced artefacts themselves and the students' experiences, to the social and material aspects of assessment, and to the relationship between production and learning. Following the principles of grounded theory methodology (see chapter 1.5), several diverse bodies of theoretical and research literature have been reviewed at different stages of the process to illuminate the empirical data and raise the analysis to the conceptual level. The thesis is structured accordingly, with several shorter reviews placed at different points in the thesis, some to clarify the study rationale and its theoretical context, and others to accompany the analysis of the relevant sets of empirical material.

The thesis is structured in five parts. Part I, 'Setting the Scene', provides an overview of the research aims and questions, object of study, epistemological stance, the overall methodology and ethical issues. Part II, 'Contextualising the Study', begins with Chapter 2 which considers the global changes in HE since the 1990s, as the important macro-context for pedagogic and assessment innovations similar to those in my study. Chapter 3 presents a systematically produced snapshot of pedagogic and research literature about the use of digital audio-visual assignments in European, American and Australian post-secondary institutions. The review identifies significant gaps in available research evidence, providing the impetus for the present study and clarifying its potential contribution to knowledge. Chapter 4 reviews the theoretical literature on affordances, which underpins the interpretation of empirical material and contributes to the development of the substantive grounded theory.

Part III, 'Investigating the Screencasts', presents the consideration of the first body of the collected empirical material, that is the student-produced artefacts. It starts with Chapter 5, providing an overview of the key approaches to audio-visual artefacts, and the issues and challenges involved in multimodal research. Chapter 6 explains the methods and procedures for artefact analysis adopted in my study, whilst Chapter 7 presents the results of the analysis. Part IV, 'Investigating the Students' Perspectives', considers the second body of empirical evidence, the interviews with student participants. It starts with Chapter 8, which outlines key concepts and ideas from the literature on motivation, engagement and self-regulated learning. Chapter 9 explains the interview methods and procedures, including the incorporation of grounded theory analytical tools and techniques. The results of interview analysis are presented in Chapter 10, which discusses the core analytical category, its properties and dimensions and the relationships between them, as appropriate for grounded theory methodology.

Part V, 'Concluding the Thesis' contains the substantive grounded theory developed on the basis of analysis of empirical material, and the final reflections on the study. Chapter 11 pulls together all the processes and phenomena identified during analysis into a substantive grounded theory. Making clear connections between the analysed empirical material and the key concepts from Gibson's affordance theory, it reconceptualises digitally mediated multimodal assessment as the dynamic process of affordance enactment. This represents a departure from both the technocratic views of affordances as an inherent feature of specific tools, and from the over-socialised accounts of 'digital natives' spontaneously unleashing creativity and collaboration when given the freedom to 'tinker' with technologies. Rather, it reinstates Gibson's original definition of affordances as action possibilities, resulting from a dynamic relationship between the environmental features and the agency of the observer. In the context of this study, different kinds of affordances are potentially present within a given assignment, but their realisation depends on the students' ability to perceive and act upon them. Based on this, the final Chapter 12 outlines the implications for the pedagogic practice and further research, as well as considering the study limitations and its contribution to knowledge.

Chapter 1: Study overview

1.1. Research aims and the object of study

The study aims to investigate what happens when digital audio-visual assignments are incorporated into theoretical and contextual studies modules, traditionally assessed by essays and reports. Set in a Creative Media Arts programme at a post-1992 English university, it focuses, firstly, on the ways in which the student-produced artefacts convey different kinds of knowledge, and secondly, on the students' own perspective on the assignment and their engagement with it.

For the purpose of this study, digital audio-visual artefacts are defined as time-based, sequential mixed-media images, accompanied by narration. Although the format can vary depending on the course, the artefacts examined in my research can be described as short hybrid videos, editing together a diverse range of material, including the student's own drawings, animations or diagrams, video-captured on-screen interactions, gameplay, textual frames, film extracts or still images from existing media. The module documentation uses an umbrella term 'audio-visual presentation', but the interview participants have invariably referred to these assignments as 'screencasts'.

A screencast is a digitally recorded output of a computer screen, accompanied by audio-narration and typically hosted online, which aims to demonstrate specific procedures through a simultaneous display of text, images and sound (see Sugar et al 2010, Snyder et al 2014). This definition is loosely applicable to the sample of examined artefacts, in that most of their visual content comes from capturing the screen. Although the mode of address is more mixed than in a typical instructional screencast, some of the artefacts contain demonstration of techniques or analysis and at least partly emulate a teaching situation, in particularly where the assignment brief specifies the production of a 'visual learning resource'. To maintain continuity with the participants' narratives, I will use the term 'screencasts' when discussing the artefacts produced within my study context. However, when reviewing the published case

studies, I will follow the authors' terminology, including multimodal artefacts, student-produced videos, podcasts, digital stories or other relevant terms.

It is important to note that the focus of the study is not on specific technologies, nor is its potential relevance limited to media production courses, although some issues are particularly pertinent for media education. The underlying fundamental issues driving such assessment innovations are shared across contemporary Higher Education and potentially relevant to any area of professional education, for example, the relationship between theory and practice, the articulation of different kinds of knowledge, or the interface between academic expectations and the students' diverse aspirations and literacies. As we shall see later in chapter 3, similar assignment formats have been tried on a wide range of courses in a bid to increase student engagement, including health, social work, languages, engineering, science and geography.

Despite the growing trend of experimenting with new assignment formats, there is still a shortage of theoretically informed accounts and detailed empirical analyses. The introduction of digitally mediated multimodal assignments has been accompanied by much enthusiasm and expectation, often claiming significant educational benefits. To what extent these expectations are warranted, remains unclear. We need to carefully analyse available empirical evidence, the outliers and divergent perspectives, which do not often get their way into the literature.

This is precisely where my study aims to contribute to ongoing research and pedagogic practice. It pursues a less-researched avenue and addresses the gaps in existing evidence, by including divergent and ambivalent voices, whilst also throwing light on a range of motivations behind the more enthusiastic responses. Secondly, it aims to contribute to a long-standing theoretical debate about affordances and their socio-material enactment, which has gradually emerged as a key conceptual category in my empirically grounded study. Combining the explanatory power of 'affordance' with the newly-emerging socio-materiality perspective, and with the insights from several strands of motivation literature, has provided a robust and flexible framework for interpreting the participants' responses to these new assignments. Thirdly, whilst

many studies examine mainstream or alternative media productions, there are very few in-depth analyses of student work. There is a need to critically analyse students' multimodal productions and the ways they are shaped by various constraints, not only technological, but also social, institutional and representational. The combined insights from the two 'strands' of the empirical material (student accounts and the artefacts) can be used in future by education practitioners considering such assignments in other contexts.

1.2. Study setting

The Creative Media Arts programme includes several undergraduate and postgraduate degree courses including Photography, Film, Digital Media, Animation, Visual Effects and Game Design. All these are practice-based courses, focusing on the development of the students' creative abilities and practical skills in their chosen area of creative media. Upon graduation, most students aspire to gain employment in the creative industries sector, or to run their own independent production companies. Therefore, most modules on these courses are dedicated to practical production and professional skills.

Appendix 1.1 shows a typical structure for the participating courses at the start of my research. There were several theoretical and contextual modules on each course, although their number and focus differed. Some had more dedicated theoretical modules, others delivered this content within professional practice. Some focused mostly on applied theory directly informing production, whilst others included critical debates about the social impact of media, cultural representation or historical context. Midway through my research the programme was revalidated, strengthening practical provision, and reducing dedicated space for theory. However, as a basic common feature, all these courses still had at least one 20-credit theory module, focusing on the fundamental principles underpinning production, as well as some theoretical or contextual electives.

It is these theory modules that became the immediate setting for my research (see Appendices 1.2a and 1.2b for their module aims, learning outcomes and assessment breakdown). Artefact creation on these modules was a new development, with a rationale and expectations very different from practical production modules, where artefact creation was the main purpose. Module learning outcomes emphasised the theoretical or contextual aspects of disciplinary knowledge, and the ability to communicate in different formats for different audiences (Appendix 1.2). Each module contained two tasks, 'audio-visual presentation' (or sometimes a 'web-based resource') and a more traditional essay or report. During fieldwork, the assignment was still evolving, with new issues and circumstances arising which may not be reflected in this thesis. What remained constant, and is most likely to continue, is the focus on student experience, and the need to respond to the ongoing technological and social changes.

1.3. Research questions, study design, timeframe and contribution to knowledge

Based on the grounded theory methodology, I set off on my research journey with two open-ended initial questions:

- **Initial RQ1 -** What is the nature of the student-produced artefacts?
- **Initial RQ2** - What do undergraduate Media Arts students say about their experience of audio-visual assessment on theory modules?

These questions were later refined, as the study focus developed and clarified in the field. Thus, RQ1 involved examining each screencast's formal qualities and meaning-making resources, as well as inferring the meanings and types of knowledge conveyed. RQ2 in its turn involved gauging the participants' general attitude to the use of student-produced screencasts in teaching and learning on theory modules, asking about their own experiences with such assignments, and their appraisal of how worthwhile the experience was, compared to the more traditional theory assignments. The initial research questions were reformulated as follows:

- **RQ1** - What is the nature of the student-produced artefacts, including their form, meanings and types of knowledge produced?
- **RQ2** - What do undergraduate Media Arts students say about their experience with audio-visual assignments on theory modules and their value compared to the more traditional assignments?

Empirical evidence came from two sources: firstly, a sample of artefacts from several modules within the programme, and secondly, in-depth qualitative interviews with the student-participants who had produced such artefacts for assessment. The study involved a combination of purposive, convenience and snowball sampling. The participants were recruited by sending a standard invitation through the institutional VLE to all students on four courses were the screencasts had been adopted for assessment. Sixteen students in total were interviewed: seven individually and nine in groups of two or three. Four students later participated in a follow-up interview. The invitation also asked for permission to use the screencasts for this project, resulting in the potential pool of eighteen screencasts, subsequently shortlisted to seven. Some were ruled out due to poor audio quality which would hinder transcription, and others due to close similarity to others from the same module cohort. The shortlisting was not based on quality judgments but aimed to ensure a mix of courses, assignment briefs and creative approaches. Finally, some of the screencasts produced by the interviewees were excluded to minimize the potential risks to anonymity. The empirical material was analysed using grounded theory procedures (for more detail see Chapters 6 and 9).

The research project flow and timeframe are presented in Appendix 1.6. The process was not as neat as suggested in the diagram, as my chosen methodology involved the overlapping of different phases, making it difficult to precisely pinpoint specific moments. The research involved back-and-forth movement between interviewing, transcribing, coding, memoing and reading different bodies of literature. There were periods of disruption due to serious medical reasons when I continued work in a more sporadic fashion. Nevertheless, the project flow diagram captures the general sequencing of events and procedures.

1.4. Epistemological stance and researcher positionality

This study is located within the tradition of qualitative enquiry, informed by a moderately constructivist approach and located within the interpretivist research paradigm. Guba and Lincoln (1994) define paradigms as more or less coherent worldviews that determine how the researcher conceptualises the world, one's own place in it, and the possibility of knowledge about. The world-view influences "what falls within and outside the limits of legitimate inquiry" (Guba and Lincoln 1994, pp 107). Although a paradigm can incorporate many different perspectives, there is a set of basic and interconnected ontological, epistemological and methodological assumptions which all these perspectives must share (see App. 1.7, 1.8 and 1.9). These assumptions determine each other "in such a way that the answer given to any one question […] constrains how the others may be answered" (Guba and Lincoln 1994, p 108). They limit the researcher's horizon of possibilities, not only in terms of interpretation, but also in terms of noticing the existence of something and deeming it relevant or worthy of exploration. All these choices are based, "implicitly or explicitly, on a way of seeing the social world, and on a particular form of explanatory logic" (Mason 2002, p 8). This means that my own research interests, the way I went about generating and interpreting empirical materials, and how I wrestled with the quality and legitimacy issues, were from the very outset informed by certain assumptions. It is therefore useful to reflect on my own epistemological stance in the course of this project, and how it fits in between the main paradigms of social research.

On the most basic level, the difference between positivism and constructivism reflects the split between 'realism' and 'relativism'. Realist ontology, characteristic for natural sciences is based on the view of the world which is "made up of objects and structures that have identifiable cause and effect relationships" (King and Horrocks 2012, p 220). Relativist ontology, characteristic for the constructivist paradigm, assumes that human experiences are subject to cultural and social frames of reference, and that social world is "the product of people engaging with one another" (King and Horrocks 2012, p 225). Rather than one fixed and objective reality, there are multiple "time and context bound" socially constructed realities. In terms of epistemological stance, positivism assumes an "objectivist dualist" position, where the 'researcher' and the

'researched' are seen as independent entities, which do not influence each other (Lincoln et al 2012). Researchers' values and subjectivity are seen as a potential threat to validity, whilst good or 'true' research must be replicable (Guba and Lincoln 2005). Constructivism, on the contrary, is characterised by transactional and subjective epistemology. Here, the 'researcher' and the 'researched' are assumed to be connected and mutually influencing, with the research 'data' not so much discovered, as generated in the process of interaction. The results represent "reconstructed understandings of the social world", which are often unique to the research situation and not directly replicable, so the traditional positivist criteria of internal and external validity are replaced by alternative criteria, such as trustworthiness and authenticity (Denzin and Lincoln 2012, p191).

Whilst qualitative research is an umbrella term combining a vast number of diverse approaches and traditions, they all share the interpretivist focus on "how the social world is interpreted, understood, experienced, produced or constituted" (Mason 2002, p 2). This involves rejecting positivist assumptions of objective research and accepting the existence of multiple and competing perspectives, which in their turn, imply partial and ambiguous nature of any knowledge. This is especially relevant to research that focuses on human experience:

> "There is no clear window into the inner life of an individual. Any gaze is always filtered through the lenses of language, gender, social class, race and ethnicity. There are no objective observations, only observations socially situated in the worlds of, and between, the observer and the observed" (Denzin and Lincoln, 2005 p 21).

My project aligns itself with the interpretivist-constructivist position, however this was not necessarily a 'given'. My 'epistemological trajectory' was initially rooted in the positivist paradigm, due to my previous educational background in natural sciences, and later computing. It was a gradual journey through my BSc dissertation (which used mixed methods but privileged quantitative data), through MRes study which exposed me to the richness of qualitative inquiry. My intellectual baggage and former positivist mentality were still prominent in the first year of PhD. Despite committing to

qualitative research, I wanted to secure pre- and post- interviews with the same students at the same points in time, to ensure 'data consistency'. I worried about the uneven length and quality of the interviews due to the participants' different time constraints or willingness to talk, and I was anxious about the inability to generalise from a small and inconsistent sample. I understood that qualitative research was unlikely to be replicable, yet suspected that a different interviewer would have found a way to get better and more accurate 'data'. Although variables and causal explanations were not on my agenda, I caught myself subconsciously looking for them, especially in the early stages.

I suspect that even my initial interest in adopting grounded theory methodology may have been partly informed by the desire to impose some sort of order on the unruly qualitative data and legitimate them with the traceable (if not replicable) procedures. Or it may have been the 'mixed heritage' of the grounded theory methodology, rooted both in objectivist and qualitative approaches, and its continuous wrestling with that heritage, which resonated with me. The new language did not come naturally either - my first methodology draft almost apologized for adopting Denzin's phrase 'empirical materials'. It seemed very apt but at the same time somewhat soft and fanciful, compared to the good old scientific 'data'.

However, as my researcher identity shaped up in the course of the study, and my affinity with constructivist sensibilities outgrew my 'positivist hangover'[1], I accepted that incompleteness of knowledge was inevitable. Sometime in the third year, seeing yet another way in which the same interview extract could be interpreted, I finally understood that even the most consistent sample would not give me any better access to the 'true meaning' of the participants' experiences. As Denzin and Lincoln (2005) point out:

> "Individuals are seldom able to give full explanations of their actions or intentions; all they can offer are accounts, or stories, about what they have done any why. No single method can grasp all subtle variations in ongoing human experience" (Denzin and Lincoln, 2005 p 21).

[1] Thank you, Guy, for this most excellent phrase.

It is useful at this point to consider my position as an 'insider-outsider' researcher. The insider doctrine is based on an assumption that particular groups have a privileged access to knowledge about their own social situation, and that outside researchers cannot have a full understanding of their situation, or if they are ever to acquire that knowledge, this would be "at greater risk and cost" (Merton 1972, p 11). 'Insiders' and 'outsiders' would therefore focus on different issues, according to what is relevant to each group's values and interests, and their different positions in the social structure. Insider researchers tend to find it easier to access naturalistic data and recruit participants, and more able to read between the lines of interview scripts (Trowler 2011). Their findings may offer a deeper insight and more detail due to the participants' greater degree of openness, compared with outside research (Dwyer and Buckle 2009). The actual experiences may differ, but in any case, there will be more common ground than with outsiders, and more possibility of empathy and intuitive understanding. Opposite to this view is the outsider doctrine, which assumes that the insiders are too involved and may be unable to separate their own experience and perspective from those of the participants:

> "Insider research typically is seen as problematic […] because insider researchers have a personal stake and substantive emotional investment in the setting […], insiders are perceived to be prone to charges of being too close, and thereby, not attaining the distance and objectivity deemed to be necessary for valid research" (Brannick and Coghlan 2007, p 60)

The outsider position, on the other hand, makes it easier to maintain objectivity and critical distance. Whilst both views have some value, and bring out issues worth reflecting on, in Merton's view it would be unhelpful to treat them as an epistemological principle. Whilst the insider doctrine could result in credentialism, the outsider doctrine can fail to capture the authentic flow of events. The specific experiences of under-represented groups can be obscured and marginalised in organisational discourses (Trowler 2011, p 123). Merton describes the way in which the objective language and abstract concepts work as a "sociological euphemism" where

> "analytically useful concepts such as social stratification, social exchange, reward system, dysfunction, symbolic interaction, etc., […] serve to exclude from the attention of the social scientist the intense feelings of pain and suffering that are the experience of some people caught up in the social patterns under examination" (Merton 1972, p 38).

Therefore, insider research may be one way of redressing the balance and reintroducing the experiences and perspectives of under-represented groups into the social-scientific discourse. Rather than claiming a monopoly on understanding, Merton argues that both kinds of research can correct each other if the researchers "unite" and become more interested in each other's perspectives.

More importantly, Merton argues that it is inaccurate to view any one person as belonging to only single category or group. Instead of a single insider or outsider status, individuals have what he calls "a status set". This is based on multiple group affiliations, the significance of which varies according to the research context: "differing situations activate different statuses" (Merton 1972, p 24). Subsequent writers have also accepted the relative and situated aspects of researchers' identities, which often are neither fully insider nor outsider, but occupy "the space in between" (Dwyer and Buckle 2009). When researching in their own workplace, the researcher can still be only a partial insider, if the study focus is not on their own experience, but on "aspects of the institution previously unknown to them" (Trowler 2011, 86-89).

My own experience is a good example of the fluidity of the 'insider-outsider' position. Prior to embarking on this PhD project, I studied at the same university, albeit in different Departments. The memories of assessment experiences were still very fresh in my mind at the time of the interviews, enabling me to understand the participants' hopes and anxieties, and to recognise their strategies in response to assessment. However, I could not claim to have a full access to their perspectives. As a foreign mature student my past experiences of studying will have been very different from 19-year old British students representing most of the sample. Although I did produce some e-learning resources as a student on BSc Computing (which sparked off my

interest in this research topic), unlike my interviewees I am not an artist and have neither a dislike for writing, nor a particular affinity with media production. Further, by the time the interviews took place, I had already began working part-time at the same university, first as an SPSS advisor, and later as an Associate Lecturer. I participated as a research assistant in various pedagogic research projects and presented at Learning and Teaching conferences with both members of staff and students. Towards the end of this research I ended up contributing to the same modules that my study focused on[2]. During this transitioning from a student to part-time staff, my perspective on the empirical material also shifted. Because towards the end I was assessing similar artefacts produced on the same modules (albeit by different cohorts), it became increasingly difficult for me to distinguish between the insights from research, and insights from teaching.

In a similar vein, I occupied a fluid 'insider-outsider position' in relation to tutors, gradually becoming less of an outsider as my research developed and the teaching commitments increased. Prior to embarking on the PhD, I had already established connections with some of the tutors and recent graduates (some of whom came back to teach as Associate Lecturers), whether previous BSc and MA dissertation research, or due to working together on various staff-student projects. I could expect to get access to official module documentation and in some cases to the anonymised results of online module surveys. However, the material that would have been open to full-time staff was not accessible for me, in particular various 'back stage' documentation such as staff-student meeting minutes, rationale for module changes, the range of grades for the task in question, or regular class observation, all of which could have been fruitfully examined but had to be ruled out early on in the process.

Whilst it is assumed that the insider position involves a better understanding of implicit meanings, the group known as 'students' is particularly diverse and constantly changing. Not being a full member of student culture (and even less so in Media Arts

[2] It is important to note that by the time I came to teach on these modules, all the study participants have successfully graduated.

area), meant that I did not have access to the informal 'back-chat' among my respondents, nor could vividly imagine how they went about their assignments[3] .
In terms of tutor views, the degree of access varied significantly, some giving me only a very formal and smooth 'institutional' version focusing on benefits, and others providing a detailed account of thinking behind the assignment brief, along with their doubts and frustrations. It became an ethical issue, in that the more open tutors could be perceived as less successful because of openly talking about problems and not glossing them over with 'success stories'. In the end, I decided not to include tutor views, but use the information as simply to increase my understanding of the background.

Throughout the research, I remained alert to my insider-outsider position and to the possibility of inadvertently promoting specific outcomes or prioritising specific perspectives. Closely adhering to grounded theory methodology was very helpful in this respect. It forced me to immerse myself in the empirical material and spend considerable time interrogating and rejecting the emerging codes, instead of prematurely closing the analysis and accepting the first set of meanings that seemed to make sense to me (more on this in 1.5, as well as Chapter 9).

Finally, it is important to consider the quality issues stemming from the interpretivist epistemology and the insider-outsider research position. Uneven access to data, small and inconsistent samples, and subjective interpretation of findings mean that such research is neither replicable nor generalisable. Whilst quantitative research can use reliability and validity as quality indicators. In qualitative research, reliability is impossible to achieve, and it is not seen as a goal, but there are alternative quality indicators which are more productive to implement. However, validity can still be maintained, albeit through different means than in quantitative research.

Validity refers to the extent to which the findings and conclusions "provide an accurate description of what happened" (Jupp 2006, p 311), and it can be applied in three areas:

[3] Some of the interview scripts, especially early on when I was less experienced and confident, are very guarded or inconsistent, and it is difficult to know to what extent I was presented with the 'official version' of the account, rather than the students' actual feelings and perceptions.

explanation, operationalisation and generalisation. In the present study, the validity of explanation was achieved by ensuring that the description of events is as accurate and detailed as possible, seeking out divergent views and examples, and accounting for any deviant cases. Reflecting on my own positionality and a possible impact of interview situation on the data, was another strategy to increase the validity of explanation. The validity of operationalisation refers to the fit between the employed construct or instrument, and what it claims to measure. In qualitative research, this is ensured by analysts constantly returning to their data "over and over again to see if the constructs, categories, explanations, and interpretations make sense" (Patton 1980, p 339). Once again, grounded theory methodology is particularly strong in that respect, as it involves the techniques of iterative bottom-up coding from data to constructs, rather than enforcing the concepts in a top-down fashion. The emerging concepts and categories are critically interrogated at every step, and modified or even discarded, if they do not represent slices of empirical data closely enough (see 1.5, also Chapter 9). The validity of generalisation is problematic for small-scale qualitative studies pertaining to one specific empirical context, and employing "pluralistic, interpretive, open-ended, and contextualized perspectives" (Cresswell and Miller 2000, p.125). Creswell and Miller (2000) suggest alternative procedures for qualitative research, including transferability and authenticity. Authenticity refers to both the typicality of setting and striving to improve understanding of other perspectives as well as existing practice, all of which applies to the present study. Transferability can be addressed by comparing one's findings with other studies in different but similar contexts. In the present study, this was achieved by conducting a scoping review of published evidence about similar assessment initiatives in UK, Europe, US and Australia (see Chapter 3). The review has demonstrated that the similarity of concerns and expectations driving this particular assessment innovation across diverse national contexts and confirmed the potential transferability and comparability of my study.

1.5. Grounded theory methodology

Originally developed by Glaser and Strauss in 1967, in a climate where social scientists were occupied by 'grand theories', and dominated by deductive quantitative research (Charmaz 2014, p5), grounded theory methodology was an attempt to "contest the exclusive claims to scientific legitimacy of deductivism" (Hodkinson 2008, p84). Its origins are rooted in contrasting and somewhat difficult to reconcile epistemological approaches. Glaser came from a strong positivist background, emphasising a logical and systematic approach to research, whilst Strauss worked within the interpretivist and symbolic-interactionist tradition. This inherent duality resulted, over the years, in contrasting interpretations, appropriations and schools of thoughts. In particular, the split between the two originators led to the diverging traditions of 'Glaserian' and 'Straussian' grounded theory. The latter gave rise to constructivist grounded theory (CGT) as represented by Charmaz (2000, 2006 and 2014). However, despite some important differences and disagreements, there are some fundamental principles shared by all these traditions, including the inductive, comparative, emergent and open-ended nature of grounded theory (Charmaz 2014, p2), as well as basic stages and procedures. I will now outline these key shared elements of all grounded theory research, as they also underpin my own study design.

Grounded theory research focuses on how "individuals interact with the phenomena under study" (Urquhart 2013, p5) but aims to generate substantive theory at a more conceptual level than phenomenological research. The theory is grounded in empirical data and develops in the 'bottom-up' fashion. The theoretical explanations are based on relationships between concepts, which in their turn emerge from the empirical material (Hodkinson 2008, p83). This is different from a traditional theory-based approach, where the research starts from adopting a conceptual framework from previously existing 'grand theories', and then applies it to empirical world.

Because grounded theory research aims to "avoid seeing the world through the lens of extant ideas" (Charmaz 2014, p7), the literature review is typically delayed until at least some of the data are collected and analysed. The literature is then selected on the basis of what the researcher sees in the data. Suitable bodies of literature are

reviewed on an ongoing basis, in order to identify adequate theoretical explanations for the processes and phenomena already established from the preliminary analysis of the empirical material. This does not mean neglecting existing knowledge, but that all the stages (reading, collecting data, analysing, theorising) proceed iteratively and often in parallel. Contrary to the common misconception that grounded theory ignores literature, Glaser (1978) insisted that in order to "render theoretically their discovered substantive, grounded categories", researchers should develop "theoretical sensitivity", which comes from "being steeped in the literature that deals with […] their associated general ideas that will be used" (Glaser 1978, pp 1-3). Urquhart (2013) also reminds us that researchers "should have an open mind, as opposed to an empty head" (Dey, cited in Urquhart 2013, p11).

Further, analysis is not a separate stage but begins immediately after collecting the first 'slices of data', and then proceeds simultaneously with further data collection. Constant comparison is utilised to develop the emerging concepts, which informs the collection of further material. Concepts are identified in the ongoing systematic process, starting from initial open coding closely based on the participants' own words, then developing increasingly focused and abstract codes in the selective and theoretical coding stages. At this point, different 'schools' use different terminology and somewhat different procedures, but the main principle remains the same (Urquhart 2013). The emerging codes are constantly interrogated and compared across the range of empirical material, iteratively re-coding the previous extracts of empirical material, according to the newly emerging insights and categories. Data generation and analysis therefore represent a simultaneous and iterative process, starting broadly and narrowing down as the researcher refines the focus of the study (Hodkinson 2008, pp 84-85).

Both classic grounded theory and CGT agree that the researcher is not a neutral observer of objective reality, but whilst the Glaserian tradition strives to maximise objectivity (even if it is not completely attainable), CGT views reality as a social construction, with a blurred boundary between the observer and the observed. Consequently, the approaches to researcher bias are also somewhat different. CGT, whilst arguing that researchers need to be aware of their own values and how they

shape the research (Charmaz 2014, p13), at the same time accepts that the research is a co-constructed story which "reflects the viewer as well as the viewed" (Charmaz 2000, p 522). Classic GT is also alert to researcher bias, but treats it as another variable to bear in mind: "If the researcher is exerting bias, then this is a part of the research, in which bias is a vital variable to weave into the constant comparative analysis" (Glaser 2002, np). Glaser's earlier work reveals a less objectivist stance than is often assumed, for example when commenting on the use of extant literature, he reminds us that "what the author presents as [their] knowledge, is, for the grounded theorists, data in a perspective" (Glaser 1978, p 33). However, as the research proceeds from specific empirical cases to the increasingly abstract and theoretical concepts, "personal input by a researcher soon drops out as eccentric, and the data become objectivist not constructionist" (Glaser 2002, np). This is the most difficult disagreement to reconcile between the two strands, but there is still a commonality in that both classic GT and CGT consider the researcher's impact, even though to different extent and conclusion.

Some commentators argue that mixed intellectual and epistemological heritage adds to the strength and appeal of the GT methodology. For Hennink et al (2011), for example, it "provides a rigorous and 'scientific' approach" but at the same time "remains faithful to the interpretive nature of qualitative analysis" and "embraces the creative elements of emergent discovery" (Hennink et al 2011, p 207). Other critics object to what they perceive to be an attempt to 'legitimize' qualitative approaches by applying the inherently positivist coding procedures. StPierre and Jackson (2014), although not specifically focusing on grounded theory, provide a strong argument about the tensions between coding and qualitative research. This is a pervasive problem for anyone wishing to retain both the strengths of empiricism and constructivism, without going into extreme positions. Whilst critiquing the excessive objectivism of classic GT, Charmaz argues against abandoning "the traditional positivist quest for empirical detail". Rather, this quest needs to be advanced and built upon, but "without the cloak of neutrality and passivity enshrouding mid-century positivism" (Charmaz 2005, p 511).

So how is my own approach located in relation to the different traditions of grounded theory research? Like Urquhart's (2013), I acknowledge that grounded theory is still an evolving methodology and that in future the two strands may be productively converged. I follow Charmaz's (2005) call to build on the pragmatist strengths and useful guidelines from the classic GT, whilst remaining aware of its implicit objectivist assumptions. As demonstrated later in Chapters 6 and 9, I have been vigilant and reflexive throughout the process, questioning and adapting the procedures to ensure that the qualitative spirit of the study is maintained, and making explicit any tensions or imperfections within the analysis.

In terms of specific tools and procedures, I do not see Strauss and Corbin's approach as incompatible with Glaser, but rather as representing a more restricted application. In designing my own study, I found it productive to draw on all main traditions. For example, I used worked examples from Charmaz (2006 and 2014) to ease my way into coding, but also periodically revisited her ideas to remain anchored in the constructivist perspective. I used some of the conceptual tools described in Corbin and Strauss (2008), adapting them to fit my own study context and purposes. Throughout the research, I periodically went back to Glaser and Strauss (1967/2012) to deepen my understanding of the methodology. When I felt too stuck in the empirical material, I revisited Glaser (1978) to help me move the analysis to a more conceptual level.

When discussing the 'phasing' of research and reading, Glaser (1978) explains that the inductive nature of the methodology requires postponing of the literature review until later in the research. This avoids the risk of "credulizing" and "pre-empting" the direction of the emerging theory by trying to fit the data into pre-conceived concepts, as "it is hard enough to generate one's own ideas without the 'rich' derailment provided by the literature in the same field" (Glaser 1978, p31). However, broader reading in other substantive fields is not "forsaken" and can be undertaken as soon as the first slices of data have been generated and thought about. Reading outside own substantive area allows the researcher to "read for ideas" and compare them with own understanding of the empirical material at hand.

In my case this proved a very productive technique. Initially, I anticipated that most of my reading will be from the fields of education technology and multimodality research, partly due to the object of study, and partly because I was already familiar with at least some of the main directions, problematics, concepts and authors. However, since opting for GTM, I left this literature aside and engaged in broad non-committal reading around other fields, from organizational studies and psychology to media and communication. To give just two examples, the organisational studies opened my eyes to alternative conceptualisations of affordances, which significantly differed from those employed in educational technology literature. Secondly, game studies and healthcare research alerted me to the concepts of 'enactment' and 'embodiment' as aspects of agency. On such occasions, it was not the case of borrowing wholesale a conceptual framework, but trying to look at a given interview transcript through numerous lenses. Much later, when drafting a conceptual map of the emerging theory, these separate strands of literature offered apt concepts to describe and interpret some of the phenomena that I saw in the already coded transcripts. Glaser (1978) calls this "reading for how to think sociologically", and he considers it crucial for developing theoretical sensitivity: "the more ideas, and the more they connect, tend to make the analyst sensitive to what he may discover in the data" (p 32).

So, in line with the principles of grounded theory, my use of extant literature was iterative, diverse and ongoing. Broad reading in the early stages of the research, mostly included grounded theory studies from multiple fields on diverse topics, aiming to familiarise myself with as many grounded theory applications as possible. A review of published pedagogic case studies of audio-visual assignments took place around the midpoint (see Chapter 3), aiming to understand the drivers and concerns behind assessment experimentations, and the potential value and transferability of my study. It allowed me to identify conceptual and empirical gaps that my own research could help to address, but also compare the authors' findings and claims with my own interview material. At this stage I was already working through interviews, having created multiple transcripts, memos, diagrams and conceptual relationship models, grounded in the empirical material.

As my analysis became more theoretical, I moved on to the 'integrative phase' of reading[4]. This meant reading more selectively and focusing in greater depth on the literature that directly related to the emerging theory and helped to explain what I saw in the empirical material. Unfortunately, the linear thesis structure cannot adequately represent this iterative process. Breaking down the literature review into several chapters in different parts of the thesis is a compromise between reflecting the process and maintaining readability, but this structure still puts literature before the analysis. So, where appropriate, the literature review chapters make some references to the findings, pre-empting the subsequent chapters (in particular, the interview part), but this was necessary to preserve the sense of relevance, and to remind the reader that the choice of theoretical concepts was based on the preceding coding and analysis, and not the other way around.

Using Grounded Theory Methods (GTM), both from its classic and constructivist incarnations, offered a whole set of advantages to my project. It is a well-established method, with clear coding procedures, but at the same time very adaptable. It is especially useful for studying processes and innovations, where the phenomena are relatively new, and there is not much existing theory available. Urquhart argues that "GTM encourages us to think more broadly, because we are following the paths of the concepts we are building, as opposed to well-worn paths" (2013, p181). At the same time, I was aware of the dangers of being buried in huge amounts of rich qualitative data, and potentially losing track, due to pursuing too many interesting avenues, or remaining too descriptive. What attracted me to the GT methodology, was that it combined richness and closeness to data with abstraction and systematic analysis of relationships between concepts, producing a "theory grounded in everyday contexts" (Urquhart 2013, p178). An iterative approach to data analysis, allowed my project to develop and change as new themes arrived, remaining flexible and open-minded to what emerges. How these procedures were utilised in the actual analysis, will be explained later in Chapters 6 and 9.

[4] The integrative phase creates connections between the emerging and the extant theories, in order "to render the new theory in the context of existing knowledge and, thus, make the theory more valuable" (Urquhart 2013:30).

1.6. Ethical statement

Israel and Hay (2006) state that social research attempts to make the world a better place, and this is echoed by Kvale and Brinkmann's (2009) notion of research as a 'moral enterprise'. The fundamental principle of research ethics is to avoid doing harm to individual and communities. This is ensured both by following the institutional and professional norms and procedures, and by developing researcher's own alertness to potential ethical issues. The present study has followed the university ethical approval procedures (see Appendix 1.5), as well as consulting the guidelines by British Educational Research Association (BERA 2011 and 2018). BERA guidelines focus on several areas, including responsibility to participants, academic research community and stakeholders.

Responsibility to the community of educational researchers and other stakeholders refers to the obligation to "protect the integrity and reputation of educational research by ensuring they conduct their research to the highest standards" (BERA 2018, p 29). This overlaps with some of the points about quality criteria, made in the previous section. The project must be meaningful, with genuine possibility of contributing to "improvement in practice and enhancement of knowledge" (BERA 2018, p 29). The scoping review of published pedagogic evidence on the use of similar assessment innovations (see Chapter 3) confirms that my study is both transferable and meaningful, as it addresses some important gaps in existing knowledge. Secondly, throughout the research I remained alert to the dangers of selective reporting and strived to ensure that the participants' perspectives are reported as fully and accurately as possible. The reporting of the interviews and the subsequent theoretical analysis includes the full range of opinions, including outliers and dissenting voices.

Thirdly, I ensured that the thesis "accords due respect to all methodologies" (BERA 2011, p 10), and does not "criticise other researchers in a defamatory or unprofessional manner" (BERA 2018, p 29). This was particularly important in the reporting of the scoping review, where some articles contained significant methodological limitations or made unsubstantiated claims (see Chapter 3.4). Whilst it was important to critically assess the quality of empirical evidence, I aimed to do this in

a respectful manner, considering the possible impact of the publishers' requirements and the provisional and iterative nature of much pedagogic research. In one case of a particularly unfortunate claim, I omitted a direct reference to the author to avoid finger-pointing and potential embarrassment, although it was still important to reproduce the claim itself to highlight more clearly the general level of quality in available published evidence.

In addition to appropriate and sensitive reporting of the scoping review, I was also aware of the ethical responsibilities to the tutors whose modules were discussed in the interviews. I understood from the outset that tutor anonymity is more difficult maintain, because their modules are recognisable through the level of study, subject matter and supplied module documentation. The potential negative consequences that I needed to avoid, especially where students made critical comments, was accidentally misrepresenting the teaching practice, or making the tutors feel scrutinised. These consequences were minimised by ensuring that the project always focused on the assignment itself and not on the teaching practices. On occasions were the interview participants made personal remarks about specific tutors, the conversation was guided back to other aspects of the assignment, and the personal references omitted from the transcript. Where it was impossible to avoid mentioning the tutors, the references were minimal and as non-judgemental as possible. I had informal conversations with relevant tutors early in the process to understand the rationale for the assignment brief and sought further clarification on some of the anecdotes or critical comments. In such cases, the sources were not disclosed, and the critical comments not reported but paraphrased into an information-seeking format. Where gaining a tutor's comment was not possible, footnotes were added within the thesis, alerting the reader to the insufficient clarity and lack of verification. Due to medical reasons, the study unexpectedly took more years to complete than intended, so critical comments about specific modules became less of an issue towards the end of the process, due to staff turn-around and programme revalidations. Similarly, as mentioned in 1.4, I decided to not directly report tutors' views on the assignment, due to the different levels of critical self-reflection exhibited by different tutors. I was concerned that those who openly talked about the problems, could be perceived in a less favourable light than those who presented a 'success story'. Whilst the tutors'

perspective could have served as an important triangulation device, throwing additional light on the participants' responses, its reporting was not essential to the main research questions, and it was more important to avoid potential harm.

Finally, research must be "amenable to reasonable external scrutiny", subject to confidentiality and anonymity provisions (BERA 2018, p 31). Accordingly, the thesis extensively reports on all the data collection and analysis procedures, with Appendices containing a detailed description of processes, instruments, memos and multiple data excerpts. An audit trail has been kept throughout the process to ensure that my interpretations and conclusions can be transparently and explicitly related to the gathered empirical material.

Responsibility to participants. The principle of informed consent has been described as the "linchpin" of ethical behaviour (Bulmer 2008, p 150). This involves ensuring that the participants are free to choose whether they want to participate or not, based on a full disclosure of the nature of the study, any risks involved, how the data are going to be used and presented, and how confidentiality will be ensured. In my study informed consent was achieved by providing an invitation and information letter that clearly outlined what the research is about and how it will be conducted (see Appendix 9.3). The voluntary nature of the project was stressed in the invitation and reiterated at the beginning of each interview, along with the signing of the consent form. Both the invitation letter and the consent form included the participants' right to withdraw from the project, up until two months before the thesis submission date. The consent form also informed the participants about their right to decline any questions, or end the interview at any time, should they feel uncomfortable. The participants were made aware of being audio-recorded, and that the audio would never be disclosed or distributed.

The second important principle is safeguarding the confidentiality of data. Not only is the storage of data a concern, but how it is disseminated. In this study, the names of the participants, tutors, modules or places are anonymised, and interviewees referred to under aliases. The real names have not been stored in any way connected to the project, and the interview recordings have been encrypted on a separate hard disk

protected with a strong password. However, I am also aware that each participant has their own idiosyncratic way to express themselves, making them potentially recognisable through quotes and descriptions (in particular, foreign and mature students). I have tried to address this by 'cleaning' the interviews, but it was also important to maintain the 'flavour' of the student's self-expression, and to avoid accidentally misrepresenting what has been said. Although the names were removed from the screencast sample, the artefacts are potentially recognisable by the rest of the cohort, who would have seen each other's work in progress during class critique sessions. Some of these screencasts may have been used by the tutors as examples for sub-sequent cohorts, and some students may have made their screencast public on video sharing sites. These factors are beyond my control, but generally I tried to minimise the risks as much as possible for a single PhD researcher.

A separate but related issue is respect for privacy (Bulmer 2008). Even with the confidentiality provisions, there are many aspects of behaviour which the participants might like to keep private. This can include not only their personal situation, but also their views on teaching, peer relations or aspects of their own work. The privacy needs vary from individual to individual, what one participant might be happy to disclose, another might not. Therefore, each participant should feel free to disclose or conceal what information they like, and the researcher should respect their boundaries, even if this means not getting all the desired data. There were two instances where the participant was reluctant to elaborate on what seemed to have been a painful assessment experience. Whilst this kind of data would have been extremely valuable for my research, I restrained from probing further. Privacy also governs the amount of control a volunteer have over the information about themselves (Bulmer 2008, p 152). All participants were given my contact details, and invited to contact me at any time, should they wish to revisit the interview transcript, or to see how they were represented in the thesis.

Ethical research also involves the responsibility for consequences, both in terms of the expected benefits and avoiding possible harm to the participants and researcher (Kvale 2007b). All the interviews were conducted on campus during daytime, either in classrooms or in the cafeteria. The classrooms booked for the interview purposes had glass walls and were clearly observable from the outside. The door was left open where possible, and the seating arranged in the way that always left the exit free and accessible to avoid psychological discomfort.

PART II: CONTEXTUALISING THE STUDY

Part II aims to contextualise the present study in policy, pedagogic and theoretical literature. It begins with Chapter 2 which considers the global changes in HE since the 1990s, as the important macro-context for pedagogic and assessment innovation. Since the turn of 21st century, the global context of the "age of supercomplexity" (Barnett 2000a and 2000b) has brought about new pressures and expectations on HE, as well as the overall direction, frameworks, drivers and opportunities for pedagogic experimentation.

Having outlined the global changes within HE macro-context, the discussion moves on to the pedagogic responses to these changes. Chapter 3 reviews pedagogic and research literature about the use of digital audio-visual assignments in European, American and Australian post-secondary institutions. It demonstrates that the introduction of digitally mediated multimodal assessment into HE is an authentic object of study. The innovations often respond to specific disciplinary and professional challenges, but there are also some shared drivers, concerns and expectations which are common across the national and institutional contexts. The rising expectations from employers and governments, the increasing emphasis on student engagement, the concerns about learner diversity and the desire for equitable assessment that accommodates multiple literacies come through very strongly, echoing the rationale behind the introduction of screencasts in my own research context.

Finally, Chapter 4 presents a theoretical context for my emergent grounded theory, by reviewing the literature on affordances. It looks at different uses and misuses of the term, from Gibson's original definition to the divergent uses in the fields of design and technology, and more recent application to social and cultural phenomena. This provides an important lens for the analysis of empirical material and prepares the ground for the exposition of the substantive grounded theory in Chapter 11.

Chapter 2: Macro-context: changes in HE environment

2.1. Contemporary university: critiques and opportunities

The literature on the changing HE environment includes a range of perspectives, from "doom, gloom and peril" to the more hopeful calls to reinvent its mission. However, there is a consensus across the board that societal and technological changes have put a huge pressure on the sector. These changes include globalisation, development of digital technologies, the gradual demise of the post-war welfare state, widening participation, the rise of competition from alternative and grass-roots sites of knowledge and more recently from commercial training providers and edu-business. Further, throughout the past decade the sector underwent an increasing marketisation, the reduction of funding, the increased public scrutiny, the move towards managerialism and the "competition state" (Ball 2014, p 93). Arguably the most dramatic recent change in the UK context was the introduction of student fees, leading to the growing expectation of value for money and return on investment (Facer 2011). Together with the new relationship between education and the local and national economy, increased costs, competition and public scrutiny, this had an impact on the education providers' policies and strategic corporate plans (Pegg et al 2012).

However, Ball (2013) explains that all these changes and tendencies can be traced back to the period of 1976-1997, which he described as the time of neoliberal state, brought about by the shift from Fordist to post-Fordist economy across the developed world. This was accompanied by a whole set of social and cultural changes which had a profound impact on the national education systems across the developed world, the results of which we are arguably witnessing today. Post-Fordism included, for example, the rise of ICT, service and white-collar occupations, decentralised forms of work organisation, the concentration of economic power in the hands of transnational corporations, greater societal fragmentation and "the maximization of individual choices through personal consumption" (Hall 1988, p 24).

Neoliberalism is more difficult to define concisely, as it is neither "a concrete economic doctrine, nor a definite set of political projects", but a "complex, often incoherent, unstable and even contradictory set" of practices and values, combining deregulation of public services and free-market discourse with the increased bureaucratic control (Shamir, cited in Ball 2014, p. 5-6). Initially neoliberalism was associated with the 1980s policies of Margaret Thatcher and Ronald Reagan, but since then it spread across the world to become "the defining political economic paradigm of our time" (McChesney 2011, p. 18). In his bibliographic review of different interpretations of the term, Davies (2014) summarises neoliberal policy as an intent to bring into the market various public services and activities (including education) which until then were located outside the market. This is accomplished in different ways, ranging from direct privatisation, to restructuring the institutions in a 'market-like' fashion, or even simply disbanding them (Davies, 2014). The deregulation and privatisation of public services throughout the 1980s-1990s included a gradual but "definitive retreat of the state as a provider of education" (Kumar and Hill 2009, p 1). The defenders of this doctrine focus on encouraging freedom, choice and entrepreneurship and argue that the state bureaucracy and 'red tape' is an obstacle to growth and enterprise. However, the critics see it as a mobilising 'class project' which aims to increase the wealth of ruling elites, to cut public expenditure and to open up the public sector for investment and profit. Unlike the old Victorian 'laissez-faire' liberalism, the neoliberal state does not leave the process to market forces, but has an active role in regulating it, to ensure that the institutional rules and individual behaviours are in accordance with the "ethical and political vision [which] is dominated by an idea of competitive activity […] and inequality, [which] are valued positively under neoliberalism" (Davies, 2014, np).

Robertson (2007) argues that there is a dimension of social reproduction, as national education systems are reoriented to the production of workforce for the economy. Kumar and Hill (2009) add to this the new business agenda in the sector, orienting HE institutions towards profit-making activities (p 2). In this view, neo-liberal ideology transforms students' expectations, by promoting a "market-led" concept of an educated person, and limits the purpose of education to "developing the neo-liberal citizen: one is educated to be a self-sufficient, rational and competitive, economic

actor, a cosmopolitan worker built around a calculating, entrepreneurial and detached self" (Lynch 2014, p 6).

This echoes some of the ideas from Lyotard's (1979/1984) influential text *The Postmodern Condition*, where he considered the profound effects of the post-industrial context on the status of knowledge, and the ways in which global economic and technological transformations were altering the way by which "learning is acquired, classified, made available, and exploited" (p 4). One of the future changes he envisaged was the increasing "merchantilisation" of knowledge, replacing the previous, more holistic views of knowledge being part and parcel of the transformation of the "knower":

> "[Knowledge] can fit into the new channels, and become operational, only if learning is translated into quantities of information […] Knowledge is and will be produced in order to be sold, it is and will be consumed in order to be valorised in a new production: in both cases, the goal is exchange. Knowledge ceases to be an end in itself, it loses its use-value" (Lyotard 1979/1984, pp 4-5).

Knowledge, then, becomes "an informational commodity" and the "major stake in the worldwide competition for power", with nation-states battling for control of information, but ultimately losing to the global transnational corporations and technology business (Lyotard 1979/1984, p5). Education must continue throughout adult life to improve one's "occupational horizons", with skills and knowledge increasingly provided 'a la carte' to fit in with the changing economy needs (Lyotard 1984:49). Ball (2013) puts these developments into the context of 'knowledge economy', which subordinates educational purposes to economic imperatives, and privileges instrumental approaches to learning. Educational services and intellectual property become conceptualised as "productive assets" which can be "exported for a high-value return", and creativity and innovation become the means of resolving a "constant stream of competitive problems" (Ball 2013, p23). In Lyotard's terms, this is the working of the new managerial principle of performativity, where all areas of social activity are subject to verification and evaluation on the basis of input/output efficiency (Lyotard 1984:xxiv). In this context, he argued, the idea of the university

changes from emancipatory and civic to a more pragmatic one, as a provider of skills for the optimal functioning of the system. In the three decades since Lyotard's book, many predictions have materialised in one form or another. For example, since the early 2000s, Ball and other writers have been commenting on the increasing marketization and private sector involvement in the public sector, "much of which goes un-noticed in the quiet commodification of education in the UK and across the globe" (Ball 2004, p 4).

The impact of computerisation and corporatisation was analysed by another influential theorist, Bauman, who coined the phrase 'liquid modernity' to capture the fluid, unstable and uncertain ways of being which came to replace the previously stable social relations. In the conditions of liquid modernity, he explained, social roles and frames of reference dissolve faster than new ones can be created, so in order to adapt and thrive in such situations individuals have to become flexible and able to switch the familiar frames and action strategies. Not only have the previous 'grand narratives' lost their legitimacy, but our own lives need to be constantly reinvented, as we respond to the ever-changing "distributions of odds", manoeuvring "from one project to another, to the projects-yet-to-come, undetermined by the projects already passed through" (Bauman 2005, p 313). In these shifting and unpredictable circumstances, "past successes do not necessarily increase the probability of future victories, let alone guarantee them", and the previously useful strategies may turn counter-productive, so it is more important to be able to forget the outdated knowledge and "the sediment of previous learning" (Bauman 2005, p304). Gee (2000) argued that "manipulation of symbols of identity" is part and parcel of "socio-technical designing", the "most important knowledge in new capitalism" (p 17). This involves designing products, services, social practices, new workplaces and even our own identities and values, to fit in with the market logic.

> "Individuals are not defined by fixed essential qualities, such as intelligence, culture, or skill; rather, they are (and must come to see themselves as) an ever-changing portfolio of re-arrangable skills […] If the old capitalism had a deep investment in creating standardized, stable identities the new capitalism has a deep investment in creating what we might call 'shape-shifting portfolio

> people', [who] live to fill up their portfolios with attributes, achievements, and skills that they can flexibly rearrange as things change and new contexts demand that they redefine themselves" (Gee 2000, p 17).

Further, the demands of 'liquid modernity' or 'new capitalism' are less and less compatible with academic education based on a disciplinary logic and slowly developing canons of knowledge. New workplaces become a distributed network of 'interacting units' with the 'flattened' hierarchy and rhetoric of 'partnership', and project-based teams where members supervise each other, as well as controlling their own conduct (Gee 2000). As governments are "eager to catch up with the volatile and capricious shifts in business needs", and students become increasingly conscious of the unpredictable labour markets, educational establishments find themselves increasingly 'de-institutionalised' and put under scrutiny (Bauman, 2005, p316).

A contrasting view is presented by a different strand of literature, which acknowledges the challenging climate but views this as an opportunity to 'reimagine' the university. The new conditions are conceptualised by these writers in less political terms, such as 'the age of uncertainty' or 'supercomplexity' (for example, Kress 2000, Barnett 2005, Anderson and McCune 2013). The key point in Barnett (2014) is that HE is in crisis because the current conditions severely contradict "the ideals that have been successively invested in the Western university" (p 25). Barnett argues that the competing discourses and agendas about what the university should be, all have some value, but none can legitimate HE on its own. The way forward to him is to embrace this as the feature of the 'supercomplex' world "where our fundamental frameworks of knowing, being, and acting are challenged" (Barnett 2014:31). In fact, he argues, universities should not simply learn to live with supercomplexity, but their very job is to produce it, through questioning established canons and paradigms, and through multiplying the diversity of possible lenses and perspectives. Continuing to produce supercomplexity, and to be at ease with it, involves re-connecting with the 'world out there': "technical reason, performativity, public projection and managerialism have to live with emancipation, citizenship, democracy and self-identity" (Barnett 2014, p 33).

In his earlier work, Barnett (2005) called for an 'ontological turn' in HE and that "instead of knowing the world, being-in-the-world has to take primary place in the conceptualizations that inform university teaching" (p 795). Similarly, Dall'Alba and Barnacle (2007) argued that knowledge is not merely intellectual nor purely epistemological, but it has an ontological dimension, as it comes at least partly from being "immersed in activities, projects and practices with things and others" (p 681). This means that 'knowing' and 'being' cannot be divorced, as knowledge is "inhabited and enacted" as a way of being within a personal context. This reconceptualises learning as something "created, embodied and enacted", focusing on who the students are, and "who they are becoming" (p 683). To pursue this ontological turn, HE programmes need to re-orient towards assisting students in developing the kind of competence where knowing, acting and being are integrated "within a broad range of practices" (Dall'Alba and Barnacle 2007, p683).

Despite the divergent views and conceptualisations, the consensus seems to be that the sector is changing and there can no longer be business as usual. There Is an emphasis on greater engagement with the 'world out there', and increased expectations of digital literacy and employability development. At the start of my research, the university's corporate strategy included enhancing "student employability for a wide range of professions", and "developing learners to be confident communicators, capable of effectively using digital tools and resources" (Corporate Plan 2012). This was in line with the HE sector and reflected the shifts in policy discourse, as explained in next section.

2.2. Employability, innovation and the creative economy

The global changes outlined in the previous section were accompanied by a series of shifts within policy discourse from "post-industrial economy to the information economy to the digital economy to the knowledge economy to the creative economy" (Peters et al 2010: xx). In its turn the notion of "creative economy" has been used to express a range of meanings, from "open source public space and democratized creativity" to "creative institutions embodying new patterns of work" (Peters et al 2010: xx). For example, grass root peer-to-peer collaboration networks gave rise to "prosumer innovation", such as open source software, game modding, music video mashups and many other forms of content production and sharing (Araya 2010: 14). Against this context, creativity and innovation came to be seen as "economic engines", and this vision permeated the educational policy discourse from the 1990's onwards.

In 1997, the *National Committee Inquiry into Higher Education* (the Dearing Report) referred to both the "life-enhancing" purposes of education, and the importance of lifelong learning for the nation's economic competitiveness (NCIHE 1997: section 1.1). The report created the vision of "a steady stream" of graduates with "high level technical skills and creativity" who would be able to "meet the premium put on innovation" by global corporations (NCIHE 1997: Sections 4.15). Several years later, the DfES paper *The Future of Higher Education* (2003) re-emphasised continuous professional development, but rejected vocationalism at the degree level, and similar to Dearing, combined skill development with creativity, personal fulfilment and contribution to wider society (section 1.45). In 2010 skills are still conceptualised in broader sense, as enabling "people to play a fuller part in society, making it more cohesive, more environmentally friendly, more tolerant and more engaged" (BiS 2010, p 5), however this approach is seen less and less in later policy documents, increasingly focused on delivering the industry needed skills.

At the same time, employers started setting up own educational programs, to the point of creating own "corporate universities" with faculties and programmes of courses and training (Facer 2011, p 26), whilst universities began accrediting educational placement programs for companies such as McDonald's and Network Rail.

Industry started to see schools and universities as 'pools' of resources for "the creation of economically useful knowledge and intellectual property" (Facer 2011, p26). This coincided with a new 'flavour' within HE policy, exemplified by the then new Department for Business, Innovation and Skills (BIS), various accreditation bodies and the Skill Councils[5]. In a succession of policy documents since 2009, BiS made a strong emphasis on employability skills development in HE, as well as encouraging direct engagement with the industry. Industry bodies also emphasised a 'skills gap' which must be addressed, and in a very direct fashion put the blame for this on the educational system, which they claimed was "severely misaligned" with the industry requirements: "We must put an end to the current situation where young people invest their time and money on university courses that fail to provide them with the skills they need to find a job in the industry" (Livingstone and Hope 2011, p 46).

To respond to these developments, most universities have included employability skills development into their core business. But despite the considerable efforts and investment into employability development provision, "employers continue to report that graduates are not ready for the world of work" (Tymon 2013, p 841). This concerns not only the specific technical skills mentioned by NESTA (Livingstone and Hope 2011), but also the so-called 'soft skills', such as communication, teamwork, creativity and problem-solving. Moore and Morton (2015) cited multiple surveys which reported that level of soft skills in the graduates was consistently below the industry's expectations:

> "This situation, it is argued, not only holds graduates back from gaining satisfactory employment, but also has an inhibiting effect on the performance of employing organisations, and ultimately the broader economy. The response to such findings are calls for even greater renovations of higher education curricula, especially to ensure greater levels of 'job readiness' among graduates" (Moore and Morton, 2015, p 2).

[5] Employer led organisations overseeing specific sectors, to improve productivity and the workforce and assess skill shortages

Whilst emphasising the “need for urgency” in ensuring that HE graduates are able to apply “knowledge, skills and creativity in new business environments”, and therefore “contribute to future economic growth”, the Higher Education Academy report on employability also recognised that the government-set agenda may not be shared universally or coincide with what the students themselves want from education (Pegg et al 2012, pp 6 and 10).

Going back to Dearing report, the preparation of “work-ready graduates” was only one of its aims, but the main focus was on the developing of robust institutional IT infrastructures to “improve the quality, flexibility and effectiveness of Higher Education” and meet the challenges of the next 20 years (section 13.1). The development of new information and communication technologies was identified as a major pressure for change in HE, both a threat and an opportunity at the same time. The threat of competition was seen as coming from the overseas software houses, but also

> "from employers and training providers, in partnerships with major institutions of higher education possibly linked to the entertainment and communications industries, and from prestigious institutions overseas making extensive use of distance learning through modern technology" (NCIHE 1997, section 1.20).

The new labour market conditions were related to the spread of ICT, which changed the ways and skills necessary for workplace, with new demands for which graduates are expected to be prepared, including flexibility, adaptability, faster decision making and higher level information handling (sections 4.44-4.45). However, the report considered social benefits too, such as widening participation. It was expected that investing into technology will help us overcome “physical and temporal obstacles and enable the institutions to improve access for disabled students, and those “from remote areas, or with work or family commitments” (section 13.4).

Whilst Dearing focused very specifically on improved efficiency and competitiveness, other writers and policymakers enthusiastically expected pedagogic benefits, more creative and personalised learning experiences and dramatic changes in learner

behaviours. Selwyn (2011) discerns a cyclic pattern when introducing new technology into teaching, drawing from introduction of radio, films and computers. The introduction tends to be 'top-down', in response to outside pressures, "not least the acknowledgement that the technology was available for use and that its application would bring education in line with the rest of society", as a "solution in search of a problem" (p 57). He argues that any such technologies were introduced with exaggerated claims, hyperbole and even salesmanship, promising fairer, more democratic and 'better' education. However, in spite of these enthusiastic initial promises, the uptake among educators was sporadic and idiosyncratic, which was then followed by grounds for this lack of uptake, pointing to bureaucracy, lack of funding and teacher resistance. Then as "memories of initial enthusiasms for the technology begin to fade" new technologies were introduced and the cycle starts over (Selwyn 2011, p 58). Buckingham (2013) also argued that "the imagination of policy-makers" in relation to digital technology in education does not reflect the realities of teaching and learning. The new technologies tend to be promoted as a way to "bridge the gap between home and school", "accommodate different learning styles" and "empower the learners" but there is often an underlying political or business agenda (Buckingham 2013, p. 28). He noted that the stance on technology-enhanced learning is often over-celebratory and romanticised, in particular criticising Gee's promotion of game-based learning, and Tapscott's (1998) and Prensky's (2001) notion of generational differences produced by digital technology.

2.3. Student engagement

In recent years, student engagement became increasingly high on HE agenda, and the universities included it in their policy and encouraged LTA innovation and research in that area. It has become "a primary focus" of HE, especially in the UK, as it moved "forward into the uncertain world of high student fees and a Higher Education market", encompassing a number of other priorities, such as better experience and value, as well as "retention, widening participation and improving student learning generally" (Bryson 2014, p.xix). With the growing uncertainty in the HE sector, there appeared competing discourses of students as 'consumers', 'partners', 'stakeholders', 'co-creators of knowledge' or members of an academic community. Gough et al (2013) note that these competing conceptualisations permeated the 2011 QAA Annual Conference, coming to terms with the recent Browne Review (2010):

> "The emergent debate overwhelmingly sought to define the student body in polar terms: either as an active cohort who were immediately involved in the development of their community, or that of a consumer group who were making value-for-money demands of their education and the institutions providing it" (Gough et al 2013, p 167).

Existing literature on student engagement (SE) spans across diverse geographical, theoretical and research positions, resulting in disparate interpretations (Bryson 2014), as well as the criticisms that it has turned into an uncritical 'buzzword' in HE (Kahu 2013, Dunne and Owen 2013). Trowler and Trowler's (2010) review of quantitative SE research summed it up as "a mixed bag" due to varying units of analysis, diverse definitions and often "normative agenda, characterised by discussions of gains and benefits while ignoring possible downsides" (p 9). At the same time, qualitative studies often involved "curricular approaches which the authors claimed 'engage students', but without any conceptualization or evaluation of SE to substantiate such a claim" (Bryson 2014, p2). Despite these divergences and under-theorising, SE literature can be grouped into three underlying perspectives, which conceptualise engagement as a 'state', a 'response' and 'a process' (Taylor 2016, p 84).

The first two perspectives, SE as a 'state' and 'a response', focus on the factors which are intrinsic to the student (for example, "compliant behaviour" or "emotional investment"), and the ways in which institutional practices and pedagogic strategies can affect conduct (Taylor 2016, p 84). Typical indicators include time on task, effort invested into learning activities, integration into university life, as well as policies and services "that institutions use to induce students to take part in these activities" (Kuh, 2003, p24). Largely developed for the purposes of institutional improvement and benchmarking, these approaches tend to focus on "the elements the institution can control, [whilst] a wide range of other explanatory variables are excluded" (Kahu 2013, p759-760). These two perspectives often overlap in more recent studies, and the main difference here is the location of responsibility. Whilst the 'SE as state' perspective places the responsibility on the student (focusing on the extent to which the student engages with what is on offer), the 'SE as response' perspective shift the attention to the tutors and their teaching approaches (which succeed or fail in engaging the student). The third perspective views engagement as a "fundamentally situational" process, which involves active participation, shared context, mutual attention, common purpose, emotional commitment and collaboration (Zepke and Leach 2010, Kahu 2013, Taylor 2016). Whilst individual motivation, dispositions and agency are not denied here, conceptualising engagement as a process highlights its fluid, contingent and provisional nature, and emphasises socio-cultural and discursive dimensions.

Whatever the perspective might be, Krause (2005, p 4) argued that SE research to date had been driven by "a positive and largely unproblematic theorizing of student engagement", disregarding the fact that students can experience alienation and inertia, as well as being "otherwise occupied" by "managing multiple commitments" (Krause 2005, p 8). Engagement is, therefore, a "multidimensional concept which is at once positive for some and a battle for others", either due to lack of familiarity with the "rules of engagement" or due to juggling different priorities (Krause 2005, p 11). Contrary to the simplistic dichotomy of 'engaged' versus 'disengaged' students, Trowler and Trowler (2010) argued that "it would be perfectly conceivable for a student to engage positively along one or more dimensions while engaging negatively […or] not engaging along another/others" (p 6). So rather than viewing engagement as compliant behaviour in response to institutional or pedagogic 'stimuli', it would be

more productive to view student agency as “a continuum” of behaviours, from those “reflecting compliance with expectations and norms, to behaviour that challenges, confronts or rejects and can be obstructive and delaying” (Wimpenny and Savin-Baden 2013, p 324). This can be related in some respects to strategic regulation, representing an “identity shift”, or transition from “newcomers” to experienced learners “filtering information and strategically regulating their actions” (Wimpenny and Savin-Baden 2013, p 319).

One important disjunction noted by Bryson (2014) is that staff and students see engagement in very different ways. Whilst for staff engagement translated into “virtuous behaviour” such as diligence, the students understood it as an emotional process and focused on “feeling engaged” (Bryson 2014, p 8). The consequence is that in order to feel engaged, students need to be able to contextualise the tasks within their own meanings and interests, and to have sufficient autonomy to do so. In his framework for building learner capacity, Redding (2014) argues that one of the pedagogic tasks is to help the learner to develop an “acquired relevance”, which refers to students developing “an interest in a topic not previously relevant to [them]” (Redding 2014, p18). The importance of relating new activities to their own interests and matters of concern and helping the students to build on their existing and diverse literacies and competences, whilst at the same time expanding their skills and horizons, is particularly relevant in the context of the participatory popular culture.

As we shall see in the next Chapter, the published case studies of pedagogic experimentation with audio-visual assignments frequently refer to student engagement (or the need to ‘tackle disengagement’) as a rationale or an outcome of the described interventions. Similarly, the interview analysis in Chapter 10 will provide evidence in support of the more complex and contingent nature of engagement, echoing the ideas and critical points outlined in this section.

2.4. Participatory culture and changing literacies

One of the concerns has been the slowness of educational institutions in responding to the new "participatory culture" that the students engage in their private lives. Enabled by digital technologies, with "low barriers to artistic expression" and peer encouragement for content creation and sharing, the "participatory culture" functions as "new hidden curriculum" offering many benefits to its participants (Jenkins et al 2009, p xii). These include increased confidence, developing valuable workplace skills and informal mentoring by the more experienced members. However, the ability to benefit differs between individuals due to uneven social and cultural competences. Whilst today's students might be born into a digital world and are accustomed to technology "their engagement is mostly through social networking in ways that lack a critical or reflective dimension" (Steventon 2012, p 88), so it is expected that schools and universities will help fill this gap.

While a student may be familiar or even proficient with technology, the skills which are used in informal settings for leisure purposes may not be the same as those required in education or the workplace. Having said this, informal learning practices involve learning "by trial and error, messing about, fiddling around", suggesting that students are able to "self-educate in environments where they are encouraged, supported and able to pursue their passions" (Facer 2011, p 18). The new technologies and online practices can be seen as lowering learning barriers, increasing access to information and allowing greater experimentation, as well as giving access to more diverse communities of interest and bringing in the informal learning situations, which traditionally took place outside of the classroom.

Facer (2011) describes how the physical and digital worlds today overlap and flow into each other, with social networking, alternative reality apps, community-driven knowledge banks such as Wikipedia and so on. These are not only 'platforms that invite' the users, but they also shape and model the ways of producing and repurposing information and knowledge. This broader context limits and shapes the tools that students have at their disposal for collecting information and influences how knowledge can be created and shared. Facer (2011) uses the term 'collective

intelligence' to describe the new flows of information, uploaded 'socio-technical systems' where everything can be usable depending on context:

> "What counts as valuable information is not determined by its source but by its capacity to be used in particular contexts. We can think of the Web as a space in which the contingent value of information is amplified. What 'counts' as valuable knowledge in this environment is answered not with a list of important information but with the questions - Who for? When? In what contexts? And for what purposes? In this context, as the philosopher Pierre Levy argues, 'no one knows everything, everyone knows something, all knowledge resides in humanity'" (Facer 2011, p59).

Within this new flow of information there are new problems with authority and expertise, as well as legal and ethical issues (such as copyright, authorship or ownership of code and data). This impacts on what the students can legitimately produce and distribute post-assessment, and what we can be done with their artefacts afterwards. Today's students, although accustomed to digital technologies, need to learn how to make the most of the "collective intelligence" it offers, and how to participate ethically, productively and creatively, and educational institutions have a role to play in 'future-proofing' their provisions for students (Facer 2011, p107).

As will be demonstrated in Chapter 3, there has been much interest in re-formulation and re-evaluation of 'literacies', spurred on by three broad agendas. Firstly, there is the wider participation agenda aiming to increase access to learning for diverse or marginalised groups, for whom traditional literacies may present a barrier. Secondly, there is a perceived- urgency to harness students' out-off school cultural practices to increase student engagement. Thirdly, there is a growing academic interest in the meaning-making potential of multimodality, including different representations of knowledge. These several overlapping concerns culminated in the 1996 Manifesto by the New London Group stating that "when technologies of meaning are changing so rapidly, there cannot be one set of standards or skills that constitute the ends of literacy learning, however taught" (p 64), which paved the way to the introduction of multiliteracies into pedagogic contexts.

The new approach to literacies involved the shift from the traditional meaning as the cognitive "ability to read and write to a specified degree of proficiency" (Serafini 2014, p.12), to the conception of literacy as a socio-cultural practice (NLG 1996, Gee 2010). As such, literacy needed to be "studied in its full range of contexts - not texts, not just cognitive, but social, cultural, historical, and institutional as well" (Gee 2010b, p.166). In this light, literacy acquires a broader definition of the ability to construct meanings "in ways that meet the requirements of a particular social context" (Serafini 2014, p.21). As a result, what might be considered as literate in one setting, may not be in a different setting, for example an ability to read and write as a game journalist, does not necessarily translate into being literate in academic writing, and vice versa. Further, the addition to images, sound and other design features shifted the focus from single to multiple literacies, for example defining visual literacy as

> "the process of generating meanings in transaction with multimodal ensembles […] from a variety of perspectives to meet the requirements of particular social contexts" (Serafini 2014, p.23)

The new and expanded conceptions of literacy seeped through to policy documents, for example Ofcom's use of the term 'media literacy' includes awareness of potential risks and ability to self-regulate access, along with the ability to interpret media texts using formal, rhetorical and generic conventions; to critique and question the accuracy of representations; and to "produce and communicate one's own messages, whether for purposes of self-expression or in order to influence or interact with others" (Buckingham 2013, p.153). Although Buckingham (2013) questioned such 'proliferation of literacies', arguing that literacy loses its meaning, and instead just becomes "a vague synonym for competence", these expanded redefinitions were important. As opposed to a set of static skills, visual and multiliteracies are redefined here as an ongoing social process, which changes across time and contexts as it "requires people to be able to flexibly enact a set of social practices to make sense of the images and multimodal ensembles they encounter" (Serafini 2014, p.23). It also brings in the emphasis of the socio-cultural context of disseminated, and not only the act of reading and making.

2.5. Changed conceptions of teaching and learning

Throughout the last several decades, there has been a paradigm shift in education, from 'behavioural' and 'cognitivist' conceptions of learning to constructivist and sociocultural approaches. Whilst there are some important differences between the latter two, and ongoing debates about their ontological commensurability (Packer and Goicoechea 2000), it is possible to see them as referring to two somewhat different aspects of the phenomena, each "telling half of a good story" (Cobb 1994, p 17). Leaving aside a radical constructivist position, both perspectives acknowledge, albeit in different degrees, that individuals actively construct meanings in social context, and the fact that both reference and build on Vygotsky's ideas, in itself suggests the possibility of middle ground. Certainly, various LTA policies and 'grey literature' have utilised ideas and terminology from both perspectives in a somewhat eclectic fashion.

Constructivism views learning as constructed and negotiated through experience, past knowledge and reflection (see for example Cooper 1993 or Laurillard 2002). A constructivist pedagogy places a larger emphasis on the learner being active and self-motivated agent central to the learning process, and the role of teachers as facilitators of the process. It aims to create learning experiences situated in the contexts relevant to the students, with real-world problems to be explored through authentic tasks and peer interactions (Pritchard 2014). If the above is achieved, it is assumed to give the students ownership of their own learning, engage them and increase learner autonomy. Constructivist learning is often linked to project based (or problem based) learning, which starts from a question and ends with a final product. The final product can then be seen as a concreate representation of the students' knowledge and learning outcomes, and how they approached the task and made it relevant to themselves. Similarly, the key purpose of assessment is "to help students to construct understandings" rather than testing correct information (Jarvis et al 2003, p 163). Assessment design therefore prioritises students' development, 'levels of meaning' and its usefulness is in helping the learner get through progressive stages that fit their specific level of development.

Particularly prominent in recent years were the sociocultural theories of learning, drawing on the philosophies of Vygotsky and Dewey, and more recent work by Lave and Wenger on situated learning and communities of practice (Lave and Wenger 1991, Wenger 1998). Here learning is situated within particular contexts, cultures and communities of practice. In a sociocultural perspective, a person is shaped through social context and practical activity but still maintaining and negotiating their own identities. The identities must be aligned with different "regimes of competence" with a range of possible stances vis-à-vis the community (Wenger-Trayner et al 2014, p 33). In this perspective, "learning, action and thinking cannot be separated" (Willis 2011, p 401).

Gamache (2002) links new pedagogies in HE to economic factors, as "student failure represents a significant loss of money for the university and a loss of potential for society as a whole" (p 277). However, the way in which failure is approached, and the subsequent choice of solutions, have undergone some changes corresponding to the more general paradigm shift. The 'traditionalist view' locates failure as a particular lack on the part of the students (typically, study skills or engagement), which then leads to technical solutions, such as increasing study skills or writing workshops. The 'post-modern' view, on the contrary, highlights the issues of "authority, power, and privilege, […] pointing out that university instruction and evaluation favour certain approaches" (Gamache 2002, p. 277). The solutions, therefore, are much more difficult to introduce, and are social in nature. The third way focuses on altering the students' own conceptions of learning and what it involves. Often, the students come to university with already established views of "knowledge as an external, objective 'body' of facts ,and learning as the passive absorption of this data" (Gamache 2002, p. 277). What is needed, therefore, is an ongoing opportunity to engage in "practical, specific activities that will lead them toward an alternative conceptual framework", allowing the struggling students to "re-create themselves as active learners" and creators of their own personal knowledge, not limited to knowing what to do, but actually doing it and reflecting on their own role in the process (Gamache 2002, p. 289-291).

This links into the wider agenda of student engagement, with an increased interest in including students as partners and co-creators of both knowledge and learning design, which "challenges conventional conceptions of learners as subordinate to the expert tutor/faculty" (Bovill et all 2011, p 133). In 'engaged learning' the students must take an active role and become co-creators of learning developing "meta-cognitive awareness about what is being done" (Bovill et all 2011, p 134). In this paradigm, students and tutors become "co-directors and co-editors of their social world" where they are "assembling and/or dis-assembling knowledge and cultural products" (McWilliam 2009, np). This process of co-directing and dis-assembling knowledge and cultural artefacts is directly linked with the digital technologies and the emerging practices that they have brought along. Further, Web 2.0 has brought about "new opportunities for user-generated input to digital repositories, crowd-sourcing and social media" potentially enabling more active forms of learning" (Laurillard 2013, xvii). However, Selwyn (2011) points out that the shift towards education being "active, interactive, learner-centred, social, communal, authentic" is not necessarily grounded in the technologies, but in the philosophies of current educational trends, requiring a "commitment to certain values" (Selwyn 2011, p 90). Rather, digital technology is a means to "leverage a wider philosophy of teaching and learning into educational settings" (Selwyn 2011, p 89).

Another relevant shift in HE is the rise of Practice-based education (PBE), which "refers to grounding education in strategies, content and goals that direct students' learning towards preparation for practice roles post-graduation" (Higgs et al 2010, p 3). The increased professionalisation, as well as the growth of new disciplines (such as game design, visual effects, web design, digital media production), mean that practice and action become integrated and knowledge can no longer remain only factual or propositional. In this environment the universities can "be seen as a vehicle to help create future practices", where "future practitioners can [learn to] understand, critique and act" (Higgs et al 2010, p 5). Barnett (2010) proposes several key components framing education for practice, which are particularly relevant to multimodal assessment. Firstly, education for practice means developing key understanding of own field as well as multidisciplinary or adjacent fields, to enable graduates to work creatively with people from other disciplines. Secondly, there must

be room within the university to live out authentically the practices of the chosen field but in a self-monitoring and self-critical way, which particularly needed in the climate of "performativity and commodification of Higher Education" (Barnett 2010, p 21). Thirdly, education for practice involves not only living within a community of practice, but also communicating with a wide range of audiences in multiple modes, in other words "to live a life of multimodality'" (Barnett 2010, p 21). This relies not only on the universities reinventing themselves, but also on students' own dispositions, such as "a will to learn" and "a willingness to take risks" (Barnett 2010, p 22). Risk-taking has particular tensions with the traditional assessment regimes, which is the final point to consider in this chapter.

2.6. The contradictory purposes of assessment

Knight (1995, p 13) argues that "assessment is a moral activity", which reveals our assumptions about learning. It controls ideas and knowledge, defining what is "worthy of acquisition and mastery" as well as maintaining boundaries around disciplines (Kvale 2007a, p 63). The structure of assessment "advantages some learners, and disadvantages others" and "rewards some forms of achievements and not others" (Knight 1995, p 17), and this applies to the new innovative assessments too, albeit they promote new values over old. Assessment regimes are therefore not neutral, but "conjure forms of human development" that are historically specific, and with time can become outdated and inappropriate (Barnett, 2007 p. 30). In today's higher education, with its many disjunctions and competing ideas, assessment is a "field of contradictions" (Kvale 2007a). Its traditional aims of "selection, disciplining and knowledge control" have been more or less unchanged since the middle ages (p 57). The focus of learning is on what will be assessed, emphasising certain modes of learning, which in turn makes assessment "experienced as a threat, rather than as an incitement to further learning" (Kvale 2007a, p 63). However, this is at odds with the new educational agendas, such as student engagement, widening participation or lifelong learning and with the 'supercomplex' and fast-changing contemporary world (Barnett 2007). Nor is the traditional assessment seen as fitting the needs of the 'knowledge economy' or future employment, which expect the continuing of "increase

in non-routine and interactive tasks", putting the premium on collaboration, complex problem-solving solving and other "21st century skills" (Fruyt et al 2015).

Because of this, there has been a growing attention to changing assessment in the way that better promotes student learning. This is reflected in the agenda of Assessment for Learning (AfL), as manifested in the policies of the Quality Assurance Agency (QAA), and in the LTA strategies across the whole range of educational institutions, in a hope to improve some of the problems associated with HE assessment (Sambell et al 2013). In contrast to high-stake summative assessment, Assessment for Learning (AfL) can be defined as "evaluative practices within the regular flow of teaching and learning with the purpose of informing and improving student learning to enhance learner autonomy" (Willis 2011, p 401). It was originally conceived as an integral part of daily teaching practice, involving both low-stake formal checks and informal critique by tutors and peers. Rooted in socio-cultural approaches to learning, this conception is based on participation and dialogue, enacting "various tacit understandings of the quality of work that was expected", so rather than a set of quick-fix techniques to increase attainment, this is more about developing a "set of practices through which learners increasingly understood and negotiated their participation in the learning experiences" (Willis 2011, p 401). The ultimate goal is for students to develop as autonomous and self-directed learners, which would not only help them succeed in their studies, but also to apply productive strategies in future life and work. However, autonomy here is reconceptualised from "a fixed set of cognitive skills" to negotiating a participative learning identity of "becoming more expert within a specific community of practice" (Willis 2011, p 412), and assessment must be designed in a way that contributes to this process.

Both constructivist and socio-cultural perspectives favour 'authentic assessment', but there are divergent interpretations of what is meant by 'authentic'. One idea is that 'authentic assessment' implies that previous assessments were 'inauthentic', as they did not match up with what students' experiences outside formal education, or their expectations of what they need to master for future (Kvale 2007a, p 65). However, as Barnett (2007) points out, there is still a need for this kind of assessment in HE, to promote 'academic virtues' and standards, to challenge the students to step out of

their comfort zone, to consider ideas from other fields and perspectives and to monitor their own progress. This creates the contradiction of assessment being both "a virtuous mark of reaching worthwhile standards", and "a form of control" denying authenticity (Barnett 2007, p. 36).

Assessment can have direct influence on non-engagement and drop-out, especially for first year students. Cook (2012) explained that moving from 'assessment of learning' to 'assessment for learning' helps to 'ease' first-year students into university assessment and adjust to the new level of expectation. This may require rethinking the criteria and being more patient with first year students' over-reliance on declarative knowledge, as it takes time to develop criticality and higher-order skills. To do so Kvale (2007a) advocates a wider use of self-and peer assessment, while Benett (2007) argues that 'authentic becoming' does not come naturally but must be nurtured from the beginning and built into the curriculum. It is only when the students feel safe enough and able to "throw themselves" into assessment that they can "win the three prizes of becoming" - overcoming risk and challenge, "ontological journeying" and emotional rewards (Barnett 2007, p 37). Steventon (2012), on the other hand, calls for "liberating pedagogies" which would free the learners from the "shackles of conventional ways of thinking about the world" (p 89), and foster critical thinking and awareness. This 'liberation' is encouraged when the students become producers of knowledge, moving away from traditional paper-based to multimodal assessments.

Whilst the new knowledge economy may favour these new forms of assessments, they are in conflict with the requirements of accountability which favour "grades and multiple-choice tests as the decisive measures" (Kvale 2007a, p68). Willis (2011) also comments on how the AfL initiative is undermined by the "focus on assessment-as-measurement and performance" privileging the "individualised, competitive and narrowly focussed" identities from the "earlier educational age" (Willis 2011, p412). In the meantime, tutors have to work with what they have, being responsive to shifts in policy and student expectations, and experimenting within the confines of the accountability regimes.

Chapter 3: Review of published evidence on the use of audio-visual assignments in post-secondary education

The review presented in this chapter aimed to establish the authenticity and relevance of my research problem, by examining how widely similar assignments were introduced in other post-secondary institutions, and with what expectations and outcomes. It also aimed to identify possible gaps in available empirical evidence, and therefore gauge the potential contribution of the present study. The review focused on three literature review questions (LRQ), also providing the structure for this chapter:

> **LRQ1:** What are the key drivers or reasons underpinning the introduction of student-produced artefacts into formal learning, teaching and assessment?
> **LRQ2**: What theoretical basis is presented by the authors to support the assumed benefits of such interventions?
> **LRQ3**: What is the nature of empirical evidence presented by the authors to support their claims about the benefits or drawbacks of such interventions?

The review begins with a brief outline of the review strategy, parameters and limitations, followed by an overview of the different contexts, key drivers and expectations drawn from the articles. It then moves on to consider the theoretical basis for the described pedagogic expectations, zooming in on three salient concepts of particular relevance to my study. The final section evaluates the nature of empirical evidence presented by the authors and concludes by linking the reviewed literature both to my own research and to the global macro-context presented earlier in Chapter 2.

3.1. Review purpose and strategy

The review strategy is based on the basic procedures of systematic review, simplified to become more compatible with my research purpose and to side-step the limitations of a single researcher. As part of this modification, some of the steps in the standard systematic review protocol were omitted as counter-productive, whilst other elements were borrowed from the conceptual review approach. Mallett et al (2012) explain that due to its transparency and breadth of coverage, the systematic approach is highly beneficial for identifying knowledge gaps, highlighting methodological weaknesses and suggesting avenues for further research. However, the systematic review methods lend themselves more easily to quantitative or experimental research, for which they have been originally developed (Thomas and Harden 2007). Recently, systematic reviews began to be applied to qualitative research, but the epistemological differences made it difficult "to adopt wholesale the prescribed approach to systematic review" (Jesson et al 2012, p107). Instead, researchers in different fields have been trying to develop a hybrid approach, which combines "compliance with the broad systematic principles" and "flexibility to tailor the process" to the specific research needs and constraints (Mallett et al 2012).

For example, systematic reviews aim to establish an evidence base that would allow to predict a specific outcome. Therefore, their protocols involve a rigorous quality assessment exercise, using reliability and validity as criteria for inclusion. Inevitably, many systematic reviews exclude qualitative studies and small-scale pedagogic evaluations with insufficient methodological detail. But in my case, the aim is more exploratory and open-ended, and considering that the topic is quite new, my priority was to get as much use as possible from what was available. Rather than excluding the articles with insufficient detail or standard of quality, they could be used to identify gaps in literature.

The standard systematic review protocols I complied with, included the following: a systematic search of major databases; a progressive screening of results according to explicit inclusion criteria; using reasonably consistent data extraction forms across the entire final corpus of selected articles; and critically examining the claims made and

the nature of evidence. Since completing the draft review, I encountered several studies which should have been included, but were missed by the search engine. Some relevant articles could have been outside the scope of a specific database or publisher or were missed due to the inconsistent use of terminology across different journals and disciplines. Others were not available in full text and therefore not reviewed.

The result is not a full systematic review, but more of a systematically produced scoping review, presenting a snapshot of current evidence as available through specific online databases. However, it offers a sufficiently detailed picture of the increasing popularity of digital audio-visuals assignments across academic disciplines, along with the underlying themes, pedagogic intentions, expectations and claims. It clearly highlights the need for more research in this area, by pointing out the shortage of theoretical elaboration, analysis and empirical evidence. The full description of the procedures can be found in Appendix 3.1, including the literature review questions, the databases included, the search terms, the exclusion criteria, the data extraction procedures, and the review limitations. The list of articles included in the review is in Appendix 3.2 and examples of review notes and summaries in Appendices 3.3 and 3.4.

3.2. Intervention contexts, drivers and assumed benefits

This section addresses LRQ1, by summarising the interventions described in the reviewed articles, their diverse contexts, drivers and pedagogic intentions. Not all authors present a clear reason for the intervention. Some articles start from the assumption that the use of new technologies in education is a 'fait accompli' (Ryan 2013), and educators must now focus on how best to implement the innovations, rather than the reasons why they should be implemented. An example of this approach is Lim et al (2009) who provides an overview of steps and tools for the introduction of digital video assignments, as well as sample documentation and rubrics. Similarly, Urbano and Urbano (2008) describe an open source tool they used as a basis for movie-making assignments on a Geoscience course. No specific educational priority or policy pressure is mentioned in the article. The stated intention

is to take advantage of the emerging technologies, more specifically video-sharing websites and user content creation tools, for a potential bank of learning resources.

In other cases, some sort of rationale can be inferred from the article title, expected or claimed benefits, or a string of references from a particular strand of research, against a general statement of 'better learning'. For example, Hakkarainen (2009) makes a very brief and general reference to "the challenges faced by Higher Education", closely followed by a single-sentence claim that video production "can promote the active […], intentional, constructive, authentic, cooperative, creative, collaborative, conversational, contextual and emotional aspects" of learning (Hakkarainen 2009, p 212). The rest of the article evaluates a pilot of a course design, which incorporated student-produced educational video as part of PBL. In most articles, however, the reasons for the intervention are more or less explicitly stated, either as part of the context, listing specific challenges and expected outcomes, or indirectly through theoretical concepts employed or literature cited. The summaries of all reviewed articles are provided in the Appendices 3.3 and 3.4, however a range of illustrative examples is also presented below.

Professional education and civic agenda. In about a quarter of the studies, student-produced artefacts are introduced in response to a specific concern in professional education. The requirements of relevant accreditation bodies are sometimes evoked along with the need to broaden or update the disciplinary pedagogies. Changes in professional practices or consumer expectations in the sector are also cited as the context for the intervention, often linked to technological development and workforce skill shortages. For example, Pflugfelder (2013) responds to the changing needs of technical communication professionals, brought about by the spread of web and mobile applications. Introducing web video into course assessment intended to prepare technical communication students for future work. Both Gaskin et al (2010) and Schutz and Quinn (2013) focus on the need for future managers to improve their creative problem-solving and saw artefact production as a way of addressing this.

In some cases, professional issues are combined with the civic agenda (notably in health, social work or environmental sciences). The project by Zahn et al (2014) involves psychology students creating YouTube clips to deepen their own understanding of obesity, whilst at the same time combating social stigmatisation. A similar purpose is presented in Tetloff et al (2014), discussing the potential of student-produced videos to function as tools for social advocacy, whilst also encouraging active learning in social work education. They argue that to educate and advocate for change, social workers need to evaluate and use information from diverse sources and translate it into a format that can be understood by a client.

Mavroudi and Jöns (2011) discuss the use of video documentary assignments in a Human Geography field course. Visual methods are described as particularly appropriate for their field, dealing with "other people and places", and involving "differing and often contested representations", which are necessary to question (Mavroudi and Jöns 2011, p 582). In Frenzel et al (2013) video-assignments are expected to enhance pharmacy students' knowledge of self-care and non-prescription medication. As part of the rationale, the authors evoke the Accreditation Standards for Pharmacy Education, including "the use of innovative instructional technologies, meeting the diverse learning needs of students, to foster the development of self-directed lifelong learners" (Frenzel et al 2013, p 45).

Video-assignments are also presented as an opportunity for future professionals and scientists to acquire public communication skills. Gold et al (2015) report on collaboration between university students from a Geoscience course and school students to produce videos about locally relevant climate change topics. This is linked to the recent policy emphasis on scientific communication, and the requirement for K12 students to learn these skills. The article refers to the National Research Council definition of "communicating" and "sharing information using digital technologies" as "key twenty-first century skills" (Gold et al 2015, p 1). A similar concern with communicating climate change to general public underpins the case study by Rooney-Varga et al (2014), where student-produced artefacts aim to overcome the public misconceptions, whilst simultaneously improving the students' media literacy skills (Rooney-Varga et al 2014, p 607).

Languages, literacies and multimodal composition. Several articles focus on the benefits of multimodal storytelling for foreign language learning (Goulah 2007, Hafner 2014, Hafner and Miller 2011, Hsiao-Chien Lee 2014, Hepple et al 2014, Lee 2014). For Goulah (2007), student-produced video assignments are part of transformative pedagogy, extending foreign language teaching from a narrow focus on language skills to critical literacy, and allowing the inclusion of geopolitical, environmental and cultural issues. Compared to this broad agenda, the problem presented in Lee (2014) is more pragmatic. She explains that students struggle to develop foreign language proficiency due to increasingly limited class time and fewer opportunities to practice language in authentic face-to-face communication. Media production "permits learners to use the target language in a personalised and authentic manner", as well as increasing their motivation and providing opportunities for communal learning (Lee 2014, p 339).

Turning to academic writing, Hsiao-Chien Lee (2014) reports on the introduction of digital storytelling activities into his English class in a Taiwanese University, to engage vocationally-oriented students, "intimidated or discouraged by the conventional linguistic mode" of written assignments (p 56). Multimodal assignments, including video, drawings and digital story-cuts, are expected to provide alternative ways to express thoughts and construct meaning, increasing the students' motivation to study. Confidence building is also part of Jones (2010) project, aiming to ease the students' anxieties when starting on a lengthy research paper. She argues that multimodal assignments with their performative and embodied elements, allow students to build on their strengths early in the class, easing them into writing afterwards.

In an article with a telling title "Challenging the tyranny of the five-paragraph essay", Schwartz (2014) addresses the issues of English learning and teaching in the context of urban schools of the US-Mexico borderlands, with predominantly Latino students. The usual teaching and disciplinary concerns in this case are exacerbated by the political and social context, including "xenophobic legislations", "long-standing deficit discourses" about Latino population, underfunding and lack of technological resources (p 125). Incorporating student-produced digital stories into assessment is expected to

create spaces for students' identities and cultural practices, and to expand their literacies within the context of writing development. Part of the pedagogic rationale is to develop a hybrid assignment which could act as a bridge between "youth activity system" and "school activity system" (Schwartz 2014, p 127), leading us to the next category.

Harnessing out-of-school media practices for education is another salient concern underpinning the introduction of audio-visual assignments. The older articles within the corpus directly refer to 'digital natives' (after Prensky 2001), along with the claim that educational institutions are behind their students, and must 'catch up' in order to educate them. Miller (2007), for example, is concerned with adequately preparing trainee teachers for the new multimodal communication landscape. In a dedicated section titled "Teaching Digital Natives", Miller references Prensky's (2001) argument about a gap between the students' literacy practices and print-based schooling. She adds that most students "arrive at schools more competent in multimodal practices than their teachers" (Miller 2007, p 65). Elsewhere in the article Miller switches from 'digital natives' to the 'millennial generation', who are increasingly "immersed in popular and online culture and think of messages and meanings multimodally" (Miller 2007, p 62). The 'millennials' need opportunities to develop new literacies and strategies, but instead they are offered "restrictive school practices" and out-of-date "traditional schooling" (Miller 2007, p 62). Digital video composing is proposed as "a potential solution to the problem of teachers under-using the affordances of new multimodal literacies" (p 66).

In another article from the same year, Erstad et al (2007) discusses students' video remixing practices and "the new possibilities digital media offer for getting access to semiotic resources" (p 195). The authors' main concern was that the Norwegian national curriculum privileges skills-based conceptualisations of 'digital literacy', overshadowing the creative and critical dimensions. Although not a dominant theme, the disconnection between formal education and young people's out-of-school practices is used as a rhetorical 'opener' to set the scene:

> "Youngsters are increasingly using digital technologies through participation in informal settings. Schools, however, seem to be struggling with implementing digital technologies into formal school activities" (Erstad et al 2007, p 183).

References to "today's students" and their assumed affinity with media and digital technologies continues in more recent articles, although the term "digital natives" was replaced by other descriptions, for example "digitally-connected", "media-savvy" or "digirati". Litchfield et al (2011) call for better incorporation of the "new technologies of creating, representing and communicating multimedia knowledge" into all aspects of teaching and assessment in order to "improve educational relevance and the engagement of '*digerati'* students" (p 564). Ryan (2013) argues that today's students "demand the most interesting and up-to-date technology as part of their learning", being accustomed to it throughout their lives (p 25). Hafner and Miller (2011) view young people's technological proficiency as an opportunity for education and explain the success of their multimodal assignment by its appeal to students' informal literacy practices. The present time is referred to as "a digital age which is characterized by widespread participation in globalized, online spaces" (Hafner and Miller 2011, p82), and the 21st century education should provide space for this.

Levelling the skill imbalance. Whilst the older texts in the corpus argue that teachers need to 'catch up' with digital natives, the more recent texts are concerned with skill imbalances and varying levels of digital competence among students. For example, Ryan (2013) points out that "even the digital natives may not be so technology savvy when confronted with unfamiliar, specialised software" (p 26). He describes the student population as 'digital citizens' which include both 'digital natives' and 'digital migrants' whose exposure to technologies differ due to socio-economic and cultural reasons. He argues that the students' technological competence needs to be levelled out in their degree studies, to meet the employers' expectation of graduate attributes. Similarly, Baepler and Reynolds (2014) start from revisiting Bennett et al's (2008) well-known research that deflated the myth of digital natives, arguing that the student population is diverse, with uneven and evolving technology expertise. Students must be taught digital literacy, along with critical thinking, traditional competences and creative media, so that they can "express ideas across multiple modalities" and "take

full advantage of living in a participatory culture" (p 122). To redress this, a hybrid composition assignment is introduced, involving both writing and video, and allowing students to practice transmedia navigation

Continuing the theme of skill imbalances, Colby (2014) turns from socio-economic differences to individual skill profiles. Due to growing up with some technologies but not others, and using them for certain purposes only, students have "a level of behavioural mastery", but only in a narrow range of functional literacies. "Unequal access, interest, and association lead to literacies with certain technologies that often imbalances their use in a classroom" (Colby 2014, p 47). The act of game design is promoted here as a "productive pedagogy that fosters positive habits of mind including curiosity, engagement, and creativity" (p 43). To address skill and literacy imbalances between students, the emphasis should not be on a "professional looking product", but on its rhetorical possibilities and intentions. This would also align the design activities with critical thinking and learning outcomes, connecting rhetoric, research, production and writing.

In addition to these salient concerns and intentions, all articles assume that the new assignments will in some way enhance students' experience, whether by developing their transferable skills, providing opportunities for personal expression and hands-on active learning, or making the coursework more interesting and engaging. Some articles express a strong commitment to transformative or emancipatory values, whilst others take a pragmatic approach. For example, Downing et al (2014, p1) evoke the current HE climate and the need for "cost-efficient student engagement", whilst Dale and Povey (2009) argue that universities are adopting 'blended delivery' to satisfy the diverse needs of "increasingly value conscious" students (Dale and Povey 2009, p 117).

Despite the differences in approaches and disciplinary priorities, the described assessment innovations are clearly driven by the changes in the global macro-context discussed in Chapter 2. As such, this part of the review confirms both the typicality of my own research context, and the potential transferability of the results beyond media production degrees.

3.3. Theoretical concepts: multimodality, motivation, affordances

This section addresses the second review question (LRQ2), by examining the theoretical basis for the described interventions and their expected benefits. By and large, the theoretical basis for the claims was thin, with many articles neglecting to make any link between the theoretical concepts used and empirical evidence. This differs between the journals, for example the articles published in *Computers and Composition*, a long-standing journal focusing on the use of digital technologies in writing development, tend to be more theoretically informed than the shorter pedagogic evaluations. It is important to be mindful of the writers' different purposes, intended audiences and publishing constraints. However, given that pedagogic innovation requires an investment of time and resources from the staff, the students and the institutions, it is equally important to recognise where the available research evidence is limited, incomplete or flawed. I will now use three salient concepts (see Fig. 1 below) to examine more closely how three specific theoretical concepts were employed in the reviewed articles.

Theoretical concepts	Articles	References
Multimodality	24	Adsanatham et al (2014), Baepler and Reynolds (2014), Berry et al (2014), Bruce (2009), Burnett et al (2014), Colby (2015), Downing et al (2014), Goulha (2007), Hafner (2014), Hafner and Miller (2011), Hepple et all (2014), Hsiao-Chien Lee (2014), Hung et al (2013), Jones (2010), LaMonde and Rogers (2007), Manfra and Hammond (2009) , Miller (2007), Plugfelder (2013), Schwartz (2014), Ryan (2013), Urbano and Urbano (2008), Williams (2014), Zahn et al (2014)
Motivation and engagement	29	Adsanatham et al (2013), Baepler et al (2014), Bruce (2009), Dale and Povey (2009), Downing's et al (2014), Dubisar et al (2010), Erstad et al (2007), Goulah, J. (2007), Gold et al (2015), Hafner (2014), Hafner and Miller (2011), Hakkarainen (2009), Hepple et al (2014), Hsiao-Chien Lee (2014), Jones (2010), Khalili et al (2011), Lee (2014), Lim et al (2009), Litchfield et al (2010), Loch et al (2015), Loftus et al (2014), Mavroudi and Jöns (2011), Merola (2010), Rooney-Varga et al (2014), Ryan (2013), Schultz et al (2014), Schwartz (2014) Tetloff et al (2014), Urbano and Urbano (2008)
Affordances	7	Adsanatham et al (2013), Colby (2014), Dubisar et all (2013), Erstad et al (2007), Hafner (2014), Hafner and Miller (2011), Hepple et al (2014)

Fig. 1 – The distribution of the three salient theoretical concepts

Concept 1. Multimodality.

Twenty-four out of forty-two articles make references to "multimodality" or "multimodal", and eleven of these used the term in the title. Some use it merely as a quick descriptor, for example describing student productions as "multimodal digital videos", which "combine multimodal information" (Urbano and Urbano 2008, pp 335-339), or stating that today's students must make use of "various multimodal sources of information", and "synthesise multimodal sources" (Ryan 2013, pp 34-35), without mentioning modes again. Goulha (2007) referred to the assignment as "multimodal, experiential, and hands-on, involving multiple senses" (p 77), whereas Downing et al (2014) used the term to describe not the assignments, but today's students, calling them "real-time, multimodal and digitally connected" (p 1).

Most of the articles in this group, however, treat multimodality as a key concept, offering some elaboration or at least theoretical references. They focus on the use of images as part of reasoning, the impact on the students' academic or writing identities or other consequences of shifting the writing from paper to screen. For example, Colby (2015) explains that videogames are multimodal in nature, not only because they involve visual, textual and audio presentation, but also due to their procedural nature and multiple interfaces. Jones (2010) emphasises the creative and performative aspects of multimodal composing, which "at its most effective […] enables students to embody an authority that transfers into their writing" (Jones 2010, p 89). Motivated by the specific needs of visual learners, Hsiao-Chien Lee (2014) argues that multimodal assignments offer a wider range of expressive opportunities.

Several writers focusing on multimodality, are also interested in literacies, for example Baepler and Reynolds (2014) hope to expand young people's competences and literacies by engaging them multimodally. The writers from the New London Group (NLG) are often referenced, in particular Kress, Gee and Jewitt. Working from this tradition, as well as transformative education, Schwartz (2014) present a case study drawing on video-observations, interviews, students' essays and videos and online self-presentations. Her focus is on identity issues and multiple literacies, and how both play out in the repurposing and re-contextualisation of multimodal semiotic resources,

for example playfully challenging the gender and ethnicity norms. This is one of the few articles offering a flavour of the actual productions through multiple visual illustrations and vivid descriptions.

Hafner's (2014) research, examines different types of linguistic and visual material used by the students to communicate scientific information. In this article multimodality is used not only as a theoretical concept, but also as a method of analysis. He finds that the participants envisage their audience differently and use different semiotic resources to create specific 'hooks' aimed at their imagined audiences. To fulfil the three main purposes of the assignment, (that is, to educate, investigate or entertain), the participants have applied different 'discoursal identities' and 'multimodal ensembles', both through the use of images and the tone of audio-narration (Hafner 2014, p 680).

Finally, Bruce (2009) is interested in the motivating aspects of multimodal composition. During his career as a language arts and communication tutor, he has observed that students tend to work harder on their video projects than written assignments. In addition to students' experiences, the study also discusses the visual grammar of the artefacts and the specific production processes, drawing on The New London Group theorists. The author concludes that motivation for video can be explained by its multimodal nature, which creates room for experimentation and offers a wider range of compositional choices. Its "visual-based modality" allowes the students to represent their thinking more vividly, linking "the visual dispositions of their thoughts and the visual medium with which they were composing" (Bruce 2009, p 444). Importantly, the study also brings out the logistical and cognitive difficulties involved in using different multimodal research methods.

Given this interest in multiple modes, it is surprising that very few articles analyse the student productions or offer any visual illustrations. This may be due to the journal policies, or other important reasons, but without the artefacts it is very difficult to get the full sense of the intervention. Where images are included, they were often extraneous to the artefact, for example the screenshots of the software interface (Baepler and Reynolds 2013) or photographs of the work process (LaMonde and

Rogers 2007, Hepple et all 2014). Five articles provide links to student work, although two no longer work due to the length of time passed. At the time of writing, three are still accessible on the authors' university site or on YouTube (Hafner and Miller 2011, Hafner 2014 and Hsiao-Chien Lee 2014).

Concept 2. Motivation / engagement. Twenty-nine out of forty-two articles refer to student engagement and/or motivation, in varying level of detail. Whilst these are two distinct concepts, they are considered together, because the reviewed articles tend to use them interchangeably. The authors are largely concerned with one specific aspect, 'motivation to engage' (with the module, subject, resources or learning activities), rather than different kinds of motivation. The terms are typically mentioned as part of rationale, a reported outcome, or in general statements about the beneficial potential of the intervention. As many articles in this review are descriptive and exploratory, the concepts are not operationalised, making it difficult to know whether motivation is inferred from empirical data, or merely assumed. Several articles pose lack of engagement as a problem to be solved. For example, Ryan (2013) opens his case study by painting a picture of "disengaged and apathetic students in many undergraduate classrooms", who "expect knowledge to be passively transferred to them from their teacher with little engagement in the process" (Ryan 2013, p 24). Incorporating student-produced videos is presented as an antidote to disengagement, positioning students as active producers of knowledge.

Unlike 'multimodality', the treatment of both motivation and engagement is extremely thin and common-sense, even in those articles which list the terms under the key words. "Learner engagement", for example, is listed as a key word in Litchfield et al (2010), introducing student-produced 'vodcasts' to ensure that students interacted with the module content, whilst also developing multimedia skills. In this short article, the terms motivation and engagement are used several times on each page, often in combination with 'high', 'strongly' or 'increased'. It claims that the students "intrinsically wanted to engage and learn with this assignment", achieving "demonstrably excellent engagement" (p 564). However, the claim is not empirically supported, nor are the terms in any way defined or operationalised.

Engagement is often linked to sharing with peers, being 'active', 'fun' or inherently engaging, and having a particular relevance to students. For Dale and Povey (2009), student-created vodcasts are "a means of student engagement, where learners generate content which is then shared with others as part of their learning experience", and in the process are "motivated to learn about the subject matter" (p121). Kahili et al (2011) incorporate a game design task "for its interest and relevance to students" as videogames have already established themselves as "an engaging arena for youth" (Kahili et al 2011, p 234). Similarly, Hafner and Miller (2011) refer to the increasing adoption of digital storytelling projects as "a pedagogical tool to engage learners" through appealing to their informal literacy practices (Hafner and Miller 2011, p 71).

As one of the main drivers, engagement is linked to broader HE issues, including widening participation, student fees, the employability agenda, quality assurance and active learning. Downing's et al (2014) article "Transforming a Course to Blended Learning for Student Engagement", evokes the "shifting landscape" of HE where "student engagement has emerged with force" (p 1). The authors consider the traditional role of the tutors to be expensive "live performers in the classroom", whilst pointing out that lectures are less and less beneficial for "the real time, multimodal digitally connected students of today" (Downing's et al 2014 p 1). Student-produced videos are introduced along with clickers, Pearson's MyITLab and web-based "Helper" and "Event" systems, to encourage peer assistance and out-of-class learning. The article contains two sections devoted to the theoretical literature around "student engagement" and "engaged learning", whereas motivation is largely discussed in terms of extrinsic rewards built into the redesigned course, for example providing letters of recommendation "on request", awarding bronze, silver or gold stars for helping other students, and giving extra credits for attending events:

> "Often students need to be motivated to do what is in their best interests […] The extra course credit serves as motivation to attend these education-enriching events, and this motivation was also used in past semesters" (Downing et al 2014, p 4).

Other authors explain the increased engagement by the practical and creative aspects of the task, involving real-world experiences or audiences. Jones (2010), for example, finds that introducing the assignment has created "engaged writing groups in which students became invested in each other's progress and success" (p 86). In Hafner's (2014) study, the students are motivated by knowing that their work would be "uploaded to YouTube and publicly shared with a wide and unspecified Internet audience" (Haffner 2014, p667). Lee (2014) also emphasises the social aspects of engagement, arguing that students are more "compelled" to work hard on their digital stories when they know that the work will be shared with their classmates. This is echoed in Gold et al (2014), who explains:

> "Students who usually do not engage in academic challenges or afterschool clubs were eager to participate in the video production. Part of the appeal might be that students see peers as their target audience instead of their teachers, creating a powerful draw" (Gold et al 2015, p 8).

'Active engagement' is used frequently in Mavroudi and Jöns (2011), from closer engagement with tutors and the module, to more intense engagement with the local communities. As geography students filmed during their field trips, they "actively engaged with their surroundings, rather than relying solely on their lecturers to tell them about the places they visited" (Mavroudi and Jöns 2011, p 588). In a similar vein, Ryan (2013) explains the students' preference for video-production by its experiential, collaborative and playful aspects:

> "Students noted that they spent much more time researching their individual sections of the video than they would have done for an individual essay. This motivation came from the desire to not let their group mates down, and also the end product was seen as important to their classmates' learning" (Ryan 2013, p 31).

Across the articles, the two concepts are often used interchangeably, or merged together as "engagement and motivation". Whilst engagement occasionally gets a more detailed treatment (for example, Lee 2014 or Downing et al 2014), no authors

acknowledge different types of motivation, or the diverse contributing factors. Engagement seems to be generally a more important concern, possibly due to its prominence in policy discourses. The reviewed articles are largely oriented to practice, and engagement may have been perceived as more immediately relevant and observable than the complex and fluid motivation.

However, engagement is also treated as unproblematic and self-explanatory. Only Baepler and Reynolds (2014) acknowledge that the term is "to some degree, opaque" (p 130). As one of their study limitations, they warn that it may mean different things to different students, making it difficult to interpret the participants' self-reported perceptions. Most other authors approach both terms in a generalised way, without qualification or elaboration. At times, the presented quotes seem to refer to one aspect of engagement, but the commentary to another. For example, the participant might be talking about having fun (emotional aspect) or working harder / spending more time on the video (behavioural aspect), but the commentary states an increased engagement with the subject. Although some of the articles present fascinating insights and plausible arguments, further theoretical elaboration is needed to fully understand the potential benefits for motivation and engagement.

Concept 3. Affordances. Although only seven articles use the term 'affordances' to discuss the unique benefits of the assignment, several more use a more general term 'affords', making up almost a third of the corpus. Affordance is a slippery and contested term which has been debated since the introduction of Gibson's original theory (see Chapter 4). However, similarly to engagement and motivation, the reviewed articles treat it as unproblematic and self-explanatory. The only exception is Hafner (2014), who states that affordance is an important theoretical concept for multimodality research and provides a brief overview of its history and related literature. Having acknowledged that the term has a contested and fluid meaning, he defines affordance as "an opportunity for meaningful activity or interaction which may or may not be taken up" (Hafner 2014, p 658). Hafner's earlier study, co-authored with Miller in 2011 and focusing on student-produced video-documentaries, argues that for any technological affordances to be utilised, they must be paired with a student-centred pedagogy (Hafner and Miller 2011, p 70). Their study, therefore,

focuses on the affordances of the whole learning environment, attributing the opportunities for learning both "to the pedagogy adopted, and the particular affordances of the technology used" (p 81).

This exception aside, the rest of the articles use the term in a cursory fashion. For example, Dubisar et all (2013, p 82) suggests that video-remix draws on "unique affordances of particular modalities", whilst Hepple et al (2014) introduces their Claymation project by stating that "significant affordances for literacy development came about through the writing of the dialogue" (Hepple et al 2014, p 222). Neither article mentions the term again. Erstad et al (2007) use the term in the abstract, the aims and the implications, for example stating that the research aim was to examine "how digital media and the Internet create new affordances that affect how students work" (p 183). This is followed by a very general definition: "The concept of 'affordance' outlined by Gibson (1979) has been used to describe the new possibilities different digital tools represent for learning and development" (p 186). The concept is not mentioned again until the very end, restating that digital media production in educational contexts offers "decisive affordances for re-mixing multimodal resources" (Erstad et al 2007, p 194). Similarly, Adsanatham's et al (2013) study aims "to examine affordances and limitations" of a specific tool. This is reiterated throughout the article, without discussion, using 'affordances' as a stand-in for 'strengths' or 'beneficial features' of technology. Colby (2014) justifies the introduction of game design project into syllabus by arguing that the procedural rhetoric of games helps to "leverage the affordances of rules and mechanics" for communication and representation (p 44), without clarifying what these affordances are and how they might be leveraged. Further, he argues that procedural rhetoric is itself "a mode, affording particular habits of mind" such as engagement, creativity and meta-cognition (p46). This is a thought-provoking idea, linking together the three concepts of interest – that is mode, engagement and affordance. Unfortunately, no further elaboration is offered.

One study uses 'affordance' as a key concept in data analysis (Lee 2014), however it is unclear how the concept has been operationalised in the survey, nor how it captures specific interview responses. The survey seems to have consisted of a handful of positively-slanted statements such as "I had a positive experience with digital stories",

"Creating digital news stories for peer-to-peer exchange was appealing to me", "I found peer comments informative and engaging", "I benefitted from using multiple skills to compose digital news stories" (Lee 2014, pp 344 and 349), making it impossible to isolate and investigate different types of affordances conflated in these statements. The extended interview quotes and blog reflections provide some fascinating and potentially useful material, however they are presented merely as an illustration of "positive attitude" rather than pointing to different kinds of affordances, as well as the students' own dispositions that enable them to make use of the afforded opportunities.

Apart from the two exceptions mentioned earlier, no article elaborates on how the benefits might be afforded, nor how the benefits of technology can be isolated from other aspects of the learning situation. The authors equate affordances with the objective beneficial features of a technology, rather than a dynamic and mutually constitutive relationship between 'the object / environment' and 'the user / actor'. This represents a common misuse of the term in educational technology research and I will return to this in the next chapter, which discusses the existing conceptualisations of affordances. However, before concluding this review and moving on to theoretical literature, let us examine the nature and quality of empirical evidence presented in the reviewed studies.

3.4. The nature of empirical evidence

The final section of this review addresses the third review question (LRQ3), by examining the nature of empirical evidence provided by the authors to support their claims. To aid the discussion and acknowledge the diversity of the reviewed material, the articles are divided into four categories according to their purpose and nature. Only a third of the reviewed articles can be considered research articles (see Fig. 2 below), and I will examine their methodologies in more detail. Two thirds of the sample are variations of pedagogic case studies or evaluations, which is not surprising, as this is a relatively new development. These do not tend to provide much methodological detail and will be considered in a summary fashion.

Group	Articles	Reference
"Sharing good practice"	12	Burnett et al (2014), Colby (2013), Frenzel et al (2012), Gaskin and Berente (2011), Hakkarainen (2007), Hung et al (2013), Jones (2010), Lim et al (2009), Plugfelder (2013), Schultz and Quinn (2013), Tetloff et al (2013), Urbano and Urbano (2008),
Module evaluations	8	Dale and Povey (2009), Downing et al (2014), Hepple et al (2014), Hsiao-Chien Lee (2014), Litchfield et al (2010), Mavroudi and Jöns (2011), Miller (2007), Schwarts (2014)
Pedagogical case studies	8	Baepler and Reynolds (2013), Gold et al (2015), Goulah (2007), Khalili et al (2011), Lee (2014), Merola (2010), Rooney-Varga et al (2014), Ryan (2013)
Research articles.	14	Adsanatham et al (2013), Berry et al (2014), Bruce (2009), DeVoss et al (2007), Dubisar and Palmeri (2010), Erstad et al (2007), Frenzel et al (2013), Hafner (2014), Hafner and Miller (2011), LaMonde and Rogers (2007), Loch and Lamborn (2015), Loftus et al (2014), Manfra and Hammond (2009), Williams (2014), Zahn et al (2014)

Fig. 2 - Reviewed articles grouped by their nature and purpose

Sharing practice. These twelve articles represent the kind of material that can be encountered in the 'Teaching Innovation' sections of education journals or reported at LTA conferences. Being placed in this group does not indicate low quality, but simply that the purpose was to share a design or implementation, rather than formally evaluate its impact. Some offer very practical guidelines for introducing audio-visual assignments, with section headings such as "What tools do you need?" or "Steps to create a digital video" (Lim et al 2009), rather than examining outcomes and implications of such interventions. At the other end of the scale, there are theoretically engaged pieces, focusing on long-standing issues of concern, or offering in-depth practitioner reflections on the merits of such assignments (eg Jones 2010, Tetloff 2013). Between these poles, there are pilots of course models, learning activities, assignments and rubrics (Plugfelder 2013, Colby 2013, Schultz and Quinn 2013, Frenzel et al 2012, Gaskin and Berente 2011, Urbano and Urbano 2008, Hakkarainen 2007, Hung et al 2013, Burnett et al 2014). The evidence is typically based on tutors' reflections (Schultz and Quinn 2013, Burnett 2014), sometimes supplemented with illustrative extracts from student feedback (Plugfelder 2013, Gaskin and Berente 2011, Urbano and Urbano 2008, Hakkarainen 2009). Whilst some of the articles make questionable claims (such as "a 75% increase in knowledge"), others disseminate useful designs or present thought-provoking arguments of potential use to other practitioners. The empirical material, however, is too thin to comment on the quality of evidence.

Module evaluations and pedagogic case studies. These seventeen articles are typically written by module tutors but provide more empirical evidence than the first group. Exploratory practitioner reflections still occupy a large proportion of evidence (for example Hepple et al 2014, Mavroudi and Jöns 2011, Schwarts 2014, and Hsiao-Chien Lee 2014), and the evidence often comes from routine module feedback. Some are written in the style resembling a research article and seem to use a more purposeful combination of methods but miss too much methodological detail or theoretical agenda to include them into the 'research group'. In other cases, detailed quotes from the participants are provided, but the source may be unclear, or there is not enough analysis. One article, for example, presents extensive and thought-provoking quotes from focus groups and students' blogs (Dale and Powey 2009), but offers very thin commentary which also neglects the contradictory or ambiguous responses. If one decided to 'go beyond' the actual study (as suggested by Thomas and Harden 2007), additional insights about the aspects of experience could still be gained directly from the quotes. Some of the quotes resonate with the participants' views in my own study, and this is one example where qualitative methods sometimes allow the participants' voice to break through to the reader and convey a different message than the one intended by the commentary.

Whilst interview quotes allow a glimpse into the details of experience, it is more difficult to unravel how the conclusions have been reached in the studies using quantitative or mixed methods. For example, pre-post self-assessment surveys and focus groups are used to support the claim that "the students gained outstandingly improved awareness of IT careers and significantly improved capacity in multimedia production" (Litchfield 2010, p 564). But on the basis of the information provided, it is unclear what constitutes 'outstanding' or 'significant' increases, or why the increase is attributed to the new assignment, when there are other variables presented.

In other cases, an existing instrument has been adapted, even though its appropriateness is unclear. Downing et al (2014) have used a questionnaire from National Survey of Student Engagement (NSSE) to gauge whether multimodal assessment increased student engagement with their module. The NSSE standard

questions asked about assessment and learning in general, rather than specific assignments. The researchers seem to have simply added one Likert-scale question at the end of the survey, asking "about how often did you feel more engaged due to this assignment?" The conclusions about the increased engagement are made upon comparing two cohorts, only one of which has experienced the video assignment answered the additional question in NSSE. Because this cohort also happens to report stronger engagement in the NSSE survey, it is assumed that the assignment must be one of the reasons, despite acknowledging that there may have been other variables.

At the other end of the scale there are more detailed and formal articles, explicitly described by their authors as "programme evaluation" (Khalili et al 2011), or a "pedagogical evaluative study" (Ryan 2013) or an "instrumental case study" (Goulah 2007). They contain a clearer explanation of methods, often combining a survey with a focus group or interview (Gold et al 2015, Beapler and Reynolds 2013, Lee 2014, Rooney-Varga et al 2014). Some also use reflective essays by the students or the authors' own diaries (Ryan 2013, Goulah 2007), and involve more than one evaluator (Rooney-Varga et al 2014, Khalili et al 2011, Goulah 2007). Most focus on the students, with only one article, by Merola (2010), incorporating a very brief analysis of the artefacts produced.

Research articles. Fourteen articles (representing a third of the corpus) can be considered research studies in their own right, although one is more of a solid theoretical essay. Most contain a formal methods section and are more likely to acknowledge the limitations and the tentative nature of the conclusions based on small samples. Some mention ethical issues, including the teacher-researcher position, or at least a brief reference to the institutional research board policies. Most are either qualitative, or mixed-methods from the interpretivist or ethnographic perspective, with the exception of two quasi-experimental studies (see Fig. 3 below).

Approach	*Methods*	*Study*
Oral life history	Three case studies of production	Dubisar and Palmeri (2010)
Ethnographic	Single-class case study of institutional barriers encountered in implementation	De Voss et al (2007)
	Observation, interviews, video-recordings of the production process, video analysis	Erstad et al (2007), Bruce (2009)
Qualitative interpretive	Interviews, focus groups, blogs, with some artefact description	Hafner and Miller (2011), Hafner (2014), Loch and Lamborn (2015)
Collaborative / participatory with performative elements	Video-performances by teachers, students and researchers, incorporating interviews with students and tutors	Berry et al (2014).
Mixed Methods	Video-taped workshops, interviews, focus groups and questionnaires	LaMonde and Rogers (2007)
Comparative mixed methods	Two schools – different teaching styles or national contexts	Manfra and Hammond (2009); Loftus et al (2014)
Experimental	Pre-post-tests	Frenzel et al (2013) Zahn et al (2014)
Theoretical essay	No methods section	Williams (2014)

Fig. 3 - The nature of empirical evidence and methodological approaches in the reviewed research articles

To give some idea of the diverse research designs employed in this group, DeVoss et al (2007) follow a single case study of a teacher and her class of students through their struggle with the institutional computing network. This results in a vivid narrative and a theoretical argument about "the structures, technologies, decisions" and other institutional barriers that students and teachers must navigate in the course of such assignments. Dubisar and Palmeri (2010) draw on oral life history to produce three in-depth cases studies of student production. The interviews include discourse-based questions to examine the students' rhetorical choices and composing processes. In his teacher-researcher study, Bruce (2009) uses think-aloud protocols, programme-wide surveys, interviews and video tapes, to analyse the group processes and creative decisions employed by students in video-production, as well as the artefacts' visual grammar. This is one of the very few articles which mentions students' frustrations with equipment issues, although these are presented as "a by-product of working with technology" (Bruce 2009, p 447).

Manfra and Hammond (2009) take a comparative approach, presenting qualitative cases studies of two social science teachers incorporating student-created documentaries into their classes. The classes are located in two different schools, and led by teachers with different styles, but share similar content, mandatory curriculum and online digital tools. The study provides thick description of context and analyses the teachers' assignment briefs against their differing styles and interpretations of the curriculum. The empirical material contains observation field notes, semi-structured interviews, focus groups, course documents and student videos. The results of this study are fascinating, in that the produced videos mirror the tutors' respective pedagogical approaches and learning theories, rather than the explicit instructions of the assignment brief. They conclude that "discussing pedagogy is a requirement for any meaningful integration of technology" (Manfra and Hammond 2009, p 239).

Turning to quantitative approaches, Loftus et al (2014) report on a cross-cultural comparative study of the students' readiness for multimodal academic assignments, in the context of foreign language classes at Indian and Irish universities. The study uses a questionnaire with open and closed questions, focusing on students' perceptions of challenges and concerns, pros and cons of the video project, and the previous experience of video creation and sharing. The study finds that both Irish and Indian students are accustomed to creating digital video content for leisure purposes and have been previously exposed to video-production in formal education. Both groups have expressed reservations about sharing self-created content with their peers or through online video-sharing sites, citing shyness or privacy concerns as the main reasons. Technology and skills challenges are mentioned but the participants do not appear daunted by them. They are, however, less comfortable using their own experiences in the videos, "wanting to rely instead on information they had sourced from lectures" or on the Internet (Loftus et al, 2014, p 580). Whilst this suggests that assignments guidelines need to be carefully thought out to address these issues, the overall conclusion is that students are willing to engage with digital video creation, and "ready for its use in academic settings" (Loftus et al 2014, p 581).

Two studies used quasi-experimental designs to determine if video production results in better learning and increased knowledge. Frenzel et al (2013) conducted pre-post-tests of self-care and medication topics with two undergraduate cohorts of pharmacy students. Prior to the tests, one of the two cohorts had produced educational videos on these topics, which were then viewed by the other cohort. The pre-test asked a number of exam-type questions prior to viewing, and the post-test asked the questions immediately after the viewing. The authors report that the students "demonstrated an increased learning", however I found it difficult to unpick their results. There are too many unaccounted variables, some of which are briefly mentioned by the authors. It appears that the quality of videos varied between the topics, due to the students' variation in skills. The exam questions, also written by the students, varied in quality and difficulty making comparisons less convincing. In addition, some of the topics were covered in greater detail than others during lectures. Further, looking at the supplied table of results, it transpired that in one of the topics the number of correct answers dramatically decreased after watching the video (32 correct and 7 incorrect in the pre-test, but only 26 correct and 13 incorrect in the post-test). This is a fascinating result which the authors do not comment upon, leaving the reader to guess whether this might be due to factual errors in the video, or perhaps some students did not take the test seriously and ticked random boxes, or any other possible reason. The article briefly notes that "the limitations of this study include the varying quality of student videos and the exam questions" (Frenzel et al, 2013, p 47). In these circumstances, it is difficult to tell how the claim of "increased learning" can be supported.

Another quasi-experimental study, by Zahn et al (2014), aimed to establish whether the process of creating a video about obesity can contribute to a deeper understanding of the subject. The course group of 17 psychology students created a YouTube video, and a control group of 29 students read an article on the topic. The students were asked to fill out a questionnaire, which included both subjective and objective measures (self-assessment of student knowledge rated on a Likert scale, and questions about the causes of obesity). The study reports a significant difference between the course group and control group, indicating "substantial knowledge acquisition in the course group" (Zahn 2014 p 617). However, from the evidence

presented, whether this can be credited to video production. The difference between reading a newspaper article and making a video involves at least four immediate variables, firstly the mode (textual vs audiovisual), secondly the relation to content ('taking in' vs actively articulating), thirdly, peers (individual vs collaborative activity), and finally the length and depth of engagement with the topic. The control group read the article and were free to read around it if they wanted to, but the course group had a dedicated research phase for the video, as well as encountering the material repeatedly during editing. Given these differences, it is not surprising that "knowledge acquisition significantly increased in the course group" compared to the control group (Zahn et al 2014, p 618). However, it would have made more sense to compare essay and video assignments, as this would eliminate two of the three variables described above. The limited internal validity of the study is acknowledged by the authors, and no claims about video-production are made in the conclusion, apart from the students' ability to successfully use video tools and "media-related skills to present a topic for an audience" (Zahn et al 2014, p 618). However, the closing sentence of the article returns to video, as the authors aim to conduct further research on video creation as an educational method in schools with younger students.

As already mentioned, there is a shortage of artefact analyses, as most studies focus on students' experiences and learning benefits. One of the few exceptions is Loch and Lamborn's (2015) explorative case study, based on a joint project between final year engineering and multimedia students, working together to produce learning resources for first-year students. The study used group interviews with the student- producers, followed by focus groups with the intended audience (first year engineering students). Whilst video analysis was not one of the study methods, the article contains some illustrations and commentary on their tone and style. The videos aimed to introduce new students to mathematical concepts, expecting them to be a more student-friendly and student-relevant medium. However, the focus group participants did not like this approach "as they wanted to have mathematics explained properly; […] not being able to follow all the steps made animations seem overwhelming" (Loch and Lamborn 2015, p 13). Another problem was that the videos "intentionally took a humorous angle with students, balancing being informative and entertaining […]. This humour was interpreted as arrogant by first-year students" who objected to what they felt was the

stereotypical depiction of their chosen profession (Loch and Lamborn 2015, p 13). Despite this, the participants felt that shifting the control over learning resource production from staff to students was beneficial, and that student productions can be tweaked in future. The article concludes that higher-year students are capable of creating good quality resources, in particular in collaboration with multimedia students, but that tutors should still act as advisors for both content and presentation.

One issue that I looked for across the entire corpus, was outliers or dissenting voices. This is because the picture emerging from my own interviews was less uniform, and the students' views more critical than suggested by the literature reviewed here. A close re-examination of each article confirmed my initial impression of a positive slant across the corpus. I am not suggesting that dissenting voices were deliberately suppressed, but it may be more difficult for them to appear in educational research, especially where the aim is to share 'good practice' or the practicalities of implementation. Even where the authors do not make any specific claims, the implicit assumption is that the innovation is in itself beneficial, and the main question is how to do it best, rather than debating its purpose and desirability.

The reviewed qualitative case studies, whilst rich in detail, tend to follow successful examples of productive engagement. Quantitative or quasi-experimental studies also focus on beneficial outcomes, despite questionable methods and evidence. Surveys generally do not give room for elaborations or ambiguities, and any dissent was inevitably lost in the reporting of percentages (focusing on "89% agreed" rather than "11% disagreed"). Even focus groups have been sometimes quantified, with minority views excluded from reporting. For example, in Litchfield et al (2010, p 562), all students were invited to make individual comments on the best and worst aspects of the assignment. The comments were then gathered together and ranked by the whole group in order of importance. Only five highest-ranked positives and negatives made their way into the results, with the original comments reformulated into collective labels (such as "Scheduling difficulties with IT professionals and equipment"). If there was anyone who passionately disliked the assignment, or had a heart-breaking story full of frustrations, this was lost in the process of amalgamation and reformulation.

This leaves several articles with larger samples and open-ended research instruments, where a greater diversity of views would be more likely to appear. Indeed, they include some critical comments from students, resonating with my own interviews. However, these are often mentioned as an afterthought, summarised in two or three sentences and left unexplored. Enthusiastic responses, on the other hand, receive more coverage, with extended quotes and at least some commentary. At times, the students' difficulties are interpreted as a natural part of a learning experience, for example observing that all groups have experienced "significant equipment problems" but then dismissing this as "nothing remarkable; a by-product of working with technology" (Bruce 2009, p 447). At other times it is implied that the students are to blame for their own frustrations, as their project ideas were "rather ambitious" for their limited technical abilities. After noting these limitations or criticisms, the authors quickly point out that most students enjoyed the opportunity to develop skills (Hafner and Miller 2011, p 77).

It is important not to be too hasty in criticising this work, and to bear in mind that much of pedagogic research and evaluation is routine and iterative, so what looks like a discrete article may be a stage in ongoing work with only provisional results. The publication purposes and journal parameters may also constrain the amount of detail or impose a particular focus. Still, given the difficulties in obtaining access to negative experiences or ambivalent views, it is important to give them as much attention as possible, in order to better understand students' diverse positions. I have taken this on board in my own research, actively pursuing any leads that suggested ambivalence or dissent, and ensuring that all such instances are reported and discussed.

3.5. Review summary

The review of published pedagogic evidence has demonstrated that the introduction of digitally mediated multimodal artefacts into HE assessment is an authentic object of study, with relevance beyond media production courses. Despite the shortage of literature specifically dealing with HE, the review confirms that similar initiatives have been steadily making their way in a wide variety of disciplinary contexts, from maths and natural sciences to business, geography, social work or foreign languages. Some of the rationales are based on specific professional concerns and interests, but there are also common concerns with ongoing educational issues. The challenges of the shifting HE environment, the increased expectations from employers, governments and the students, and the concerns about learner diversity and equitable assessment, came through as a strong driver for teaching and assessment innovations, echoing the reasons behind the introduction of screencasts in my own research context.

Evident across the corpus was the assumption of the valuable potential of audio-visual production in post-secondary education, from enhancing disciplinary teaching or professional skills, to advancing the civic agenda. The modes and technologies involved in audio-visual production were presented as more engaging and motivating for today's learners, and affording additional educational benefits compared to the more traditional methods. However, very few authors provided theoretical basis for these assumptions, but approached contested theoretical terms in a common-sense and self-explanatory fashion. The empirical evidence was often thin, with lack of methodological detail. A large proportion of the reviewed articles were pragmatic pieces from the 'sharing good practice' genre. Whilst they included some rich and insightful material, there were also examples of poorly conceived designs and unsupported claims. There was a shortage of detailed analyses of the artefacts, and the student experiences were based on very small examples of successful engagement, rather than a wide range of voices and possible attitudes.

The review process helped me identify gaps in existing knowledge that my study could potentially contribute to. It confirmed that my intention to analyse both the artefacts and the student perspectives was legitimate and useful, and reinforced my intention to actively look for ambivalent and dissenting voices, in order to present as comprehensive picture as possible. I also realised that the three salient concepts, that is affordances, multimodality and engagement / motivation, would need to be unpacked and defined, before using them in my own analysis. Multimodality literature will be introduced in Chapter 5, leading into my methods for investigating the screencasts. Motivation and engagement literature will be discussed in Chapter 8, leading into examination of the students' perspective. As a more over-arching concept, affordances and their enactment underpin the whole research and the final substantive theory. Therefore, it will be discussed next in Chapter 4, as the final step in contextualising my study. This will provide an important lens through which both the screencasts and the interviews can be productively analysed and used as the basis for theory development.

Chapter 4. Review of theoretical literature on affordances

Originally coined by psychologist James Gibson in 1977, the term "affordances" refers to action possibilities offered to animal and human actors by the environment in which they operate. Since then, the term has been applied to examine various tools and technologies in several fields, including industrial design, communication, HCI and e-learning. The articles reviewed in chapter 3, reflect the tendency in such literature to view affordances as the inherent characteristics of specific technologies or pedagogic models that supposedly promote student engagement and better learning.

'Affordance', however, is a highly contested term, with many disparate reformulations, provoking debates about its utility. Education technology research has often used the term at face value, to support celebratory views of technology or institutional expectations of improvements (Boyle and Cook 2004). McGrenere and Ho (2000) argue that due to long-standing misuse and ambiguity, the original definition needs clarifying and expanding before it can be meaningfully applied. Oliver (2005) goes even further, calling for the concept to be abandoned altogether, as its "degenerate" uses were only "muddling both research and design" (p 412). Revisiting the issue several years later, he finds that approaches to affordances still tend to be essentialist and technologically-determinist, ignoring "the people, their purposeful action, their values and concerns" (Oliver 2011, p 375). Whilst social science research takes a more rounded view of affordances, which include people's agency, Parchoma (2014) argues that their evolving definitions have been obscured by the previous naturalised and technocratic uses of the term in other fields (Parchoma 2014, p 360). As we shall see in the rest of this chapter, Gibson's original affordance theory, whilst incomplete, already contained all the necessary elements including agency, so the naturalised and technocratic applications are the case of misuse, rather than the inherent flaw. For example, looking at its uses in the field of communication research, Nagy and Neff (2015) argue that the concept was "misappropriated" from psychology, in a way "that neither fits with how the term is used in that discipline nor helps communication scholars to advance theory of our own" (Nagy and Neff 2015, p1).

Despite all this, the term remains attractive due to its high explanatory potential. Gibson's original definition involves the mutuality between the agent and the environment, as well as the coupling of perception and action, making it productive for examining socio-material phenomena and relations. Rather than abandoning the concept, Nagy and Neff (2015) call for "an evolved affordance theory that addresses the emerging theoretical and empirical concerns" of their field (Nagy and Neff 2015, p 5). This echoes Golonka and Wilson's (2012) earlier point that

> "Gibson's ecological approach continues to have much to offer […], but it remains to be seen if [researchers] can accept and work within the constraints of a real theory as they attempt to explain more complex cognition and behaviour" (Golonka and Wilson 2012, p 49).

The review of affordance literature in this chapter to some extent represents my own 'journey' of understanding. I began this research with a very limited and technocratic view of affordance, as evidenced by my early transcription memos using self-explanatory phrases, such as "the social affordances of the Internet make the screencast shareable". At that point, I understood it as one technology having this affordance, and another technology having that affordance, with lack of access or training as the main barrier to utilising these affordances. However, a close analysis and constant comparison of empirical material revealed a much more complicated picture, which did not fit the technocratic explanations. I embarked on extensive reading (only a small part of which is presented here), whilst continuing to interview, transcribe, code and interrogate my emerging categories. It is during this iterative process, that "Enacting Affordances" finally emerged as an all-encompassing key category, providing the foundation for the substantive theory presented in Chapter 11. All aspects of the screencast production, the institutional environment and the module framework, the broader social processes, the nature of the resulting artefact, and the participants' experiences of learning and production, can be conceptualised as enacting multiple types of affordances.

The parameters of this thesis make it impossible to discuss all the existing schools of thoughts and permutations of the term, nor do justice to all the writers whose work

has contributed to deepening my understanding. However, given all the debates, critiques and misappropriations, it is important to start from revisiting Gibson's original theory, highlighting the key ideas that influenced subsequent researchers as well as my own study. From there, the chapter moves on the application of the term in design, social psychology and social sciences[6]. Finally, the discussion considers the notions of disciplinary and mode affordances in the work on knowledge representation.

4.1. Gibson's theory of affordances

The affordance theory was initially proposed in 1977 by environmental psychologist James Gibson, as a critical antidote to the mechanistic views of behaviour as a chain of stimuli and responses. Throughout his seminal work *The Ecological Approach to Visual Perception* (1979/1986), Gibson draws animal behaviour in a natural environment, where the contexts of danger and survival present the clearest examples of the processes he describes. However, his primary interest was in human perception, underpinning his research into human ventures, such as training military pilots. The term 'animal' in his work is used in a general sense, to differentiate animate beings from the inanimate ones, which "do not behave […] lack a nervous system and do not have sensations" (Gibson 1986, p 7). Elsewhere, he clarified that "we should assume a human animal as observer" (Gibson 1982, p 403). Later authors often use the terms 'agent' or 'actor', rather than 'animal' or 'observer', due to their focus on action rather than on theory of perception. In this chapter, I will do the same, except when quoting or paraphrasing Gibson. This will allow me to avoid biological connotations, and at the same time emphasise agency, which is crucial to my own study.

Gibson defined affordances as action possibilities that environment offers the actor, "what it provides or furnishes, either for good or ill" (Gibson, 1986, p 134). Two points are particularly relevant here: the mutuality of agent and environment, and the coupling of perception and action. For Gibson, an observer is an integral part of the environment, and the environment only exists in relation to the observer who gives it meaning. Gibson understands affordance as a dynamic and relational concept, which

[6] I will not review the uses and misuses of the term in education technology literature, but a clear and comprehensive critique can be found in Boyle and Cook (2004).

depends on the existence of some physical or material properties of the environment, and on the observer/actor's capability to act. Affordances, therefore, do not reside in the objects, but are a relation between the pre-existing properties of the environment and the properties of the actor. The concept of affordance transcends the 'subjective-objective' dichotomy, incorporating both dimensions:

> "An affordance is […] equally a fact of the environment and a fact of behaviour. It is both physical and psychical, yet neither. An affordance points both ways, to the environment and to the observer" (Gibson 1979/1986, p129).

In his later notes on affordances, he clarifies:

> "Not only objects but also substances, places, events, other animals, and artefacts have affordances […]. Affordances are not simply phenomenal qualities of subjective experience, [nor] simply the physical properties of things as conceived by physical science. Instead, they are ecological, in the sense that they are properties of the environment relative to an animal" (Gibson 1982, p 404).

An important shift from the older theories of perception is the theory of information pickup. Gibson's use of the term 'information' differs from "familiar dictionary meaning of knowledge communicated to a receiver" (Gibson 1979/1986, p 242). Whilst appropriate for the theory of communication, where "words and pictures convey information, carry it, or transmit it", he argued that the absence of 'communicator' makes it inapplicable to the perception of environmental information, which "is not conveyed [but] is simply there" (Gibson 1979/1986, p242). The information has to be actively scanned, detected and selected from multiple possibilities "in the sea of energy around each of us", picking up those elements that are relevant to the observer, given situation and possible actions. He explains that formation pick-up does not mean a passive absorption through individual senses. Rather, the dynamic and active "perceptual systems" consist of multiple organs and their adjustments, for example visual system involves not only the eye, but also the movements of the head and the body, and the nerve fibres making a continuous input-

output loop that “obtain information actively” (Gibson 1979/1986, p 245). This has important implications for learning:

> “Sensations of one modality can be combined with those of another […]; they can be organised or fused or supplemented or selected, but no new sensations can be learned. The information that is picked up, on the other hand, becomes more and more subtle, elaborate and precise with practice […] Perceiving gets wider, and finer, and longer, and richer and fuller as the observer explores the environment […] this definition includes within perception a part of memory, expectation, knowledge and meaning – some part but not all of those mental processes in each case” (Gibson 1979/1986, pp 245 and 255).

Perception of affordances, therefore, involves active exploration, as well as overt attention and learning from past experiences. The tight coupling of perception and action is one of the most important tenets of Gibson’s theory. Perception involves movement, ranging from simple adjustments of body for better view, to more complex information-gathering activities. The observer is not passively "bombarded by stimuli”, but “extracts invariants from a flux of stimulation” (Gibson 1982, p411), and through this active information pickup can “orient, explore, investigate, adjust, optimize, resonate, extract, and come to an equilibrium” (Gibson 1979/1986, p245).

Gibson’s point that “affordances do not cause behaviour but constrain or control it” (Gibson 1982, p 411), has led to some interpretations of affordances as subject to actors’ intentions. However, Gibson is very clear that an affordance exists independently of needs or wants, as it is based on invariants (water affords drinking whether we are thirsty). Gibson points out that the fluctuating tastes and preferences can make “something that looks good today look bad tomorrow”, but “what it offers the observer will be the same” (Gibson 1982, p410). What does change, however, is the positive or negative ‘valence’ of an affordance, as well as its perceived relevance. The observer’s needs and intentions “control the perception of affordances” through selective attention, and therefore “initiate acts”. (Gibson 1982, p411).

Affordances in Gibson's definition are not necessarily beneficial, contrary to the common misuse of the term. As we have seen in chapter 3, many reviewed articles used it in a binary opposition to limitations, for example, using the phrase "affordances and constraints" as a substitute for "strengths and limitations" or "benefits and drawbacks" of a technology. In Gibson's original meaning, all affordances both enable and constrain behaviour, narrowing down a range of action possibilities. Moreover, "any substance, any surface, any layout has some affordance for benefit or injury to someone" (Gibson 1979/1986 p140). Further, affordances do not exist in isolation, but are nested, with the simple invariants being part of more complex and variable entities, which include their own affordances. Here he made an important distinction: "Physics may be value-free, but ecology is not", so "the perceiving of an affordance is […] a process of perceiving a value-rich ecological product" (Gibson 1979/1986 p140). Whether an affordance is beneficial or harmful depends on the properties of the actor. For example, open terrain affords seeing but constrains hiding, which would be experienced differently by predator and prey. Although Gibson talks about 'positive' and 'negative' affordances, he warns that these "slippery terms" should be" used with great care", bearing in mind that they are relational rather than objective or subjective (Gibson 1986, p137).

Gibson acknowledges that affordances become more complicated within social and artificial environment. A populated environment is more than a terrain with animated social objects; humans change and shape their space, making "more available what benefits [them], and less pressing what injures [them]" (1986, p 130). This includes social interactions, where people provide "the richest and most elaborate affordances of the environment" (Gibson 1986, p135).

> "Behaviour affords behaviour, and the whole subject matter of psychology and of the social sciences can be thought of as an elaboration of this basic fact. All [kinds of behaviour] depend on the perceiving of what another person or other persons afford, or sometimes on the misperceiving of it" (Gibson 1986, p135).

People are not simply part of the environment but also the perceivers of the environments, with all the objects and other actors that populate it. This means that "each observer is aware of a shared environment, one that is common to all observers" (Gibson 1982, p 411). This shared environment is more than just a co-habited place. Human observers can switch their point of view to the standpoint of another person, whether physically moving their position to see what the other is seeing, or through vicarious perception mediated by words or pictures. This creates a joint awareness of the shared world, and of the multiple possible perspectives on it. The complexity and richness increase with mediated interaction, "when vocalisation becomes speech, and manufactured displays become images, pictures and writing, the affordances of human behaviour are staggering" (Gibson 1986, p137).

Mediated perception is even more complicated, because it is both direct (in terms of hearing the sounds and seeing the images) and indirect, due to the pre-selection and manipulation of information by the speaker, writer or artist. Both kinds of perception take place at the same time, "the sign is often noticed along with what is signified", but Gibson argues that the result is the same, "the opportunity to metaphorically see through the eyes of another" (Gibson 1982, p 412). Whilst descriptions put "the optical invariants into words", the image-makers "can arouse in us an awareness of what they have seen [..] or imagine, without converting the information into a different mode" (Gibson 1979/1986, p262). Gibson was interested in depictions since the 1920s, and recalls that his "first effort in psychology was an experiment on the perception of drawings", puzzling over this for years to come, "trying to formulate a definition of picture" and then having to reformulate it "repeatedly as my optics shifted and my theory of perception developed" (Gibson 1979/1986, p270). The final section of his seminal book *The Ecological Approach to Visual Perception* raises many intriguing questions and outlines possible avenues for evaluating still and motion pictures from the perspective of ecological optics (Gibson 1979/1986, pp 267-302), but compared to direct perception, these areas are only briefly sketched out.

Gibson repeatedly stated that his theory is provisional and invited others to debate and test it. He argued that the mediated perception through pictures and other "virtual objects, places, events and persons" needed further understanding and theorising. The impact of personality and motivation also remained undeveloped in his work and had to be picked up by other writers. However, this brief overview demonstrates that Gibson's theory contains all the key elements, generally applicable to diverse areas and disciplines (with some elaboration and qualification).

4.2. Technological affordances

In educational technology literature affordances are often understood as the features of human-made objects that enable specific user behaviours, or the expected beneficial outcomes of such features. Similarly, communication technology research often presents "lists of affordances" without conceptually defining them, nor acknowledging that they "exist at micro- or context-dependent level" (Evans et al 2017, p 36). For example, Conole (2013) uses the term to refer to the inherent advantages and disadvantages of particular ICTs, whereas Hansch et al (2015) propose a typology of multiple affordances of video for online learning, including "building rapport", "telling stories", or "motivating learners" (p 11). These uses can be traced back to Norman (1988), who has applied Gibson's theory to the design of everyday objects, defining affordances as "the fundamental properties that determine just how the thing could possibly be used" (Norman 1988, p 9). Where Gibson insists that an affordance can lead to beneficial or harmful action depending on the actors' perception and capabilities, Norman (1988 and 2013) coins the term 'anti-affordances' to specify the constraints which prevent action. For example, a glass window affords seeing through it, but at the same time blocks passage (Norman 2013, p11). To give an example from my own research context, a highly detailed assignment brief affords guidance but constrains exploration and experimentation, whilst an open-ended assignment brief can be liberating for some students, but confusing and threatening for others.

Norman (1988) emphasises the cognitive and communicative aspects, arguing that affordances "result from the mental interpretation of things, based on our past knowledge and experience" (Norman 1988, p219). Norman's work is practically oriented and addressed to designers, who widely adopted his ideas, although it has also attracted criticisms for confusing terminology. Whilst Gibson makes a distinction between affordances and the information signalling them to the observer, Norman's early work applies the same term 'affordance' to both (Norman 1988). This is rectified in a revised edition, adding the term 'signifier' to distinguish the affordance itself from the information about it (Norman 2013), but during the two decades in between, the understanding of affordances as technological interface features has established itself in much of design, technology and e-learning discourses.

In his critical review, Oliver (2005) argues that Norman's shift from 'real' to 'perceived' affordances make the concept "analytically redundant" for education researchers, since "real affordances are unknowable" (Oliver 2005, p 406). However, Oliver's objection runs contrary to Gibson's insistence that ''the central question for the theory of affordances is not whether they exist and are real, but whether information is available […] for perceiving them'' (Gibson 1979/1986, p140). This does not mean that Gibson agreed with Norman's emphasis on 'perceived affordances' (see Norman 2013, pp 11-12 for his recollection of numerous debates with Gibson). But it suggests that the efforts of empirical investigation should focus on identifying the perceptual information about affordances, as 'real affordances' are relative to the observer.

The distinction between real and perceived is more problematic in the context of Norman's intended audiences. Norman focuses on artificial objects, designed with specific functions or utility in mind, and in this context, there are no 'natural' or 'pre-existing' affordances, they are subject to designers' expectation of imagined users and their needs and preferences. These imagined users are not figments of designers' imagination, but constructs based on research and practical experience. For example, Nagy and Neff (2015) in their discussion of Facebook argue that users' expectations about technologies and media, affect what they perceive as action possibilities. Although these expectations might not have been deliberately built into the tool, "they

nevertheless become part of the users' perceptions of what actions are available to them" (Nagy and Neff 2015, p5). Therefore, imagined affordances

> "emerge between users' perceptions, attitudes, and expectations; between the materiality and functionality of technologies; and between the intentions and perceptions of designers" (Nagy and Neff 2015, p5).

In some research contexts therefore, 'intended, 'imagined', or 'perceived affordances' can be productive analytical concepts, as long as they are clearly defined and operationalised, rather than using the general term 'affordance' as a stand-in. Further, the designers' imagination, even of rooted in practice, varies from designer to designer, and is not equal to the real users and their actions (as evidenced by unintended uses of designed objects). When considering non-perceptual kinds of awareness, Gibson makes a distinction between 'imagining creatively' and 'imagining wishfully' or 'fearfully':

> "To expect, anticipate, plan, or imagine creatively is to be aware of [things] that do not exist or events that do not occur, but that could arise or be fabricated within what we call the limits of possibility. To daydream, dream, or imagine wishfully (or fearfully) is to be aware of [things] or events that do not exist or occur, and that are outside the limits of possibility" (Gibson 1979/1986 p255).

Bringing this back to my study, it is possible to apply this point to assessment design. An assignment brief can be designed 'creatively', with reasonable and well-informed anticipation of students' possible reactions and capabilities, or it can be designed 'wishfully / fearfully', over-estimating and under-estimating the students' existing skills or interest in specific technologies. At the point of use, the students can also 'imagine creatively' or 'imagine wishfully / fearfully', and this depends as much on the students' histories, needs and capabilities as on the features of the assignment brief. The pedagogic case studies reviewed in Chapter 3, can also be seen as a combination of 'creative' and 'wishful/fearful' imagining, for example in assuming that traditional assignments no longer work for digital natives, or in presenting an uncritically triumphant picture and glossing over the possible differences in students' attitudes.

The strand of literature building on Norman's understanding of technological affordances contains many useful insights, and its focus on the salient material features offers a counterbalance to overly psychological explanations. However, its view of affordances as typically beneficial technological features or outcomes is limited, and in the context of the present study, it fails to explain the differences in the participants' experiences and the artefacts produced. Since then, more productive avenues have been opened by writers working from the socio-materiality perspective, which is more consistent Gibson's original ecological and relational concept.

Orlikowski's (2000, 2007 and 2009) notion of 'technology-in-practice' helps to broaden the focus to incorporate the tools, the users and the organisational context. Higher Education is an important institution, and a university represents an organisation within that institution, so it is appropriate to pay some attention to institutional / organisational context. Orlikowski reconceptualises technology "as a process of enactment", which includes not only people's interaction with specific tools, but also the way in which they "enact structures which shape their emergent and situated use of that technology" (Orlikowski 2000, p 404). The argument can be extended to any context where we can perceive a "regularized engagement" with technology, where they "enact a set of rules and resources" under particular conditions and for context-relevant purposes (Orlikowski 2000, p 407). In this perspective, potential uses are not "embodied" in technologies, but emerge in situated interactions. This is not to dismiss materiality - the users do draw on the material features of the technological artefact "provided by its constituent materiality", but they also draw on their own knowledge and skills, their history of past uses, the institutional norms and expectations of legitimate uses, as well as broader "social and cultural conventions associated with participating in such contexts" (Orlikowski 2000, p 410). The distinct "technologies-in-practice" that emerge as a result are therefore structured, but not determined by any one of these influences, and they are also subject to change.

Although Orlikowski does not explicitly use the term 'affordances', the described processes of engagement are highly relevant and compatible with Gibson's ecological view of affordances. Her work has also informed some of the more recent studies focusing on the 'socio-material' affordances of technology in organisations. Lindberg and Lyytinen (2013) build on this approach, moving away from singular tools and user groups to the patterns of "affordance enactment" within the whole organisation and across multiple technologies. They introduce the concept of 'affordance ecologies' which intersect people, technology and work patterns, with "multiple interacting and evolving affordances, both latent and enacted, situated in particular organizational practices and anchored in specific technologies" (Lindberg and Lyytinen 2013, p 42).

This becomes particularly relevant when examining affordances involved in assessment. Assessment is a social and institutional practice, which involves cultural assumptions and values, organisational norms, rules and regulations, disciplinary canons and literacies, and the changing communication technologies. Even traditional assignments such as essay, have been affected by digitization, for example online research, ease of editing, formatting expectations, electronic submission and remote collaboration and feedback. Newer assessment methods, such as audio-visual presentations, blogs or screencasts, are even more strongly 'anchored' in specific technologies, as well as involving alternative media and literacies. University assessment represents a specific 'affordance ecology' with some features shared across the sector, and others specific to local practices and cultures. Each of the elements involved in assessment, allows and prohibits a range of possible actions that the student can perceive and take advantage of, completely miss, or even subvert.

The recent review by Evans et al (2017) acknowledges that a strong dependence on the micro-context presents ongoing difficulties for anyone wishing to build a unified theory. However, this is less of an issue for developing a substantive theory closely based on one specific empirical context, such as the one presented at the end of this thesis. Consistent with Gibson's original concept, Evans et al define technological affordances as

> "a multifaceted relational structure between an object/technology and the user that enables or constrains potential behavioural outcomes in a particular context […] they emerge in the mutuality between those using technologies, the material features of those technologies, and the situated nature of use" (Evans et al 2017, p 36).

To evaluate the conceptual validity of a proposed affordance, both in own research and when reviewing work of others, Evans et al (2017) put forward a set of three basic threshold criteria. Firstly, researchers need to check and confirm that the proposed affordance is not a structural feature of the object, which is the most common misuse. The easiest way to distinguish between them, is that features are static, whilst affordances are dynamic and emerge when the user interacts with the object and its features. Consequently, "individuals agree on common features of an object but may disagree about its affordances" (Evans et al 2017, p 39). Secondly, the proposed affordance should invite action that can lead to an outcome, but it is not in itself an outcome. Using an example of a social media user looking for her neighbour's photographs, they explain:

> "If an actor's social media goal is locating a photograph of a new neighbour, one might argue that social media affords viewing profile pictures of individuals. However, we argue that social media affords increased visibility and searchability of content, which leads to locating photographs […] Visibility and searchability are not features tied to one object, nor are they outcomes; rather, they reflect the relational link among the object, user, and outcome" (Evans et al 2017, p 40).

The final criterion is whether the proposed affordance can lead to multiple outcomes. Whilst features are binary, affordances can materialise in degrees, gradations, variations or contradictory behaviours. The reasons can be due to the material features of the technology, the users' capabilities or situational differences, but whatever the reason, "understanding that affordances have variability is necessary to retain the underlying principle that affordances are a relational construct that sit in between - but do not determine - objects and outcomes" (Evans et al 2017, p 40).

This idea is particularly useful in the context of my study, helping to explain the differences in the participants' experiences and evaluations of the assignment.

4.3. Social and cultural affordances

One of the key writers in this area is Heft, whose work is largely compatible with Gibsonian tradition, except a greater emphasis on intention. Aiming to integrate ecological psychology with his own field of behavioural analysis, Heft (1989 and 2003) introduces an explicit sociocultural dimension to affordance theory, including the normative aspects, for example distinguishing between the affordances of 'can do', 'ought to do' and 'knowing how to do'. Even such simple decisions as stepping on a particular surface, involve both the actors' physical capability and social conventions. Not only are affordances relative to the immediate situation, but they are "embedded in a temporally extended flow of events that includes the perceiver's history of engagements with the environment" (Heft 2003, p158). Through socialisation and cultural processes, objects and artefacts acquire "canonical meanings" related to their proper uses and / or symbolic significance. These meanings are stabilized through socialization and are evoked in our encounters with objects, so the previous history is "tacitly brought to present experience" (Heft 2003, pp 172-173). In contemporary constructed human environments, affordances are "embedded in ongoing collective social activities", some of their meanings are inherited from earlier socio-historical practices, serving "as a platform for future endeavours" (Heft 2003, pp 176). This is part of the process of 'enculturation', which refers to

> "acquiring a repertoire of acts, each act being situated with respect to a particular set of environmental features, the functional significance of which are socially conveyed" (Heft 1989, p18).

Although attention to sociocultural context was clearly present in earlier work, it was Schmidt (2007) who introduced the idea of 'social affordances' in their own right. Schmidt builds on Gibson's relational view but argues that it is necessary to "take seriously the ontology of the social world", as it has its own independent dynamics.

Whilst he agrees with Gibson that social world is embedded in the natural world (rather than being a mental representation), the specific properties of social environment need to be thoroughly considered, along with the actors' "real and embodied" social roles (Schmidt 2007, p 137). Schmidt's argument is broadly similar to Heft's, in that it involves objects acquiring multiple affordances through socialization and enculturation. However, this does not only apply to 'proper vs improper uses', but also the objects' symbolic meanings and cultural rituals. For example, within social and cultural practices a simple everyday object may acquire additional affordances, such as buying or gifting. Gifts, here, are "cultural tools used to achieve a social goal, namely, to solidify a social bond", making them part of the "gift-giving cultural game" (Schmidt 2007, p 142). Social affordances are "inherently intersubjective", in that they are created by the mutual behaviour of several actors (buyer and seller, giver and receiver), as well as their knowledge and prior experience of social and cultural norms and conventions. Echoing Heft's point, they "exist in a temporally extended and historical fashion'' (Schmidt 2007, p 143).

This does not invalidate Gibson's original emphasis on direct perception, nor suggests that social affordances are entirely in the mind. Drawing both on Heft's (2003) "history of engagement" and Gibson's (1986) example of an occluded object persisting in memory, Schmidt explains that "the past is perceived, and perceived directly" as we interpret "not being there" with reference to "having been there" (Schmidt 2007, pp 144-145). The information to be picked up is always available from the person's 'eco-niche', and the act of remembering is distributed across the person and the environment, so that "the past is present at any moment because we carry it around with us" (Schmidt 2007, p 146). Therefore, social affordances can depend on the actor's cognitive and affective associations, as well direct perception:

> "Such knowledge is not available in the environment, but comes to the agent upon reflection, and may very well affect the perceived affordances of the object at hand. In other words, the object has a meaningfulness that can only be indirectly perceived, mediated through the agent's existing social representations about the world" (Knappett 2004, p 48).

More recently, the concept of institutional affordances began to be theorised in organisational studies, drawing on the notion of organisations (or micro-institutions) as 'eco-niches'. Institutional systems are based on specific sets of rules and roles, and actors must possess "institutional knowledge" to perceive and "actualize" the existing affordances (Fiebich 2014, p153). Further, institutional contexts ascribe particular status functions to both objects and actors operating within them. As agents within organisations are involved in collective action, the process of joint attention becomes important. This means that "oneself and another agent are attentive towards the same ecological entity, and this awareness is mutually shared or is mutual common knowledge among the agents" (Fiebich 2014 p154).

Several points are particularly relevant to my study. Firstly, actors within an institutional context share an awareness of social rules and norms, but may have different levels of commitment to them, impacting on the selective information pick-up and realization of affordances. Secondly, institutional affordances require the actors to assume identity roles that are engaged in the institutional context, as well as perceiving their own "socio-normative ability to make use of institutional affordances" (Fiebich 2014 p162). Thirdly, objects within institutions have status functions, collectively recognised by the social groups relevant to the actor. The relevant social groups can include those within and outside organisations, as demonstrated in Hadfield and Jopling's (2014) study, where the participants' uses of specific technologies differs according to their perceived status in their professional and social environments. Taking this back to the uses of technology in education, Brown (2014) views affordances as "the offerings of the environment for facilitating and impeding teaching and learning" whereby "affordance bearers are those specific objects within the environment that enable an affordance to be enacted" (Brown 2014, p 201).

The basis for institutional affordances is provided by collective intentionality, which is defined as "the power of minds to be jointly directed at objects, matters of fact, states of affairs, goals, or values" (Schweikard and Schmid 2013, np). It involves several sub-processes or facets, which can be differently combined in different institutional contexts, impacting on individual and group realization of affordances. Organisations are not homogenous entities, but contain different interest groups, who are also

affiliated to various groups outside the organisation, whose influences can run in competing directions. As will be demonstrated later in the thesis, students' responses to assignment brief can be constrained both by a multitude of factors: the institutional norms and assessment regimes, their personal histories, but also peers, tutors, industry professionals, or interest groups outside the university.

Joint attention, the most basic aspect of collective intentionality, creates co-awareness of the world between multiple and diverse actors, and a common ground for communication and action. Shared intention allows them to engage in co-ordinated and co-operative joint action, whilst shared beliefs provide common stocks of knowledge to draw upon. Together, they provide "a background against which relevant new information, which we may want to share with others, becomes salient" (Schweikard and Schmid 2013, np), and this impacts on the selective information pick-up about affordances on offer. Further, collective acceptance means a shared apprehension and use of symbols, including language and social status. Finally, shared evaluative attitudes provide "a conception of the common good", enabling us to "reason from the perspective of our groups, and conceive of ourselves in terms of our social identities and social roles" (Schweikard and Schmid 2013, np). These processes, and the resulting collective intentionality, allow organisations such as universities to assume the role of a group agent, although it is probably more productive to think of them as multiple group agents.

4.4. Representational, disciplinary and mode affordances

This final section looks at the ways in which the term 'affordance' has been applied in the area of communication and representation. 'Mode' refers to a set of meaning-making resources which are socially organised into a specific "channel" of representation, for example speech, gesture, writing, moving image (Kress 2014). Mode affordances are the meaning and action possibilities that each mode offers within the overall ensemble of multimodal communication:

> "If there are a number of distinct modes in operation at the same time […], then the first question is: 'Do they offer differing possibilities for representing?' […] 'What are the affordances of each mode used in the science classroom; what are the potentials and limitations for representing of each mode? […] (Kress et al 2001, p1).

For example, speech and writing have their own different materiality, with different structures and affordances. However, both are based on language, sharing a time-based logic, with sounds pronounced (or letters written) "one word after another, one syntactic and textual element after another"; this "sequentiality" can be seen as a linguistic affordance (Mavers 2015, np). Still images on the other hand, rely on spatial logic with simultaneous representation, which offers different action possibilities from sequential logic. Actional modes (such as gesture) have their own expressive potential, for example in pointing location.

As discussed throughout this chapter, affordances arise from the perceived properties of the environment and its objects, in the light of the actor's capabilities and interests. The meaning potential of specific modes is also based on their materiality and the actor's perception, capabilities and interest (Mavers 2015, np). But because communication is fundamentally social, as well as involving rhetorical and often aesthetic functions, it is subject to the socio-cultural, formal and genre conventions. By possessing different material qualities, as well as conventional uses, each mode allows some action possibilities and at the same time restricts the others.

The full meaning of communication is not realised in isolation, but in the combination of modes and other semiotic resources, and specific combinations have affordances of their own. For example, in the context of a lecture, an image or a physical model can provide "a stable foundation on which to overlay, through speech and gesture, transient representations of movement and change", and in the case of diagrams also "abstract away detail" (Kress et al 2001, p59). Parallel 'show-and-tell' actions frequently used in demonstration not only combine individual affordances of speech, gesture and object, but also create new affordances which only arise in this specific combination. The affordances involved in the "physical materiality" of individual

modes and their combinations, are further extended when combined with technological tools of expression. Bateman (2016) refers to this as the affordances of a "virtual canvas" which "can be 'bent' or 'cut' in some ways rather than others" (Bateman 2016, p 40). This will be evident in my artefact analysis in chapter 7, showing how some screencasts enact the affordances of live demonstration, and this enaction is enabled by the technological affordances arising from their manipulation of video-editing software.

Finally, Airey and Linden (2009) introduce the notion of disciplinary affordances, further developed in Fredlund et al (2014). Airey and Linden (2009) argue that undergraduate science learning can be conceptualized partly as a degree of fluency in disciplinary discourse. They define disciplinary discourse as "the complex of representations, tools and activities of a discipline", made up of numerous modes (Airey and Linden 2009, p 27). In the context of science, these modes include speech, writing, mathematical formulas, pictorial and diagrammatic images, as well as gestures, tools and working practices. Experimental tools, measuring equipment or analytical routines constitute scientific modes as much as more general means of communication, such as speech or image. Student learning, therefore, involves not only internalising a body of existing conceptual knowledge, but also becoming proficient in "the ways of knowing that constitute a discipline and the modes of disciplinary discourse" for representing it (Airey and Linden 2009, p 27). Drawing on Kress's (2001) notion of mode affordance, they define disciplinary affordances as "different possibilities for representing disciplinary ways of knowing" (Airey and Linden 2009, p 29). Whilst previous multimedia research focused on the learners' ability to process content via multiple sensory channels, it is also important to examine the learners' ability to draw on multiple modes in creating their own representations. In the process of translating between modes "can help students notice discrepancies between their way of knowing and that of the discipline", however not all modes are equally useful and "only certain critical constellations of modes of disciplinary discourse may be able to afford access to disciplinary ways of knowing" (Airey and Linden 2009, p 34). This links back to Gibson's view that the same affordance can have positive or negative valence (see Chapter 4.1).

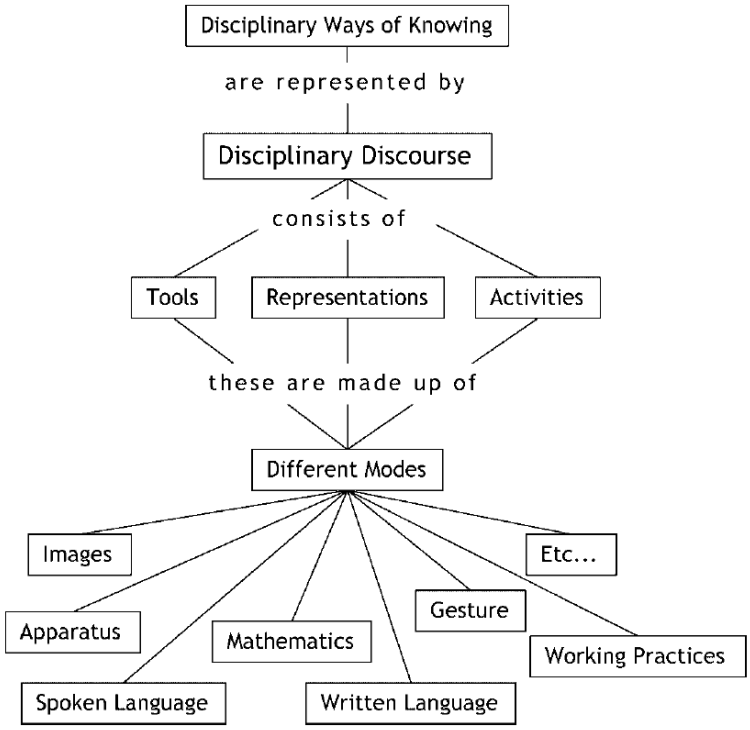


Fig. 4 - Disciplinary discourse, modes and ways of knowing (Airey and Linden 2009, p 29).

Building on this idea, Fredlund et al (2014) argue that scientific representations, whilst powerful and historically rationalized, may constitute a barrier for novice learners. Different modes and representations do not only involve different affordances, but they also provide a varying degree of access to disciplinary knowledge. A pictorial representation of a falling body may refer to the same law of physics as a mathematical equation or a scientific diagram, but their interpretation depends on different prior knowledge. The relevance and precision, as well as the focus on a specific aspect, can also differ, according to the chosen mode of representation:

> "From a physics point of view, the free-body diagram captures important aspects of a mechanics situation. However, in order to calculate a numerical answer, certain pieces of information need be "converted" into an equation for "treatment". An experienced physicist will choose the most appropriate representation according to the task at hand – in other words, the representation with the most appropriate disciplinary affordance" (Fredlund et al 2014, p 1).

I will return to this again in chapter 7, screencast analysis. The screencasts in my sample have been produced in an arts context, and therefore do not use the highly abstract scientific formulas. However, they still involve a conversion from verbal to audio-visual expression of knowledge, which included a shift from the more abstract to the more concrete aspects of the topic, as well as the processes of nominalization and rank-shifting described by Fredlund et al (2014). Drawing on Halliday's work, Fredlund et al define nominalization and rankshift as the transformation of "a more complex unit of language to a less complex one", by converting a whole clause into a single noun, or a short "nominal group" which can take place of a noun (Fredlund et al 2014, p 3). Examples such as "cancer death rate" or "kinetic energy conservation" are conventional in scientific writing and afford a more efficient way of communication. Mathematical formulas have a similar role, where a single letter or symbol can represent multiple operators, "facilitating its use in more complicated equations" and making "the notation less cumbersome" (Fredlund et al 2014, p 3). But this also makes the expression more abstract and general, so the benefits depend on the user's needs and abilities:

> "Rank-shifting and nominalization may thus result in ambiguous messages for noninitiated readers. In our case, we argue that the more a representation has been subject to rationalization, enhancing its usefulness to physicists, the more inaccessible these parts of the information potentially become to students" (Fredlund et al 2014, p 4).

Recasting this argument in Gibson's terms, we could say that the abstract nature of a mathematical symbol offers a positive affordance for an experienced scientist. But for a novice user this affordance may have a negative valence, because the abstract nature of the symbol does not contain any clues about its meaning and requires extra effort and prior knowledge of the 'code' to interpret it, contextualize in a given real-life situation or apply to a specific problem.

For this reason, Fredlund et al (2014) suggest that the teaching of science should spend more time on "unpacking" disciplinary representations. This argument can be

extended to other fields, such as music teaching and general academic discourse which also uses specific conventions (although not as extensive or specialized as scientific or musical notation). This may be less important for arts disciplines, where pictorial language is a primary mode of expression, rather than highly abstract symbols. However, in art-related disciplines there is still room for discussing the ambiguity of image, which can on the one hand reduce and simplify the verbal meaning, but on the other hand increase the range of possible interpretations. This is particularly important for 'applied' uses of art, such as educational or public information comics or animations. Fredlund's et al (2014) second recommendation is to pay more attention to the development of students' meta-representational competences (MRCs), to enable the students "to appreciate the disciplinary affordances of representations" (Fredlund et al 2014, pp 10).

PART III: INVESTIGATING THE SCREENCASTS

Parts I and II outlined the main information about the study and contextualised it in three bodies of literature, examining the recent shifts in HE environment, the introduction of multimodal assignments in response to the new challenges, and the existing theoretical literature on affordances. Part III moves on to my object of study, student-produced screencasts, addressing the first research question (RQ1), "What is the nature of the student-produced artefacts, including their form, meanings and types of knowledge produced?". It begins with Chapter 5 which outlines current approaches to multimodal artefacts, clarifying the agenda and focus for the upcoming screencast analysis. Chapter 6 explains the methods and analytical techniques used, and how the tensions between grounded theory approach and software-based coding have been addressed in the study. Chapter 7 presents a detailed analysis of seven screencasts, followed by a summary discussion of key issues across the sample.

Chapter 5. Multimodality, knowledge and representation

5.1. Current issues in multimodal research

Multimodality has enjoyed a great deal of attention in recent years, with numerous studies conducted in different disciplines, including education research. 'Mode' refers to a set of meaning-making resources which are socially organised into a specific "channel" of representation, for example speech, gesture, writing, moving image (Kress 2014). When considering whether font, colour or layout can be seen as a mode, Kress explains: "If there is a community which uses [these resources] with discernible regularity, consistency and shared assumptions about their meaning potential, then yes, [they] are modes for that group" (Kress 2011, p 59).

Because the field of multimodal studies is still emerging, the accounts of multimodal artefacts still tend to be "schematic and gappy" (Bateman 2016, p 38). Machin (2016) argues that the field is internally and externally fragmented. Diverse academic disciplines with an interest in multimodality brought in their own terminologies and theoretical legacies, but sometimes "reinvented the wheel as they operate in their own isolated networks" not all of which have theoretical knowledge of visual communication (Machin 2016, pp 322-323). As a result, a diverse range of aims, concepts and analytical methods is commonly "lumped together as 'multimodality' in the theory and methods sections of journal articles" (Machin 2016, pp 324).

The published pedagogic evidence reviewed in Chapter 3, shares the common problems in multimodal research, that is "lack of clarity in the central theoretical constructs employed and corresponding weaknesses in the methodologies for analysis" (Bateman 2016, p 36). Whilst social-semiotic approaches emphasize the social nature of modes, by and large modes still tend to be treated as "unproblematic and self-evident", often aligning them with sensory modalities (Bateman 2011, p 17). This results in conflating very different meaning-making resources under one sensory label, in particularly 'visual'. Sensory-based definitions are misleading, for example text is just as visual as a pictorial image, and the screencasts are relying on audio as

much as the images. Similarly, 'text' and 'speech' are often seen as different modes, based on sensory perceptions. But this division does not account for the variations between texts, for example 'narrative vs. non-narrative', 'overt persuasion', or 'online informational elaboration' (Bateman 2011, pp 18-19).

To account for this, some writers insist that the term mode should retain 'fluidity', however Bateman (2011) argues that so far this has proved unproductive. Conceptual fluidity and ambiguity make the modes "appear more similar than they actually are" (p 18), so to make the analyses stronger and more useful, clarification and precision are essential. The uncertainty around the core term also affects the central question for multimodal research, that is the ways in which the modes operate together to produce more than they do in isolation. In order to do this, researchers often start from classifying the semiotic resources offered by individual modes, but because such descriptions tend to be static, the accounts tend to become circular:

> "When the analyst is confronted with a multimodal artefact or performance to analyse, it will be noted that particular combinations of properties *seem* to be doing semiotic work. These combinations are subsequently included in the description of the modes that are assumed to be operative. However, since there is no model of dynamics, these properties are actually back-imported to form part of the description of the modes that appear to be using them […] This descriptive widening inevitably leads to cases of overlap and fuzzy boundaries, [and] the dynamicity of combining distinct modalities is replaced by modalities where the work of combination has already been smuggled in" (Bateman 2016, p 49).

For this reason, much of multimodal research has remained impressionistic and descriptive, simply "reading off the artefacts the distinctions being drawn" (Bateman 2008, p 13). One of the problems for analysis is the 'decomposability' of modes. Because modes have often co-evolved, it can be difficult to separate them. "Just as the sound stream carries simultaneous patterns, so can the visual material substrate also carry simultaneous patterns of visuality", and this ability of a substrate to carry different modes has been often under-appreciated (Bateman 2011, p 25). Several

different modes can be co-present on one page, for example a diagram and a pictorial image, as well as text. Each mode can include smaller and more fine-grained modes, for example text involves font and layout that can be used rhetorically, thereby becoming modes. The mode of photography includes modes such as proximity or light. Replacing sensory-based definitions with the term 'semiotic mode' allows to isolate these finer-grained modes and account for their contribution to the overall meaning.

Bateman (2016) argues that work of specific modes in any given artefact should be based on empirical analysis rather than presumption. Therefore the analyst should restrain from immediately labelling and characterising the modes used, but first look closely at each artefact and identify any "expressive resources that are being employed systematically in some specific context, and only then proceed to attempts to identify and characterize those resources" (Bateman 2016, p 40). This should keep the analysis open not only to well-established modes, but also "additional modes waiting to be teased out by detailed empirical investigation" (Bateman 2011, p 25). This advice aligns very well with grounded theory methods, and I followed it in my own analysis. I also took on board Bateman's (2016) proposal that multimodal artefact analysis must pay attention to genre, materiality and the overall discourse semantics, within which the modes 'speak' and make sense.

However, I did not go into a full-blown examination of modes, due to the aims and scope of the study. My project investigates two different questions, based on the analysis of two extremely rich and diverse bodies of empirical material (the artefacts themselves and the participants' perceptions and experiences), each of them could have been a separate thesis. The overall focus is on how the artefacts communicate specific knowledge through various semiotic resources. The analysis includes modes insofar as they represent specific semiotic resources, employed differently in written and audio-visual assignments, rather than advancing the theoretical understanding of modes or presenting a new classification

Another issue for multimodal studies is the applicability of the concepts drawn from Halliday's systemic-functional linguistics (SFL). Machin (2016) explains that there is an

inherent tension between its 'functional' and 'systemic' elements, where the former "describes meanings people make through a process of active choices in social contexts" and the latter assumes that all semiotic materials have an underlying system or 'grammar' (Machin 2016, p 324). But if the meaning of the signs results from the underlying grammatical systems, this "disconnects [the signs] from the motivated interests of the actual sign users and the emerging power relations infused in their use" (Machin 2016, p 326). However, this internal contradiction is an inevitable part of trying to account both for the agency of the 'reader', and the established conventions that pre-exist the 'reader'. The systems (whether grammar, or visual conventions, or social structures) are created socially and stabilised over time, yet the actual uses in culture are divergent and changeable. I take these concerns as something to be aware of during the analysis, to ensure that the focus on social and communicative dimensions of the artefact is not lost. In terms of the primacy of the linguistic signs, this is appropriate for my object of study, that is an audio-visual artefact, produced according to the assignment brief with a clearly stated purpose: 'explain the concept or technique'. If the task was 'demonstrate a technique', then it would be possible to prioritise visual and gestural expression. But the assignment guidelines clearly privilege linguistic expression through the instructions to 'clearly explain', 'define' and 'cite authoritative sources'. Some require the submission of a written script, so that the screencast can still be marked if the audio fails to work. The images, on the other hand, are described as 'appropriate illustrations' for the voice-over narrative, rather than expecting that they will speak for themselves.

This is in line with Kress et al's (2001) point that from the multimodal point of view, the importance of language in the educational domain is not reduced, but rather "attains a more relational status as far as the distribution of communicative load is concerned" (Kress et al 2001, p xii). Whilst all modes have a potential for meaning, and are in principle equally significant, they also have different affordances for different kinds of communication (Kress 2010). I will return to this point in 5.3, but now let us take a closer look at the social-semiotic and rhetorical approaches.

5.2. Social-semiotic, rhetorical and affordance-based approaches to multimodal artefacts

Social-semiotic approach to analysing cultural texts emerged in 1980s, combining the insights from systemic functional linguistics, European semiotics, discourse analysis and critical social theory. Social semiotics shifts the focus from signs and systems in themselves, to the way people use various semiotic resources "to produce communicative artefacts and events and to interpret them […] in the context of specific social situations and practices" (van Leeuwen, 2005 p xi). The emphasis is on the meaning-making process, and as Van Leeuwen points out, interpretation is also "a form of semiotic production" (2005, xii).

A central concept in social semiotic research, along with mode, is 'semiotic resource'. Semiotic resources are defined as various "actions, materials and artefacts we use for communicative purposes […] together with the ways in which these resources can be organized" (van Leeuwen 2005, p 285). They can be produced physiologically (for example, speech or body language) or technologically, but they always combine material, conceptual, social and cultural dimensions. Social semiotic research does not approach each mode in an isolated fashion but is more interested in examining the ways in which different modes "can be integrated in multimodal artefacts and events", creating new semiotic resources and discovering "new ways of using existing semiotic resources" (van Leeuwen, 2005 p xi-xii). This involves having a clear empirical focus and the methodologies emphasising in-depth qualitative analysis of specific artefacts (professional, popular-cultural or records of social interactions). In his explanation of the relationship between multimodality theory and semiotics, Kress (2010) argued that multimodality can describe what modes have been used in each artefact, but it cannot address differences in style, projected identity or cultural connotations. Social semiotics, on the other hand, "deals with meaning in all its appearances, in all social occasions and in all cultural sites", and can therefore take the analysis further, to include the social and cultural factors:

> "Meaning arises in social environments and in social interactions. That makes the social into the source, the origin and the generator of meaning […] 'the social' is generative of meaning, of semiotic processes and forms, hence the theory is a social-semiotic one" (Kress 2010, p 54).

The impact of social relations and the agency of social actors are of central importance to social-semiotic inquiry, concerned with the questions about "meaning and meaning-making, about the resources for making meaning, about social agents as meaning-makers, and about the characteristics of the environments in which they act" (Kress 2015, p 55). Jewitt et al (2016) point out that semiotic resources can be both material (i.e. the modes themselves) and immaterial (i.e. the cultural conventions developed over time which regulate how the modes are used and interpreted). Design concepts such as 'contrast' or 'coherence' are semiotic resources, which apply across different modes and carry specific connotations recognised in a given culture, resulting from on-going meaning-making practices by social communities. For example,

> "Physical distance has been shaped by photographers and film-makers over time into the semiotic resource 'length of shot'. That resource is used to instantiate levels of social intimacy […] The resources of gesture have been shaped into different communicative modes that serve a diverse range of communities, including different hearing communities, hearing impaired communities, ballet dancers, deep-water divers and airport runway ground staff" (Jewitt et al 2016, p 71).

Social semiotic analysis aims to identify and explain what sort of semiotic resources "are available in a given situation", "the choices made by the producers, "what motivates them, and how their in situ choices are shaped by (and realize) power" (Jewitt et al 2016 , p 71). Kress (2010) explains that discourse contains two social practices, representation and communication. Representation is motivated by the speakers' "interest in [their] engagement with the world", and their "wish to give material realisation" to their understanding of the world, whilst communication focuses on making "that representation available to others" in specific interactions (p 49). This is achieved by using the "dual frame of rhetoric and design", where design is

understood as “the translation of rhetorical intent into semiotic implementation” (Kress 2010, p 49). Whilst rhetoric shapes an overall message in an engaging and persuasive way, the task of design is to

> “assess what semiotic (representational) resources are available, with a full understanding of the rhetor’s needs and aims, […] and make the best possible match with the interest of the audience in an environment where the resources for doing so are usually inadequate […] As social environments change, so the designs of the message need to change. That is the motor which drives semiotic change in line with social change” (Kress 2010, p 49).

It follows that multimodal artefacts produced for assessment need to be analysed both in terms of their representational and communicative functions, and this is reflected in my coding of the screencasts both for rhetoric and design (see Chapter 6.5). Leach (2000, p 207) explains that rhetorical analysis “sits uneasy in the social science”, as it is considered more of a techne (art or skill) which belongs among the toolsets of an art or literary critic, or those concerned with the matters of persuasion and ideology. Representations of knowledge are also persuasive, because they involve authority and evaluation, especially in assessment. Therefore, the analysis of the screencast sample explores the rhetorical patterns and techniques employed to deliver an argument, articulate specific knowledge, project authority and appeal to an imagined viewer.

Kress et al’s (2001) and Bateman’s (2011) point out that the notion of mode may be subject to specific professional and community uses. Photography, painting, motion graphics, animation and others can be considered as separate modes, due to their own distinct “rules and practices, elements and materiality” as well as different genres within them (Kress 2000, p 43).

> "In a genre social roles and relations are described and prescribed, more or less rigidly. Interactions are social events; as genres, interactions become shaped by discourse and through mode. So, in the mode of speech, an interaction can be a conversation or an interview; an argument or a discussion; a tutorial, a lecture or a sermon. Each specifies and projects particular social relations and organization" (Kress 2010, p 116)

These points are very applicable to the analysed screencast sample, which incorporates elements from different domains, modes and genres, whilst also emulating the conventions from instructional genres. This can be explained by the nature of the assignment brief, and the social roles inherent in the Higher Education environment. Elsewhere, Kress and others argue that part of the "rhetorical work of the classroom" involves "reconstituting student's identity", for example as a learner, expert or young scientist (Kress et al 2001, pp 24-25). We shall see this process in action within the screencasts, where those adopting the conventions from instructional genres are reconstituted as experts, and how this differs in one example which takes a completely alternative approach. Standard rhetorical constructs, such as logic, clarity, relevance or the use of metaphors, have been only partially applied in the screencast analysis. Rhetorical analysis techniques are more suitable for spoken or written communication, for example the voice-over or textual frames, but they are more difficult to apply to visuals.

> "The world produced by visual rhetoric is not always - or even often- clear, well organized, or rational, but is, instead, a world made up of human experiences that are messy, emotional, fragmented, silly, serious, and disorganized" (Foss 2008, p 310).

Foss (2008) outlines two broad approaches to rhetorical analysis of visuals which have developed in recent years. Firstly, the deductive approach, where theoretical concepts based on verbal discourse are applied to visual artefacts in order to investigate existing rhetorical constructs or expand rhetorical theory. The assumption here is that visual and discursive artefacts have broadly similar characteristics. Whilst these approaches do throw some light on the visual symbols, they are less productive, because this kind

of “analysis of the visual largely affirms the discursive features of the theory” and may neglect the specific characteristics of the visual (Foss, 2008, p 311). The second, inductive approach, assumes significant differences between visual and discursive symbols. Therefore, it explores the visuals themselves, examining their distinct features and “the particular qualities of visual rhetoric”, that help to expand rhetorical theory (Foss 2008, p 312). Grounded theory methods are compatible with the inductive approach, and the analysis reveals multiple screencast segments with clearly rhetorical functions. However, testing or expanding rhetorical theory is not the focus of this study, so the existing constructs will only be used as summary categories based on my close reading of the artefacts (more on this in Chapter 1).

Pragmatic approaches to multimodal communication view multimodal artefacts as instances of purposeful and “situated action for achieving immediately relevant communicative goals” (in Bateman 2014, p 235). Bucher and Niemann (2012) argue that one of the central questions in multimodal research is compositionality, focusing on how individual modes, as well as their interaction, contribute to the overall meaning of an artefact or a discourse. This acknowledges that modes do not work in isolation, and the overall meaning of a ‘multimodal ensemble’ is more than the sum of its parts. The second central question is that of reception: “How do recipients integrate the different modes and acquire a coherent understanding of the multimodal discourse?” (Bucher and Niemann 2012, p 286).

In my own analysis, I used these ideas as ‘sensitizing questions’, and viewed myself as a ‘recipient’ as well as analyst. The meaning of a multimodal artefact can be more than sum of its parts, but it can also be less, if the contribution of one mode negates or diminishes the other. This may depend on the viewer’s perspective and judgment, and the ability to perceive and understand various elements. Looking back at early transcripts and memos, my initial reactions to screencasts were affected by my own expectations and assumptions, which may have been very different from the intended audiences. This included an interpretation of ‘disjunctions’ within the screencast text as either ‘knowing’ or ‘naïve’. There were occasions when I did not immediately recognise a creative or strategic intent behind clumsy execution, and only later realised that the intent was meaningful but did not quite materialise due to technical

error or the student's insufficient skill. At other times, I found myself reading too much 'creativity' into what may have been a last-minute shortcut. With this in mind, I analysed the use of semiotic resources within each screencast both in terms of their "meaning potential" and the "communicative meaning, created by a multimodal action that is actually executed" (Bucher and Niemann 2012, p 286). It was important to trace the different resources, conventions and discourses, but also recognise the work that has gone into creating a cohesive product out of this diverse material.

Although the concept of affordance was introduced into multimodal studies almost two decades ago, it has not been sufficiently applied. Recently, Machin (2016) argued that the deployment of the term 'mode' has equalising tendencies, in particular in systemic approaches. This "equalisation of different kinds of semiotic resources [distracts] from the affordances of each", as well as their "fundamental dependency on each other" (Machin 2016, p 327). Using photography as an example, he notes that some multimodal studies treat photography as a mode, but photography does not have a code of its own, and its connotations are fundamentally social. When analysing how a photograph speaks to the viewer, he argues that it may be more productive to use the already established approaches to visual communication (such as semiotic or critical discourse analysis), avoiding the notion of mode altogether. The priority for current research "should be to not lose sight of the specific affordances that different kinds of semiotic resources carry", linking this to their deployment in specific contexts for specific purposes (Machin 2016, p 326-327).

5.3. Knowledge and representational competences

In the context of my research, the screencasts are designed to achieve at least one basic communicative purpose, that is, to demonstrate knowledge for assessment purposes. The tutor, therefore, is inevitably an important 'addressee', along with other institutional actors involved in assessment (moderators, external examiners, peers). At this basic level, the task could be relatively straightforward, for example comparing the screencast content with the requirements of the assignment brief. However, the screencasts may also anticipate and address other audiences. It is not always clear who the intended audience is – the tutor, the peers, the unknown YouTube audience, the future employer to whom this screencast will be given as part of show reel, or specific social or interest communities. The modes of address and subject positions that can be inferred from the screencast discourse, are to some extent informed by the institutional context, but also oriented to other communities and practices. The awareness of potential addressees other than the tutor, can have an additional impact on the choice of semiotic resources utilised in production, as well as various 'trade-offs' (for example, between aesthetic appeal or production values, and the depth of theoretical explanation).

The second complication is that the field of learning possibilities is always wider than the specific module learning outcomes. A student may not hit the intended learning outcomes, but still learn important lessons. Some may subvert the assignment brief to pursue the learning of their own, if they consider it more relevant than the module syllabus. There are different types of knowledge, with different value attached to them by different social and professional, in different historical periods or disciplinary communities, and I will return to this in Chapter 6, which explains the coding categories relating to knowledge.

The final point of interest is the way in which students' multimodal productions reuse, repurpose and transform existing semiotic resources for the assessment context. Iedema (2003) uses the term 'resemiotization' to describe "how meaning-making shifts from context to context, from practice to practice or from one stage of a practice to the next" (p 41). Another transformational aspect is transduction, which Kress (2010)

defines as “the change from meaning expressed in one mode to meaning expressed in another mode”, whilst a more familiar term transformation refers to “changes in ordering and configurations of elements within one mode” (p 43). Jewitt et al (2016) explain that transduction is a far more complex process, because the material resources of modes are different, and “often not modally shared” (p 161). Retaining the “constancy of meaning” requires “a choice of fresh semiotic resources” (p 161), in some cases finding available visual analogies from existing work, but in other cases creating own visual representations to convey an elusive aspect or abstract concept. This, Kress argues, is particularly important in using multimodal artefacts as evidence for assessment of learning:

> “Any principles of assessment need to include the realisation that whatever semiotic work has been done, meaning has been made, whatever the modes in which that happened. It is the meaning made, not the meaning expected, which should be the focus of interest in assessment, at the first step. From there, one can elucidate the principles of the [student’s] semiotic work, [as a] path to the learning that is expected, based on an understanding of the principles that this learner brings to the task” (Kress 2010, p 128).

Kress points out that recognition of learning is of central importance here, and that learning may be evidenced in a different mode from the one we are looking at. For my research, this meant viewing student-produced artefacts in a holistic way. Initially, I focused largely on their potential as educational resource, and their accuracy and effectiveness in conveying specific disciplinary knowledge[7]. As the research agenda developed in the field and my understanding deepened through engaging with literature, I began to view them as artefacts, produced with multiple possible purposes, anticipated uses, designs and discourses. My focus therefore shifted to the semiotic work undertaken by each author in the process of responding to the assignment brief, without being confined to the parameters of the assignment.

[7] This is because the analysed screencasts are defined in the assignment briefs as ‘visual learning resource’

Approached from a more open position, the analysis brought to the surface a rich variety of semiotic resources, subject positions, rhetorical and design decisions, and the transformation of meaning during the move between contexts and modes. The process of screencast creation, from the first encounter with the assignment brief to the final submission has been reconceptualised as the process of enacting multiple affordances, not only technological but also social, cultural, institutional and semiotic (see the final substantive theory in Chapter 11).

One other point to bear in mind, is that students enter the university with a wide range of competences, some of which are more developed than others. Here I take guidance from DiSessa (2004) who points out that scientific or disciplinary representations make significant demands on the new students' ability to select, critique and adhere to "representational rules and justifiable interpretive strategies" (p 328). Their 'native' or 'incoming' meta-representational competences (MRCs) are likely to have been developed in, and adapted to, different "functional niches", with different sets of values, needs and expectations, than those implied in university-level assessment. DiSessa refers to a "functional residue" from these previous engagements, which can be expected to manifest itself in the productions, alongside the newly evolving understandings. The students' constructive resources, that is the ideas and skills employed in constructing representations may have been in more demand than critical resources which allow to judge the aptness and quality of representations. Because "everyday representational contexts do not place as much burden on careful and articulate reasoning", students can display very uneven levels of competence in this respect; for example, being "surprisingly articulate about some aspects of their representational and interpretive strategies, and unaware and inarticulate about others" (DiSessa, 2004, p 325). This is precisely the kind of a competence that theoretical modules aim to develop, and the screencasts in my sample were produced very early in this process. With this in mind, any imperfections need to be seen as a natural and temporary stage, so during the analysis I had to constantly bear in mind the students' level, as well the assignment brief parameters, and to abstain from the kinds of judgment which are more appropriate for assessment than analysis.

5.4. The challenges of audio-visual artefact analysis

Audio-visual texts, especially highly constructed artefacts, are very different from the mostly verbal interviews. Although interviews include gestures and other non-verbal signs, and researchers acknowledge the multimodal nature of interpersonal communication, the bulk of analysed content is still carried by words. To avoid confusion, it is useful to start from Figueroa's (2008) distinction between the use of audio-visual material as a medium (AVM), for example when gathering ethnographic research data or recording specific processes; and audio-visual objects of analysis (AVO). In the AVM-perspective, video-recordings allow us to preserve and observe the actions and interactions under study, and the researcher's focus remains on the behaviours and interactions themselves, rather than the medium. But in AVO-perspective, when audio-visual material itself becomes an object of study,

> "aspects such as language, images and music [are] the 'micro-crystals' that form the 'lens' through which we get to know (to see, to hear) a part of social reality. It is precisely these 'lenses' which are subject to study, not the phenomena that they permit us to perceive […], or at least not primarily" (Figueroa 2008, p 4).

As the central object of study, all the 'micro-crystals' within the screencast sample needed to be transcribed and analysed. This made it more difficult to follow the GTM procedures such as line-by-line coding. Unlike interviews, screencasts are designed 'products' with their own aesthetic form. The narrative unfolds according to a script (unlike a more natural conversation flow), and even the seemingly 'colloquial' delivery is usually scripted and rehearsed. The decisions are much more deliberate, especially in the context of assessment. A pause in an interview recording could be due to the speaker thinking or looking for words, but in a screencast, it may have a rhetorical purpose, for example, to create rhythm or anticipation – as well as a technical fault.

Further difficulties arise when linguistic-based principles of analysis are applied to images. As Bateman (2014) points out, images lack the "clearly analysable units comparable to those of syntax, phonology and phonetics in the linguistic system" (p

225). This makes it impossible to generate a list of rules or formal properties that would apply to visual communication regardless of context[8]. Because of this, most research into visual communication has adopted a pragmatic focus on 'what has been done' with the images, rather than what they are in themselves. Whilst utilising linguistic terms and analogies (such as 'visual grammar' or 'visual metaphor'), such research approaches also draw on theories of action that are not linguistically motivated (Bateman 2014, p 225). My own analysis of student-produced artefacts is informed by social-semiotic tradition, emphasising the use of signs in context, rather than their decontextualized properties.

Non-linearity presents another challenge for multimodal analysis. Although screencasts are linear in terms of the frame-to-frame flow, the frames themselves are non-linear. The simultaneous presentation of different communicative and design elements within each frame raises the questions about the viewers' order of processing. The analyst must make a judgment "concerning which portions of that document they are going to access and bring into relation with other components", and decide on "which of the relationships theoretically accessible in an artefact are going to be necessary, or even useful" (Bateman 2014, p 236). This makes it more difficult to apply GTM procedures, as I found out in the process of screencast transcription and coding.

Whilst voice-over transcripts were verbatim reproductions of the participants' own words, transcribing the visual flow proved more problematic. The images had to be converted into verbal descriptions, selecting and prioritising specific frames over others, as well as various elements within each selected frame. Bezemer and Mavers (2011) argue that transcribers have an important agency, making representational decisions, editing, framing and 'transducting' the material from one mode into another. Any multimodal transcript is a product of "semiotic work" by the researcher, undertaken for the purpose of "gaining analytical insights and persuading an audience" (p 193), and guided by professional principles and conventions, as well as individual judgment:

[8] Linguistic uses also depend on context, but there are at least dictionary meanings and grammatical rules providing a foundation for analysis

> "It is through re-making video as a multimodal transcript that researchers come to see differently […] It is for this reason that a social semiotic perspective on transcription takes issue with distinctions between description, analysis and interpretation […] From this perspective, the 'accuracy' of a transcript is dependent not on the degree to which it is a 'replica' of reality, but how it facilitates a particular professional vision" (Bezemer and Mavers 2011, p 196).

Moving verbal descriptions into multimodal analysis software involves building a 'code library' of hierarchically sorted labels (more on this in Chapter 6.3). In my case, this resulted in a much quicker move from the descriptive open codes to theoretical codes, compared to the more iterative interview coding. Because multimodal artefacts are much more complex than interview transcripts, additional technical understanding was required to appreciate the student-author's creative choices in specific segments. To capture these choices during coding, I had to look up and employ appropriate terminology (for example, editing cuts and transitions, and their conventional uses).

The voice-over narrative within the screencast may have additional structural and rhetorical functions. For example, using an introductory 'topic outline', a formal definition, an authoritative quote or a joke in a specific place within the flow, may be informed by the design considerations and the assessment framework, additional to the demands of the topic or features of technology. Therefore, quite early on, concepts from rhetorical and multimodal analysis were incorporated to help me refer more clearly and precisely to rhetorical actions and creative decisions made by the student-authors. Without constant reading, many details would have escaped my attention, or remain too descriptive, with little theoretical relevance.

Coding for actions is more straightforward in AVM research which analyses the recordings of live interactions, for example in a classroom situation (see Norris 2004, also Norris and Maier 2014). But in AVO research, it is more difficult to specify 'relevant actions' and their authors. Using the example of TV news, Figueroa explains that "from the AVO-perspective, the researcher must attend to two levels: one is that of the actors and their actions/interactions as reflected in the film, while the other is

represented by those actors who produced the film and their strategies" (2008, p 5). This "doubled perspective" makes it difficult to establish whose perspective exactly is being conveyed by the actions (Figueroa 2008, p 5).

Identifying actions and perspectives within the screencast sample is even more problematic, due to a large proportion of re-purposed existing images. For example, animation screencasts contain fragments of existing animated films as well as the students' own drawings of humans or animals performing specific gestures or actions. Game design screencasts may contain fragments of promotional videos depicting a particular scene and/or dialogue performed by in-game characters, as well as fragments of the student-author's own play sequence where they perform specific moves to illustrate a point. It is not always clear whether the perspective is that of the student or is 'inherited' from the original source. There may be several 'layers' of actions in one extract: firstly, an in-game non-player character acting out a dramatic scene, secondly the game developers who created this extract, say, for the game introduction or cut-scene, and thirdly the student who selected this extract to serve a specific purpose within the screencast.

Norris's (2014) concept of 'frozen actions' proves very helpful here. It refers to the actions which have been performed at some point earlier, but the analysed interactive situation still contains traces of those actions "frozen in the material objects themselves" (Norris 2004, p 14). For example, the interactive situation could be a dinner party discussion of one of the paintings on the wall. The painting represents a frozen action by the hosts, who at some point earlier have purchased the painting and hung on the wall in the dining-room, in this specific spot. Carrying this over to the screencasts, every frame can be seen as a frozen action by the student-author, who have created or selected this particular image for a specific purpose and placed it in a specific place among other images, to accompany a specific point in the script. So even though the sequence contains previous actions by game developers and artists, these actions are too remote and are not part of the ongoing interaction between the student-author and the intended audience.

Chapter 6. Methods of analysis

6.1. Generating empirical material

Sampling. Social semiotic research "tends to work with small collections of artefacts", and due to the richness of the material, not all of it material may be possible to fully analyse (Jewitt et al 2016, p 143). I had access to a much larger pool of screencasts than interviewees[9], which was progressively reduced to ensure both the manageability of the analysis and the diversity of approaches. The study employed a combination of purposive, convenience and snowball sampling, recruiting the participants via a standard invitation letter, distributed by tutors via Blackboard and followed by a personal visit to an appropriate teaching session[10].

My original intention was to use the screencasts of the same students who volunteered to be interviewed. This would have enabled me to explore the creative process and decision-making in the interviews, resulting in the in-depth case studies of production. However, this was not possible for several reasons, logistical, methodological and ethical. Firstly, some of the agreed interviews did not materialise due to students' changes in availability, whilst other participants remained available but no longer willing to offer their screencast as they were dissatisfied with its quality. Secondly, directly linking each screencast to a specific interview would present an additional threat to anonymity. All screencasts would have been played in class at different points in production process, marked and moderated by several tutors and some kept as examples for future cohorts. Thirdly, I wanted to approach each screencast at face value, rather than as an appendix for interview discussion, so that the analysis was not coloured by 'what it could / should have been'. Similarly, analysing the interviews without cross-referencing them with screencasts, helped me to focus on the participants' experiences with the assignment, and not only the production process.

[9] Many declined an interview but ticked the box permitting to use their screencast

[10] Typically this was an assignment briefing session, firstly, because it was a shorter session with more time for extraneous activities compared to core lectures, and secondly because listening to the briefing and viewing past examples enabled me to understand the assignment parameters more clearly.

Screencast topic	*Module*	*Micro-analytical multimodal transcription*	*Structure breakdowns and summary table*	*Gist-transcribed*	*Focused / theoretical coding in MMAV*
Colour	1A	X	x	x	x
Anthropomorphism	1A		x	x	x
Principles of animation	1A		x	x	x
Walk cycle	1A	X	x	x	x
Blue-screen compositing	1GDA	X	x	x	x
Game camera	1G		x	x	x
Challenges / actions	1G	X	x	x	x
Emergent narrative (pilot screencast)	*Aimed to test the software and analytical procedures and provide material for supervision meetings. Excluded from analysis*				

Fig. 5 - The final screencast sample

The available screencasts were shortlisted, to ensure a range of styles, techniques, and disciplines, within the parameters of very similar first-year assignment briefs. The final sample consisted of seven screencasts from three modules (Fig. 5), and a pilot screencast used early in the research before the full sample became available. The pilot aimed to test the coding software, try various analysis procedures and provide discussion material for supervision meetings. This screencast is from an old discontinued 2010 module, and therefore excluded from the analysis chapter.

As the screencasts came in, I viewed them several times in full, making brief notes on the overall structure and style, and anything particularly interesting or unclear. It was important to keep my notes impressionistic, and to ensure that they did not "differ much from the impressions and perspective of a 'normal' viewer, for example one who watches the programme without a research purpose in mind" (Figueroa 2008, p 11). Loosely corresponding to Blumer's concepts of 'exploration' and 'inspection', these "global, non-theory-biased impressions" would be examined and interrogated in the subsequent stages of research (Figueroa 2008, p 11).

6.2. Micro-analytical transcription procedure

Once I got the overall feel of the first four screencasts, I completed a basic structural breakdown for each of them, followed a by micro-analytical transcription procedure, adapted from Baldry and Thibault (2010). This consisted of several stages, starting from a full transcript of the audio (speech, music and effects). The voice-over transcript was broken up into large segments, approximately 15-20 seconds each, to preserve the sense of the overall flow and the 'chunking' of sections. This was entered into a table, with corresponding time markers, very basic descriptions of the visuals, and initial codes focusing on the most obvious actions in the video (see Fig. 6).

Time	Audio	Visuals	Open Coding (Actions)
00:00:43 00:00:59	VO: "So what is emergent narrative? There are many definitions of narrative. For my purposes, narrative can be thought of as the inner workings of the story. So if the story is an overview, then the narrative involves the individual events that occur during the telling of the story" (*Ambient game sound in the background - claxon or alarm)*	Cut scene from the *Witcher* continues. Wipe to another sequence. Game play footage, walking down a corridor interactive vs. non-interactive	*Script:* Asking rhetorical question Explaining the term narrative Giving his own definition Explaining the difference between story and narrative ***Video***: Providing a visual transition from intro to first explanation. Avatar walking down corridor in game. Providing context, by showing 2 games which are his case studies Using authentic game sound instead of

Fig. 6 - A fragment from the early transcription of 'Emergent Narrative'.

Baldry and Thibault (2010) point out that "a few shorthand verbal glosses" do not allow capturing all the meanings of a moving image, so transcribing needs to be selective (p 178). However, it is also important to reflect the richness of the material and avoid making the transcript too sketchy as this will later deprive the researcher from possible analytical insights. To increase the granularity of analysis, and 'zoom in' on each segment, I used the second breakdown table dividing the transcript into shorter segments of 2-7 seconds each (see Fig. 7 below).

This fuller micro-analytical transcript table is based on five columns, four of which are similar to the initial transcript, plus an extra column for a representative screenshot in Column 2. The images were taken with MS One Note screen capture tool and resized to fit. The purpose was to capture the 'look and feel' of the screencast, although it is impossible to represent all the frames, since a screencast moves at a speed of at least 25 frames per second. Column 5 contains a more detailed version of open codes,

capturing the student's 'frozen actions' as they appeared to me from repeated viewings of the screencast and asking questions such as 'what is going on here?', 'why is this element included, in this manner?', 'what difference does it make?', 'what alternatives could have been used here?', 'what knowledge, skills or competences were necessary to achieve this?'

Time	Screenshot	Audio	Image / Visual / Composition	Notes / Codes
00.44 01.14		Elmer Fudd's walk imminently conveys the context. If a more generic walk had been used, it could look like he was walking away from a hunt, but his creeping agitated posture conveys that he is in the middle of one. The intensity of the walk is then increased through a lean in the torso, which drives him forward, suggesting an obsessive excitement in spotting a set of tracks. A second increase of intensity is then used to exaggerate this to the extent that he now comes across as to obsessive and exited by what he is doing. Already conveying a perception of Elmer Fudd as a carless and slightly insane hunter.	Fade in on top of previous fade out. Clip from "Rabbit Seasoning" on left. Text bullet points fade in synch with voice-over. ***Text:*** *'Merry Melodies'* *'Rabbit Seasoning' 1952* *Why are Walks important?* *Avoid Diverting From Narrative* *Establish Character* *Suggest Momentum* *Convey Emotion* *Exaggeration Of Character*	Foregrounding / emphasising via multiple means: (1) Cropping - the clip cut to a single relevant action (character walking) (2) Matching – the bullets unveil in line with speech Displaying both procedural and conceptual knowledge stating the principle analysing and elaborating selecting a very apt example (frozen action?) Displaying interpersonal ties Creating comic relief / situational interest / engagement Aiming for affective reaction Drawing on affordances of mode, technology, instructional genres, video-editing; Timing for synch between voice, text and animation in one screen Fading in and out sound from different sources
01.14 - 01.20		*(Pause in voice-over. Animation sound fades in after voice-over "All right wabbit, I know you are there. If you are not out in ten seconds, I will **bwast** you out. One, two, three, four, five" – fades out)*	Clip continues	
01.20 - 01.32		The contrast between this and Bugs Bunny's more laid back walk provides extra emphasis *(film sound fades in "Ok, wabbit, now I got you"- "Ehh... What's up doc?" – fades out)*	Clip continues. New line of text fades in - *Contrast*	

Fig. 7 - A fragment of the micro-analytical multimodal transcription of the 'Walks' screencast

Baldry and Thibault (2010) argue that this act of verbalising, or translating one mode into another, creates a new semiotic resource (the table), which only functions optimally as a sum of its parts. The layout has its own consequences, for example in the western reading tradition the elements placed in the left-hand side of the table would be interpreted as 'first' and therefore 'more important'. Traditional placement of the verbal / linguistic elements to the left, and the visual elements to the right, affects the perception of their importance (Baldry and Thibault 2010: 181). To emphasise the multimodal nature of the screencasts, I reversed this and placed the stills in the left-hand side of the table, and the analytical columns with my own notes furthest to the right.

One of the procedures used at this stage to explicate the students' design decisions, was commutation. Adapted from structural linguistics and semiotics, commutation involves substituting specific elements of design by others, and assessing the consequences. Kress (2010) used such "reimagining" of artefacts and possible design

alternatives as “a test for the ideational function” of textbook page designs, rearranging the existing layouts into several alternatives and examining the impact on reading (pp 60-63). Commutation leads “to a change, and to considerable puzzlement if not incoherence for a possible reader”, helping to reveal the order which could otherwise remain invisible or taken for granted (Kress 2010, p 90). Examples of commutation will be provided in the analysis chapter where appropriate.

Microanalytical multimodal transcription allowed me to establish how the elements identified in various columns were “temporally correlated”, and to highlight the patterning of different modalities at specific times (Baldry and Thibault 2010, p 174). For example, in a screencast explaining a specific technique, a student might be deliberately slowing down the video to match the verbal explanation. Although the process was extremely time-consuming, it uncovered many more creative decisions and representational competences than could be achieved with top-down coding methods. However, not all the aspects could be captured in a static format, for example, transitions between frames, special effects and temporal relations. The next step, coding in a multimodal analysis software (MMAV), allowed me to increase the granularity, fine-tune the transcripts and examine how the multiple modes and semiotic resources unfolded in real time.

6.3. Selective coding in the Multimodal Video Analysis software

This coding stage focused on the purpose and function of different segments and ‘genre stages’, as well as the dialogic actions undertaken by the student-author. Specific semiotic modes from a variety of contexts and genres had already been identified during the manual microanalytical transcription, but this stage examined how they functioned within the overall flow of the screencast. Following the grounded theory guidelines on theoretical sensitivity, I revisited the key studies using social semiotic and multimodal analysis, in search for further analytical techniques, as well as suitable theoretical codes that could capture more clearly the patterns, relations and processes observed within the screencasts. Secondly, selective coding aimed to

identify the articulation of different types of knowledge, rhetorical strategies and modes of address, as well as different genre conventions.

All screencasts were transferred into the Multimodal Analysis Video (MMAV) software. Fig. 8 shows the MMAV interface (the full description of the software can be found in O'Halloran et al 2012). In the top left corner, there is a video-player with standard controls (A) and the transcript of the voice-over narrative (B). As the video plays, the images and the audio appear in the dynamic timeline below (D and E), so the cuts and transitions are more precisely captured than in a static table. The vertical red line indicates the currently played frame.

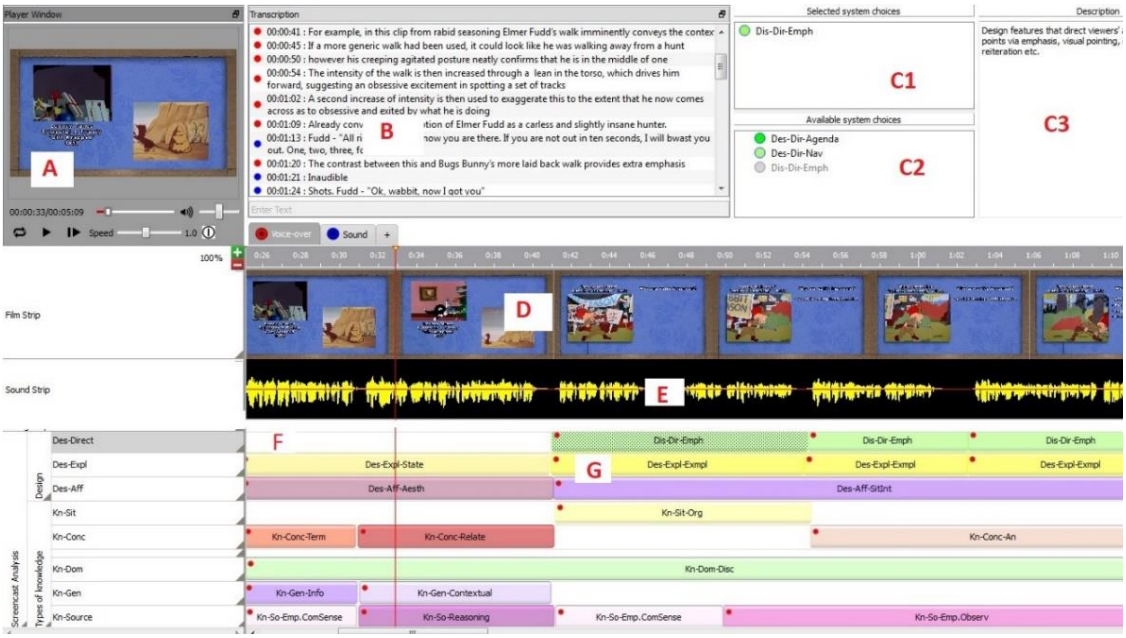


Fig. 8 - MMAV interface – coding the 'Walks' screencast. Red letters indicate the following elements: A - video player B - transcription window C - system choice window, D - film timeline E - sound strip F - coding strips G – nodes with code labels (chosen from the library)

Below the timeline are the coding strips (F), with the library code families on the left. The strips continue to the right, where the specific codes from the library are placed onto the relevant code family strip, in the form of colour-coded nodes (G). Creating an empty node on a particular strip brings up the available choices for that family (C2). The chosen code will be assigned to the node, and also appear in the current selection window (C1). If no available code is suitable, the researcher can go back to the library window and create a new code, which will then appear among the choices. A short explanation of the code is displayed in the description window (C3).

One priority was to ensure that all stages of analysis are consistent with grounded theory methodology. MMAV software lends itself more easily to top-down approaches, than to grounded theory coding. The labels for individual nodes can be added to the library as they are encountered. However, the top 'family' codes are still predetermined (in this example, the 'rhetorical actions' family), which prematurely enforces hierarchical decisions, as the actions encountered will have to be defined under one family tree or another. By comparison, during manual coding I could describe the action first, for example "using the 'we' pronoun" or "making a joke", and then think about what is happening here, what sort of action this might be, and how the relevant higher-level category should be named. Applications such as NVivo also allow bottom-up direct coding, with any new code automatically added to the library, so that the hierarchical structuring can be done later. Unfortunately, MMAV does not allow to 'grow' alternative 'trees' from bottom up, making it unsuitable for open coding. Manual page-based methods still had to be used initially, in the form of page-based micro-analytical transcription procedure (explained in 6.2).

However, MMAV proved useful in the later stages of analysis. The initial open codes from the micro-analytical transcript tables provided the basis for higher-level and more abstract categories for the selective coding stage. These categories were further refined and abstracted upon revisiting theoretical literature, and then all the screencasts recoded again. The way in which the abstract MMAV codes are still grounded in the initial manual open coding, is illustrated in Fig. 9 below. The full list of MMAV codes and explanations is in Appendices 6.2-6.5

Open codes	Unpacking	Focused coding in MMAV
Foregrounding / emphasising	Directing the viewer to the pertinent point by means of visual and verbal emphasis	Design – directing (DES-DIRECT). Sub-choice: Directing through emphasis (DES-DIR-EMPH)
Cropping / clipping	Directing the viewer by removing all but the most essential parts of the image/clip	DES-DIR-EMPH
Matching / timing of image and sound	Emphasis via redundancy, or via reducing visual or audio 'noise'	DES-DIR-EMPH
Selecting an apt example	Making connections between concrete and abstract content Displaying domain-specific situational and contextual knowledge (animation) - also academic or instructional presentation skills (alternating principle, example, context)	Conceptual knowledge – relating different areas (KN-CONC-RELATE) Situational organised (KN-SIT-ORG) Relevant contextual knowledge (KN-GEN-CONTEXT). Procedural knowledge - presenting academic or instructional content (KN-PROC-INSTR)
Analysing and elaborating	Displaying skills in analysis, relevant elaboration	Knowledge – conceptual – analysis (KN-CONC-AN)
Creating comic relief	Selecting humorous examples, adding own humorous touches	Affective design – using humour (DES-AFF-HUM)
Creating situational interest	Selecting examples of specific interest to peers or generally engaging	Affective design – based on situational interest (DES-AFF-SIT-INT)

Fig. 9 - An example of the 'grounding' of MMAV codes in the initial open codes

Multiple amendments were made during the transcription and recoding of each subsequent screencast, looking at the same extract in different ways. New codes were applied to the previously coded screencast to ensure their relevance

At this point, it seems useful to revisit some of the early pitfalls. During the early attempts, I did not have a enough understanding of multimodality and viewed images as extensions or representations of the linguistic content. The published analyses of multimodal artefacts that I used for inspiration and guidance, based modes on sensory perceptions and often focused on creating taxonomies of image-text relationship. Therefore, coding for image types, sources and functions was one of the first things I did in MMAV, followed by coding for on-screen text.

Fig. 10 shows the creation of the image family in the MMAV coding library. Image Type category was broken down into three sub-categories, that is still, moving or interactive, which initially seemed simple and straightforward. Their nature was then defined more specifically, for example, pictorial, photograph, diagram, film clip, game recording. However, still images sometimes had a movement effect, whether due to panning, zooming, popping up or containing moving elements (such as moving arrows within a diagram). Similarly, moving images were sometimes frozen for a moment, to

allow the narration to catch up, or to make a specific detail more visible. I felt that it was necessary for the codes to reflect this, adding 'static' and 'dynamic' to the still image codes. Then there were composite images partly created by the student, containing, for example, own drawings or diagrams, next to a photograph of a textbook cover or a DVD box, or a screenshot from a film or game, all within one frame. The resulting appearance of "mixed" or "other" in my coding library, indicated that the framework was becoming too fuzzy and losing robustness.

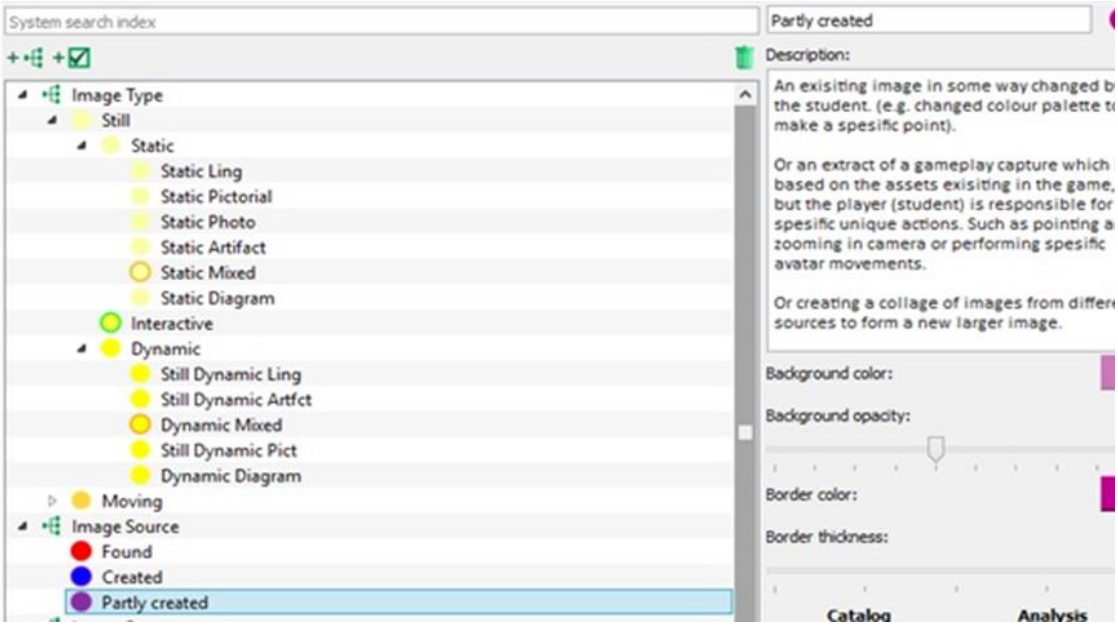


Fig. 10 - Creating a code family in MMAV

These difficulties stem from the more general problems such as the conceptual fuzziness in much of multimodal literature and the lack of clearly established methodological 'good practice' (as discussed in chapter 5.1). Several distinct semiotic modes can co-exist within the visual range of the same page or frame, each with their own discourse semantics. Some of these visual semiotic modes, for example diagrams, are well established and easy to identify, but others are more complex and need to be "teased out by detailed empirical investigation" (Bateman 2012, p 26). It is not surprising that a seemingly basic task of coding for 'Image Type' proved so problematic.

Similar problems occurred when coding for 'Text'. Some had handwritten textual frames embellished with ornamentation, whilst others had an image of a book cover or a DVD box, where the textual information (book author or film title) was important to be read, yet here text was part of the depicted image. A screencast could include a purely textual frame that did not intend to carry information through all its linguistic signs (words and letters), but rather illustrated the concept of 'text'. Fig. 11 below shows a frame which references the text based 'Choose You Own Adventure' games of the 1980s. The intention is to provide the look and feel of the interface, rather than for the screen to be read, so it would be more precisely to call this 'an image of text'. On the other hand, the snippets of visible textual information still contribute to the overall meaning, making it debatable whether this represents 'image' or 'text'.

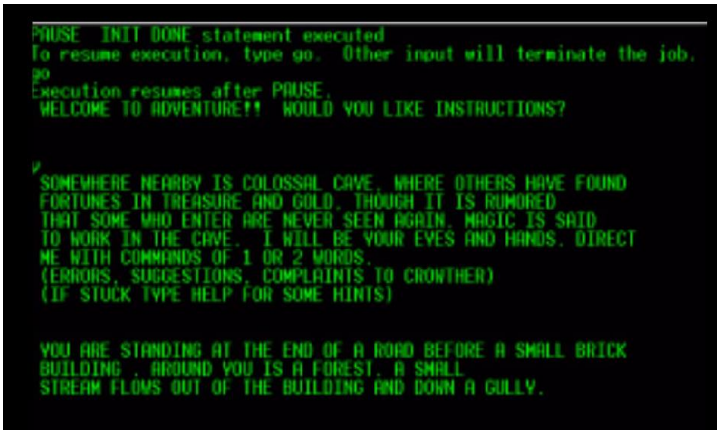


Fig. 11 - A fragment from a screencast explaining videogame history. It shows a screenshot from a text-based game, used as a visual illustration of a specific game interface

Image Function category was equally fraught, because some frames contained multiple images, and some of the images did not have the same meanings outside a specific context. Short code labels developed for one screencast did not seem to apply as easily to another screencast. Upon a closer look, they did not quite capture what was happening in the first screencast either. Even in simpler frames, it was difficult to summarise them as a label on one coding strip. A doodle in the corner of a title slide could be labelled as 'decorative' or 'filler', but it could be equally creating 'coherent style' or 'mood / interest'. It only made sense when considered simultaneously with the tone of voice, the fonts used, the in-joke in the next frame, the overall flow and delivery, and sometimes intertextual references to popular cultural genres.

Consider the cat image in Fig. 12 below, representing the narrator within a comic-like narrative about anthropomorphism. The first image, unusually appearing before the title screen, introduces the narrator, however this is not obvious without the voice-over saying 'Hi guys'. On its own, the image can be taken simply as an illustration of anthropomorphism. The meaning of this and other images depend on the overall discourse semantics and the viewers' familiarity with specific forms and genres.

Fig. 12 - The opening of the screencast 'Anthropomorphism'

Similarly, in Fig. 13 below, handwritten text in frames 1 and 3 does not make sense without the accompanying drawings. The two words on the right of each frame, 'tilt' and weight' represent a legend for the drawings, which are both pictorial and diagrammatic. It could be argued that the text here annotates the image, whilst the image illustrates the voice-over explanation, but this interpretation is limited. It assumes an unhelpful hierarchy between the spoken, the drawn and the written and artificially separates them from the overall design and the dynamic flow of the screencast. Bateman (2016) argues that "to talk of *text* and *image* wherever they might be found in the visual field is too weak, as different semiotic modes might be doing quite different things with the available 'space' of the canvas" (p 64), and that it is more helpful first to examine which semiotic modes and genre conventions seem to be at work in a given artefact. Locating the artefact within a specific genre, understanding how it is generally organised, will then "provide the necessary information for explicating the text-image relation" (p 65). For this reason, I eventually abandoned trying to isolate sensory-based modes and their functions, but

examined selected scenes more holistically, in relation to the overall screencast dynamics the genre conventions it drew upon, and relevant discourse semantics.

Fig. 13 - Fragment from the screencast 'Walks'

The necessity to approach the screencast more holistically became even clearer to me after theoretical reading, when I began to see each frame as a multimodal ensemble, embedded in the overall discourse of the screencast, rather than isolated modes or design elements. The design of MMAV interface allowed me to isolate very short segments, slow down the play-through, pinpoint small elements which would have escaped me otherwise, and to see more precisely how the co-patterning of different modes and design elements unfolded in real time. As I worked through the literature, I used any new concepts as a lens through which to reconsider my codes to date. Selected open codes were recombined into new categories, sometimes borrowing a term from literature if it captured better what was happening in the empirical material.

Finally, the procedures loosely corresponding to selective and theoretical coding stages were applied to the whole sample[11]. The remaining screencasts were 'gist-transcribed' around the specific segments containing the potential points of comparison and emerging categories. Gisting is a transcription process outlined by Dempster and Woods (2011) which is based on summary transcripts of the major topics and rough application of initial codes, to identify specific extracts of interest or

[11] As discussed in Chapter 1.6, there is terminological divergence between different schools of grounded theory, whereby the middle stage between open and theoretical coding has been referred to as 'focused' or 'selective' coding by Charmaz (2014) and Glaser (1978) respectively. Strauss and Corbin (1998) use the term 'selective coding' to denote the final stage, and the term 'axial coding' to refer to the middle stage, whereas Corbin and Strauss (2008) briefly refer to open and axial coding, but generally replace the traditional stages by a different coding paradigm (context, process and theoretical integration) – see Urquhart (2013) for a comprehensive overview of the main traditions and their terminology.

points of comparison. I viewed the screencasts again, adjusting the codes and their timings, and creating full transcripts of selected extracts for in-depth analysis. When the first outline of my theoretical model began to emerge (on the basis of both interview and screencast analysis, and supported by additional theoretical reading), I returned to MMAV and applied the final theoretical codes to the entire sample (see Appendices 6.2-6.5).

Whilst time-consuming and not always productive, the process was useful in forcing me to confront the tensions between grounded theory and the coding structure of the software, and to work out a methodologically appropriate combination of manual and software-based techniques. The two remaining sections of this chapter will explain the selective coding categories referring to the types of knowledge conveyed, the communication design features, and the rhetorical functions.

6.4. Coding for knowledge

Knowledge types. During open coding, it became clear that there are different kinds of knowledge evident in each screencast. Firstly, there were at least two kinds of disciplinary knowledge, one referring to the 'textbook knowledge' of concepts, rules and principles, and the other showing the ability to recognise these concepts in existing media examples, or implement it in practical drawing or animation. So the traditional typology of 'declarative'/'conceptual', 'procedural' and 'problem-solving' knowledge seemed to provide ready-made higher-level categories. However, because I was following grounded theory methods, I needed the categories which would adequately reflect all of my open codes, and it became clear that this traditional typology is too simplistic. The full list of codes referring to knowledge conveyed, is in Appendix 6.2, but I will outline the main principles below.

First of all, I did not use the category 'problem-solving' because the whole process of creating a screencast for academic assessment can be seen as problem-solving on many different levels. The 'procedural' category had a similar difficulty, in that any one screencast as a whole demonstrates procedural knowledge, from knowing how to

explain a topic, to screen capture, image-editing, video-editing, voice-recording and so on. Initially, I tried to code all such instances, indicating different domains, for example in the domains of 'instruction', 'discipline' or 'media', but then restricted my definition of 'procedural' to the disciplinary knowledge relevant to the aim and topic of the screencast. For example, a screencast might explain how a human walk should be animated, which reveal procedural knowledge in describing a correct procedure. Another screencast might not only explain but also illustrate the procedure through the student's own drawings, demonstrating procedural knowledge through practical application.

Finally, the 'declarative' label did not fully reflect my open codes, nor the differences between the screencasts. It conflated simple common-knowledge statements (such as "Disney is one of the most important names in animation") and more complex explanations of theoretical terms. Therefore, I created a category 'general knowledge' to distinguish the statement of simple facts and assumptions from the more theoretical content. Even then, the open codes were too diverse to be combined into just two categories, for example the knowledge of particular working practices in the relevant industry felt more 'informed' than general common-sense statements, but it was still a lay-person's knowledge, compared to the theoretical concepts explained in other screencasts. I undertook further reading, in search of a more suitable classification, and separated declarative knowledge statements into, 'conceptual' and 'situational', with further descriptive subdivisions.

Conceptual knowledge refers to the knowledge of concepts, that is abstract ideas rather than specific problems or situations, although it can also be "generalised from particular instances" (Rittle-Johnson and Schneider 2015, p 1119). There are different definitions of conceptual knowledge, some including the knowledge of basic facts as well as principles, and others insisting that conceptual knowledge is "rich in relationships" and involves the understanding of connections, rather than discrete pieces of information (Hiebert 1986). Bearing in mind the nature of the assignment brief, and the fact that these are first-year students, I used the more inclusive definition. The conceptual knowledge expressed by novice learners "is often fragmented and needs to be integrated over the course of learning", compared to

better organised expert knowledge, so the richness of connections should be seen seen "as a feature of conceptual knowledge that increases with expertise" (Rittle-Johnson and Schneider 2015, p 1120). In my coding system the category 'conceptual' combines such codes as 'explaining key facts, terms and concepts', 'recognising key rules and principles', 'analysing' and 'relating' (see Appendix 6.2).

However, I did not include all the factual statements into the 'conceptual' category, but only those which related to the disciplinary content. Other factual statements were coded as 'general' or 'situational' knowledge. Situational knowledge is a category between general and conceptual, and is defined as "knowledge about situations as they typically appear in a particular domain" (De Jong and Ferguson-Hessler 1996, p 106). It is particularly useful at novice level, contextualising the theories in various examples of common experiences, or providing additional information or justification. Situational knowledge, if sufficiently organised, can "create a representation of the problem from which additional knowledge (conceptual, procedural) can be invoked" (De Jong and Ferguson-Hessler 1996, p 106). The finalised coding categories (see Appendix 6.2), that is conceptual, procedural, situational and general, sufficiently cover different kinds of knowledge expressed in the screencast sample, whilst problem-solving underpins the whole process of screencast creation.

Epistemic modality. There was a group of open codes that related to the sources of the knowledge and the justification of statements made. Some of the open codes were easy to combine under categories such as 'testimony' or 'reasoning', but others were in the grey area between knowledge, belief and assertion, with less defined or absent evidence sources. Further reading provided me with useful terminology which I borrowed for higher-order categories, referring to epistemic modalities used in the screencast. When coding in MMAV, I retained my original grouping of codes for evidence and justification ('testimony', 'reasoning', 'empirical observation' and 'common sense'), and then recoded the screencasts on separate coding strips according to the new categories from literature. This allowed me to capture slightly different but overlapping processes at different levels of detail, as well as interrogate both the original and the new categories in the process.

Modality refers to statements that something "could or must be the case" (Kment 2017, p 1). Epistemic modality reflects the degree of the speaker's confidence in the proposition and its underlying knowledge, or a kind of "evaluation of chances" ranging from absolute certainty to probability and possibility (Cornillie 2009, p 46). Different authors provide different typologies, but the most suitable to my study were 'evidentiality', 'judgment', 'assertion' and 'qualifiers' which encapsulated most of the relevant open codes and were therefore chosen as intermediate categories.

The reason why this was important, was that the screencasts mix academic and non-academic genres. Academic discourse tends to be strongly evidential and tentative, whereas instructional videos and popular-cultural discourses are more direct and assertive. Whilst this to some extent depends on length, it is also the matter of convention and specific purpose. For example, Swarts's (2012) affective category in the design of instructional video, refers to inspiring confidence and in this context too much deliberation and tentative language would be counterproductive. Since the screencast is an academic assignment, but its format and appeal are modelled on other genres, it inevitably involves a less consistent mix of epistemic modalities. At first glance the screencast can be perceived as shallower and less informed than essay, but this view neglects multiple competences involved into producing it, as well as the genre and format constraints. I felt this needed further analysis along with the types of knowledge. The full list of codes referring to epistemic modality and sources of justification are in Appendix 6.3.

Summary visualisations. Finally, MMAV allows quantification and visualisation of the coding nodes, by exporting their combined duration into a spreadsheet on which charts can be created and compared (see Appendix 6.6). The results must be approached with caution, because the duration of the nodes in a moving image artefact is highly arbitrary. Each time I had to decide where a 'knowledge code' should start and end. Breaking it down too finely would be meaningless, as knowledge is not usually expressed in a single word or sentence. A single sentence can provide a definition, but analysis would require at least a paragraph-long segment. Some spoke faster than others, or paused more, so the same two or three sentences could take

very different duration. Also, in some cases the voice-over paused but the knowledge was still conveyed through an animated sequence, whereas in other cases a pause was accompanied only by a title slide. Different genres chosen as an overall strategy may require a tighter or 'wordier' delivery. There were times when the same segment could be coded as one type of knowledge or another (in particular, the difference between situational and general knowledge was very blurred). A different researcher might code all this completely differently, and I even disagreed with my own codes myself, when revisiting them after a long study break. My solution was multiple re-coding under a slightly different 'angle', using this as an opportunity to interrogate previous codes and emerging categories. For example, when coding for 'evidentiality' and encountering a textbook quote within the screencast, I checked the previously coded strips which focused on other areas but should still indicate the presence of a quote (for example 'reference' in the strip focusing on structural segmentation). This made the codes more accurate, although there still some grey area. However, even with this word of caution, the charts still suggest some tentative but interesting patterns which could be investigated further with multiple coders and larger samples.

6.5. Coding for communication design

Designing the flow. The initial transcription had already established that each screencast had a 'flow' which unfolded through clear and specific stages, which differed according to the editorial and design strategies adopted. Most of the common stages or elements were typical for University coursework in general (introduction, conclusion, examples, references). Other features were more specific to instructional video. Instructional video is a hybrid, which reworks some of the pre-existing instructional genres, such as live lecture and demonstration, in a moving-image format. Since the spread of the Internet and video-sharing platforms, instructional video has evolved into several diverse forms suitable for online viral distribution and informal learning (for example 'explainer videos', less formal and more practical or business-oriented in focus). Although some screencasts were less formal than others, and drew on other genre conventions and aesthetic, they all incorporated some features from instructional or 'explainer' video.

The full list of codes for communication design is in Appendix 6.4. To put them into context, let us first consider the criteria for good-quality instructional video from Swarts (2012). My own categories, based on grounded theory coding, overlap with Swarts', but there are several differences. Swarts (2012) divides the core features of instructional features into three broad categories: physical, cognitive and affective. Physical design features are those "concerned with access, viewability and timing", whilst cognitive features refer to "accuracy, completeness and pertinence"; finally, affective features, are designed to inspire the user's "confidence, self-efficacy and engagement" (Swarts 2012, p 198).

My own higher-level categories are 'directional', 'segmentation' and 'affective'. The 'directional' category overlaps with Swarts's 'physical', in that it refers to the elements that help navigate the screencast and draw attention to the most important parts of the message, but it also involves some of the smaller elements that his system would probably class as 'cognitive'. Some examples of the open codes that were combined under the 'directional' family include "setting the agenda", "creating visual emphasis", "highlighting the point", "reiterating through text", "zooming in" and similar attention-directing features.

The second category, 'segmentation', refers to the chunking and sequencing the explanatory content into specific stages, which differs from Swarts's 'cognitive' group, concerned with the accuracy and completeness of content. Early in the process, I decided to restrain from anything that would amount to assessing the students' work, so I did not code for accuracy or errors. This would be ethically inappropriate, as well as deviating from my research agenda. Instead, the 'segmentation' category combines the open codes which refer to the rhetorical structure underlying the student's explanation, for example "introducing the topic", "providing an example", "stating the rule" or "quoting a source".

The ‘affective’ category is similar to Swarts’s but differs in focus, due to the nature of my object of study. Swarts’s model focuses on successful instructional videos which are explicitly designed to target learners, so the most important affective function is to create a sense of confidence, both in the author’s expertise, and in the learner’s self-efficacy. The screencasts in my study, on the other hand, were produced by novice learners for assessment purposes. Their function as a potential learning resource for others is a broad guideline which is left open to students’ interpretation. Therefore the ‘affective’ design in my coding refers to engagement rather than authority, for example the instances of humour, personal address or eye-pleasing composition.

These features have not only structural but also rhetorical functions. Virtanen and Halmari (2005) explain that although genres are specific to time and culture and always evolve, persuasion remains an integral part of human communication. It is part of general argumentation, regardless of the subject matter or audience (Virtanen and Halmari, 2005, p 5). As a student assignment, each screencast must persuade the tutor that the required material has been studied and understood, fulfilling the module learning outcomes. As a learning resource, it must persuade the hypothetical learner that the author has expertise and can be trusted. As a YouTube video, it must persuade the viewer that it is worth to continue viewing. In the process of selecting and interrogating categories I have therefore re-coded the screencasts for rhetorical orientation and appeal, as a different lens bringing out slightly different dimensions.

Persuasion is carried out through linguistic messages containing three classic Aristotelian appeals, logos, ethos and pathos (Virtanen and Halmari 2005). Logos is an appeal based on the logic and clarity of the argument, whilst ethos refers to the utterances that establish the speaker’s credibility and trustworthiness. Novice speakers, who may not have established own credentials yet, may include references to authoritative others. The academic practice of citation and referencing is also an instance of ethos-based appeal. Finally, pathos appeals to audience’s passions or emotions, and includes the affective design features discussed earlier. Whilst logic, clarity and credibility (evidenced through referencing) are part and parcel of academic writing, the emotional appeal is not. However, most screencasts contained at least some pathos-based elements, and in one example it was the most prominent appeal.

This stage of analysis was also informed by Halliday's 'meta-functions' or meaning-making principles (as outlined by Kress et al 2001). Firstly, the ideational principle represents 'what's going on', the entities, processes and relationships in the world, or in the case of a screencast everything that refers to the subject matter. Secondly, the interpersonal principle establishes a relation between people, in the case of a screencast it is the mode of address, forging connections between the narrator and the audience. Thirdly, the textual principle refers to the elements which serve to organise the screencast as a coherent whole:

> "The meaning of any text comes from the interplay between these three types of meaning. Each can be viewed as the result of selections from a range of possible meaning-features, and the action of selection represents the work which is required of students and teachers when producing or making sense of […] a text" (Kress et al 2001, p. 17).

Looking at each screencast through multiple lens, from the initial breakdowns and detailed open coding, to the concepts provided by different bodies of literature, enabled me to bring out additional dimensions within the same segment, suggested a more precise coding label, or strengthen my confidence in the previously created categories. The full list of rhetorical and design codes can be found in Appendix 6.5.

To sum up, the transcription and analysis used both manual and software-based procedures, to ensure consistency with the grounded theory methodology. Taking a 'bird's view' of the sample allowed me to capture and compare the recurring structural and rhetorical patterns within and across the artefacts. Zooming in on specific segments of interest allowed me to see how different elements were orchestrated at that precise point within the real-time flow of the screencast. This brought to light the students' specific representational skills, the different kinds of knowledge they communicated, and the ways in which they drew on existing genre conventions, evoked specific contexts and imaginary audiences, and created or repurposed semiotic resources. Returning to theoretical literature later and using its insights as 'sensitizing questions' to interrogate my codes and categories, ensured that my approach

remained rounded and theoretically sensitive, and can speak both to the specific educational contexts and to the broader research community.

Next chapter moves on the analysis itself, but before this it is useful to recap the aim of the assignment and the common point from the assignment briefs. For most participants (certainly on the modules 1A and 1G running in Semester 1 of the first year), this would have been their first piece of university coursework, designed as an introductory 'inroad' into a more complex and demanding essay. Therefore, the analysed screencasts tend to focus on explaining a basic disciplinary concept, term or procedure, rather than constructing a sophisticated video-argument. The assignment briefs require the students to produce a clear and informed explanation of a given term, creating a "learning resource" for others. The visuals are allocated the role of "appropriate illustrations", with further guidelines reiterating that they must "help communicate the idea" and "clearly illustrate the points" made in the verbal explanation (see Appendix 1.2.a). As long as the explanation is both "accurate" and "engaging", the choice of the overall style and tone is generally left to the students. The marking scheme states that "creative flair" could gain additional marks, but this is not a core requirement, and the content is prioritised over aesthetics. When reading the analysis in the next chapter, it is useful to bear in mind these parameters.

Chapter 7. Screencast analysis

This chapter contains seven analysis sections, each focusing on one screencast from the sample, and a concluding summary section. The screencasts are provided on a CD attached to the Appendices, in the order in which they are discussed. The analysis sections begin with a visual breakdown of the entire structure and a 'birds-eye view' descriptive summary of the relevant screencast. The visual breakdowns consist of representative screenshots taken (roughly) every 10-12 seconds, however, the length varies depending on the pace, length and richness of each screencast. The precise timings are less important than the inclusion of all the significant elements (headings, transitions, sections, changes in design, textual frames, still images and moving image sequences). After the overview, each section zooms in on several selected fragments of interest, explicating the semiotic and rhetorical work undertaken by student-authors. At the end of each section there are visualised summaries of types of knowledge and evidentiality prevalent in the screencast. The chapter concludes with a summary of key commonalities and differences between the screencasts, answering the first research question (RQ1), "What is the nature of the student-produced artefacts, including their form, meanings and types of knowledge produced?" These insights will be combined with interview findings and incorporated into a substantive theory presented in Chapter 11, which reconceptualises screencast production as an enactment of multiple affordances.

Fig. 14 - The breakdown of screencast 1: 'Colour' (Module 1A)

7.1. Screencast 1: 'Colour'

7.1.1 Overview

This screencast deals with the topic of colour, combining an explanation of selected theoretical aspects with a brief analysis of images from an animated documentary *Waltz with Bashir* (Folman, 2008). It uses mostly still images, including diagrams, graphic visualisations and film screenshots, placed in the PowerPoint-based frames. The background colour changes represent different phases within the screencast. Text is mostly used for headings, brief bullet-points and references. There is only one short moving-image clip from the chosen film, but elsewhere an illusion of movement is created by manipulating still images. For example, colour bars float in and out to illustrate explanation, parts of a colour wheel diagram fade in and out, and still images gradually increase and decrease in size, reproducing the cinematographic zoom effect (all these are visible in Fig. 14 on the previous page).

The voice-over narrative unfolds in a medium-to-slow pace, accompanied by tranquil music from Bach's *Piano Concerto No. 5 in F minor* (also used as a soundtrack in the film discussed). The tone is calm and formal, and the overall structure resembles a lecture. A formal introduction and content outline are followed by points from a relevant theory, supported by diagrams and references. The points are then applied to specific film scenes, before concluding with a set of 'take-away' bullet-points. The language is impersonal, using no rhetorical questions or tag questions. No second-person pronouns are used, nor imperative mood. First-person singular pronouns are used sparingly in generic phrases ("I will explain", "I will focus on"), suggesting a textual or compositional function, rather than interpersonal orientation. Pronoun "we" is used once, when referring to human perception of colour (rather than using a collective 'we' to create a connection with the listener). The final advice to the audience is also phrased neutrally and impersonally ("In conclusion, a few points to remember"). The screencast ends with the traditional '*Thanks for watching'*, followed by a static list of Harvard references.

7.1.2 Selected scenes

This deceptively simple screencast reveals sophisticated editorial and creative strategies. Firstly, the student has used the functionality of image-editing software to extract palettes from the chosen images, in the shape of swatches and colour bars which are employed throughout as visual evidence for her argument. In effect, this first-year student has created a simple but effective instrument which helped her make a personal discovery and communicate it to the audience. The discovery is that what we perceive to be the yellow palette within her chosen film, may not contain much yellow in its proper sense (see Fig. 15 below). Creating a swatch to provide visual evidence for the viewer, has resulted in a closer examination of the palette, and to a critical realisation that the object of analysis is more complex than it seemed. This represents an important step in developing valuable critical-analytical habits and skills.

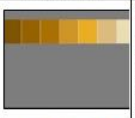
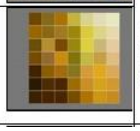
Time	Screenshot	Voice-over narrative	Visuals	Open coding
03.52 - 04.02		On the one hand, colour palette in this film consists of cool and dirty yellow hues, which in itself creates a gloomy atmosphere. On the other hand, the main tragedy and the high point of the story, the massacre in the Palestinian refugee camp, occurs in yellowish tones, and it establishes a negative yellow meaning for the audience. However, they are only perceived as yellow. In reality, comparing all these tones separately, it is clear that they can be called yellow only in a very general way.	Transition to empty screen for 3 seconds. Colour bar appears on the top, camera zooms in on the lightest hues, then zooms out revealing the full bar. Four screenshots appear, as the voiceover says "the massacre in the Palestinian refugee camp". The images are replaced by colour breakdown, as the voice says "comparing all these tones separately it is clear that they can be called yellow only in a very general way"	Creating her own colour breakdown bar Using consistent design elements Using colour bar both conceptually and aesthetically (demonstrating conceptual and procedural understanding) Creating cohesive ties – 01:40, 01:48, 02:11, 02:50, 03:52, 04:19 Engaging in critical analysis Creating and applying her own concept tool to illustrate analysis Making a discovery (yellow isn't yellow) Drawing on affordances of mode and te
04.02 - 04.19				
04.19 - 04.27				

Fig. 15. Screencast 'Colour', a fragment from micro-analytical transcription and coding sheet

Further, the screencast shows how the medium promotes embodied and performative enactments of knowledge, especially important for professional practice and creative work. Whilst this is a more theoretical and less procedural than other screencasts in the sample, there are instances of enactment here too. Here the student is enacting a scientific-analytical stance, using a process similar to laboratory analysis (such as extracting chemical compounds from a mixture or producing different kinds of light spectra). There are instances of practical enactment, replacing the tri-colour triangle with grey, when the voice-over says: *"but all three primaries mixed together make grey"* (see Fig. 16). Whilst the voice-over alternates definitions and explanations, areas of the colour wheel diagram fade in and out, helping to focus the viewer's attention.

Fig. 16 - Coding in MMAV. A sequence from 'Colour', explaining Itten's (1973) model

The colour bars serve not only analytical but also formal and aesthetic purposes. In the overall visual flow, they represent a recurring motif, strengthening cohesive ties between different sub-sections, and acting as a 'marker' for specific phases within the screencast. They also function rhetorically, providing visual evidence for verbal statements and positioning the author as an expert and contributing to both logos-based and ethos-based rhetorical appeals. Within the individual frames or segments, the colour bars sometimes also act as a foregrounding device, along with others 'visual pointing' techniques (highlighting, fading, underlining or symmetry).

Timing	Screenshot	Audio	Visuals	
02.11 - 02.24		But colour contrast does not always mean contrast. These shots contain complimentary contrast, but because of the change in brightness and saturation the result is affinity.	Quick transition to the three pictures, while the colour breakdowns scroll up and down from middle of screen	Cohes 03:52, Proce breako

Fig. 17 - The extract from the micro-analytical translation of the 'Colour' screencast, where the student is making a point about complimentary contrast, brightness and saturation.

For example, in Fig. 17 above and Fig. 18 below, the voice-over makes a complicated point, by saying that the use of contrasting colours in itself is not enough to create contrast, and that contrast can also depend on other criteria. To illustrate this, the student has created a composite image, consisting of three shots from her chosen film. The shots use contrasting colours, but this is not apparent to us, due to low brightness and saturation. At specific points, two colour bars appear on the screen to make the point clearer. First, the top bar floats in, just as we hear the words "these shots contain complementary contrast", and then the bottom one is added as we hear

"change in brightness and saturation". Both are based on the same palettes extracted from the images, but the student has manipulated the brightness and saturation values in the tops bar, to show more clearly the impact on our perception of colour contrast.

Fig. 18 - Screencast 'Colour'. The use of dynamic colour bars, with brightness and saturation values manipulated to help the viewer understand the point more clearly

Finally, the placement of the bars at specific points in the narration creates aesthetic appeal by balancing the composition. The bars frame the film screenshots, reducing the white space around them and adding compositional weight to the middle of the frame. On their own, the images would look too small for the screen, so placing the bars above and below the screenshots made the proportions more balanced. Because the colours within each bar are based on the same palettes as the screenshots, they all 'read' as part of the same image, maintaining harmony within the overall composition.

My last example brings together all these devices into one ensemble, which works both spatially and temporally to contribute to the unfolding argument. The segment in Fig. 19 deals with light-dark contrast and visual intensity. Its key point is that two images can use similar types of contrast, but one of them may appear more intense that the other, due to different colour combinations. To illustrate this, the student presents two screenshots from *Waltz with Bashir*, arranged in the same frame, with their respective colour bars underneath (Fig. 19 below). Of all the possible screenshots to choose from, she has selected the two which offer the most effective comparison,

not only because of their contrasting colour palettes, but also because of the strong and very similar compositions, almost mirroring each other's basic lines and shapes.

Fig. 19 - A screenshot from 'Colour'. The student has combined two images from Waltz with Bashir into a new semiotic entity

The similarity is further emphasised by their placement within the frame of the screencast. The figures in the foreground are on the outer edges of the frame, looking inwards and facing each other, whilst the buildings and the train in the centre provide the perspectival lines and planes, gradually diminishing into the distance. Such placement is based on specific cinematographic and design conventions, stating that the viewer's eye will follow the gaze of the character. The gazes of the main characters lead to the centre of the frame, which is both the axis of the symmetry and the line of contrast. The colour bars act rhetorically as a visual 'summing up', their placement both uniting and dividing the two screenshots, as well as being the 'last' visual element, literally 'drawing the final line'.

In other words, these two images have been remade into a new "framed semiotic entity" (Kress 2010) with its own unified composition and additional formal elements from academic and pedagogic domains. The use of framing devices established a new relationship between the two images, for example creating a new symmetry axis and using it as a boundary to emphasize the difference, whilst simultaneously emphasizing their similarity through grey background and a common title.

To make this clearer, I created an alternative layout (Fig 20b) with a balanced but less cohesive composition. Here, the link between the bars is disrupted, each bar relating to its respective image, but not to each other. The link between the screenshots is also disrupted, as they no longer have a symmetrical composition. The gaze of the female character leads outside the overall frame, and there is no visible line of sight in the other screenshot. The colour schemes are still the same, so in theory this arrangement should work just as well, but it does not feel as apt as the student's original design. The altered composition (Fig. 20b) invites reading in a different order (bar-image-image-bar), along the lines of: *"These colours are used in this image. Here is another image, it uses these colours"*. The original frame (Fig. 20a) speaks more clearly: "*Here are two images. They are similar yet different. Colour"*.

Fig. 20a -The original frame from 'Colour'. Compositional elements are used to strengthen the point about 'contrast and similarity'

Fig. 20b -The frame has been altered in commutation, to bring out more clearly the impact of composition

Finally, let us examine how the same sequence unfolds over some 40 seconds of screen time (see Fig. 21 below). The first image (frame 1) is a still, which is held for about 20 seconds, whilst the voice-over explains Itten's (1973) point about contrast and colour. This is followed by a fast 'zoom' to the first screenshot (frames 2 and 3), which is held for 5 seconds, as the voice-over introduces the shot and explains why intensity was required. It then zooms out over the description of its yellow-and-black monochrome palette and concludes with the appearance of the colour bar (frame 5). The frame is held for 4 seconds to catch up with narration (frame 6).

Fig. 21 - Screencast 'Colour'. The extract explaining light-dark contrast.

The process is repeated with the second screenshot, zooming in, holding briefly, then zooming out with the new colour bar. This adds an illusion of movement and a clear rhythm to an otherwise still and minimalistic screencast, whilst foregrounding specific aspects referred to in the verbal explanation. Zooming back to the initial composite image return the segment to its starting point, maintaining the focus on comparison, rather than discussing a string of images in succession.

This screencast provides an example of social-semiotic recontextualization, which involves "re-presentation of the meaning-material in a mode apt for the new context, in the light of the available modal resources" (Bezemer and Kress 2016, p 75). The meaning-material, in this case the film *Waltz with Bashir* had been initially produced in the context of professional film-making, or more precisely, independent film-making. This originating context included its own social organisation and purposes (low-budget production, festivals rather than box-office, creative experimentation rather than mass entertainment), as well modal resources from the domains of film, animation, documentary or graphic novel. In the original film, the two screenshots discussed earlier (Fig 18) are positioned far away from each other, in different parts of the narrative, and are part of the wider multimodal ensemble contributing to the overall style and meaning of the film. Their specific colour palettes or compositions were created for expressive purposes relevant to the film, to represent the hero's haunting dream, and his father's memories of WW2.

But in the screencast, the two images serve a rhetorical function to support a theoretical discussion about colour, and to provide evidence of the student's knowledge for assessment purposes. The two images are now associated with each other as counterparts in a new narrative, in a very different multimodal ensemble. The original material has been reshaped for academic and pedagogic contexts, with their different social organisation (teachers, learners, research, assessment) and preferred genres (critique, analysis, PowerPoint presentation, lecture, experiment, demonstration). The epistemological status of the original images has changed from 'semi-fictional' to 'factual'. They represent tangible evidence about colour, rather than the characters' dreams or the director's aesthetic vision.

The screencast uses visual foregrounding techniques to guide the viewer through the theoretical explanation. Although the voice-over is the primary carrier of the argument, its points are underscored by using conventions from the domains of film and design, such as composition, framing, transitions and manipulation of size and brightness. Whilst adopting a theoretical-analytical stance, the screencast draws on a host of technological, modal, professional-disciplinary, social and institutional affordances from several domains, to recontextualise the meaning-material for academic and pedagogic purposes.

7.1.3. Knowledge types

The type of knowledge that is most evident in this screencast is conceptual knowledge, with some instances of general and procedural knowledge (see Fig. 22)[12]. For example, the use of colour swatches represents not only the student's conceptual knowledge of colour but also her tacit understanding of what constitutes analysis (as opposed to 'review' or 'description'), and procedural skills of practical visual analysis.

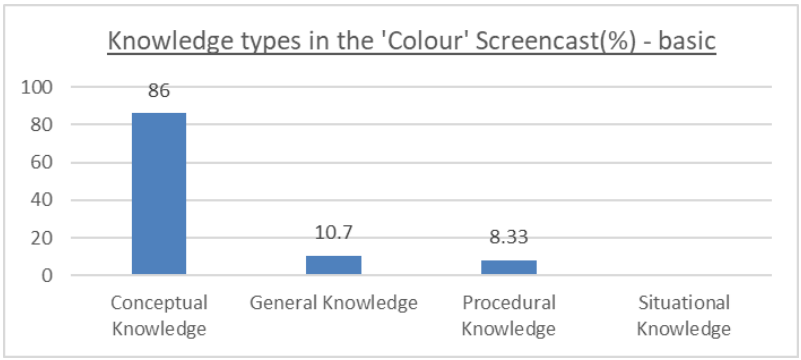


Fig. 22 - Screencast 'Colour', the summary of codes for basic knowledge types (exported from MMAV)

A finer breakdown of the conceptual knowledge category (see Fig 23) shows that more than a third of this screencast is taken up by analysing examples, and another third by explaining terminology, rules and principles. There are also attempts to create conceptual or strategic links between different domains, knowledge sources or topics.

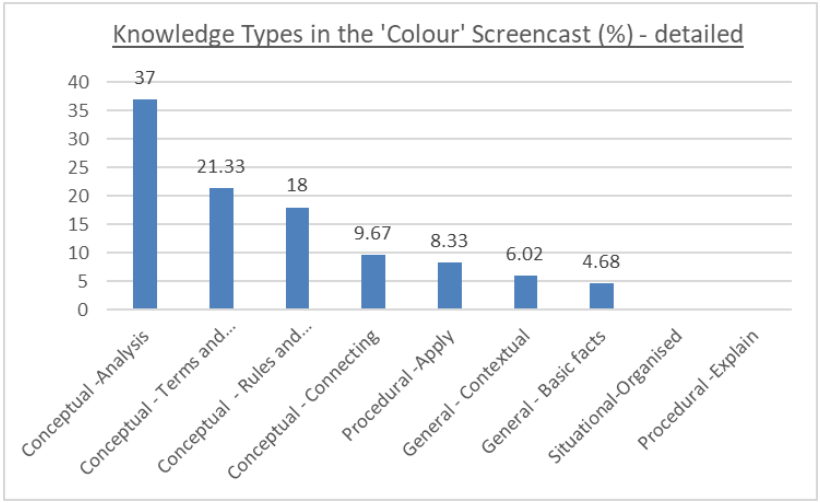


Fig. 23 - Screencast 'Colour', more detailed knowledge type codes (exported from MMAV)

[12] The total in these charts may exceed 100%, if more than one type of knowledge is evident.

To see more clearly how all these different kinds of knowledge are brought together to construct a persuasive argument, let us use the earlier example, where the student discusses the seemingly 'yellow' palette of her chosen film (see Figs. 24 and 25 below). The argument starts the point that colours come loaded with associated 'visual stereotypes'. This is supported by examples of the common connotations of yellow, illustrated with a diagram. The student then makes a counterpoint, saying that colour symbolism should not be taken for granted, as it depends on the viewer and the narrative context. The codes below reflect the conceptual and contextual types of knowledge displayed, along with their justification sources.

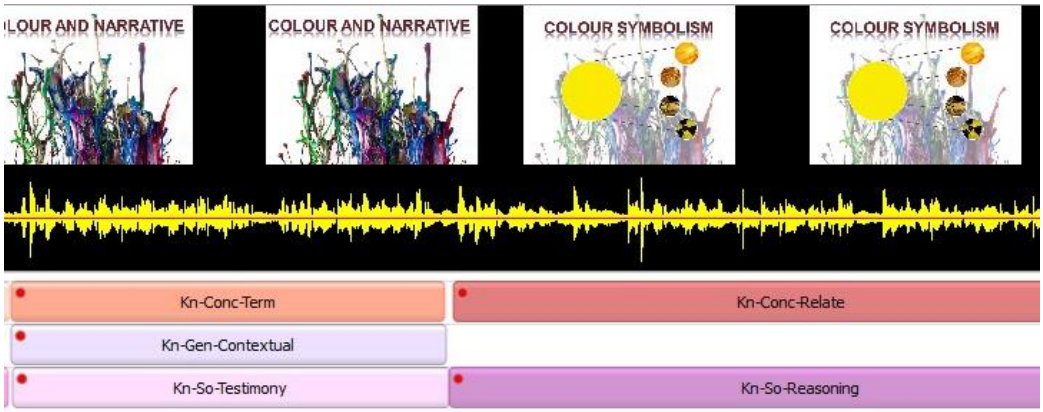


Fig. 24 - Screencast 'Colour', a fragment of MMAV interface.

The sources of justification are, firstly, a reference to a book (coded as 'testimony'), and secondly, the student's own reasoning (making a critical counterpoint and providing illustrations of contradictory uses of yellow). Contextual knowledge refers to her knowledge of various contexts in which yellow may be used to convey specific meanings and her ability to deploy them in discussion. Conceptual knowledge includes the definition of the key terms, and to the process of critically relating content from different areas (in this case abstract concepts and concrete experiences).

Having offered these general points and examples, the student turns to her chosen film, which uses yellow hues to create a gloomy atmosphere, rather than warm and cheerful connotations. The point ends with a twist, demonstrating that whilst we perceive the film palette as 'yellow', there is very little yellow in it, but mostly the shades of orange, brown, beige and green. The additional types of knowledge

displayed at this point are conceptual-analytical, as well as procedural-explanatory. Not only does the student understand how colour operates, but she is also able to demonstrate the breakdown of colour and explain the implications. This introduces the third justification source, 'empirical observation', that is, breaking down the palette and observing the constituent hues before arriving to the conclusion.

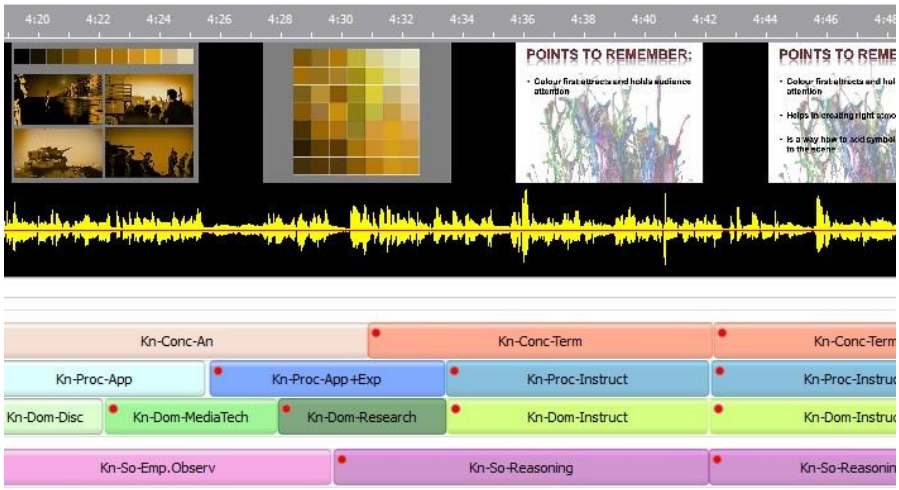


Fig. 25 - *Screencast 'Colour', knowledge and justification codes in MMAV environment*

Making connections between different areas are evident throughout this screencast. The two main justification sources, "testimony" and "empirical observation" are used in a rhythmical pattern, alternating between authoritative texts and own analysis, which is used to illustrate, extend or counter the point cited from the source. Reasoning is also used, but it is always preceded or followed by a reference or a visual example, rather than abstract logic.

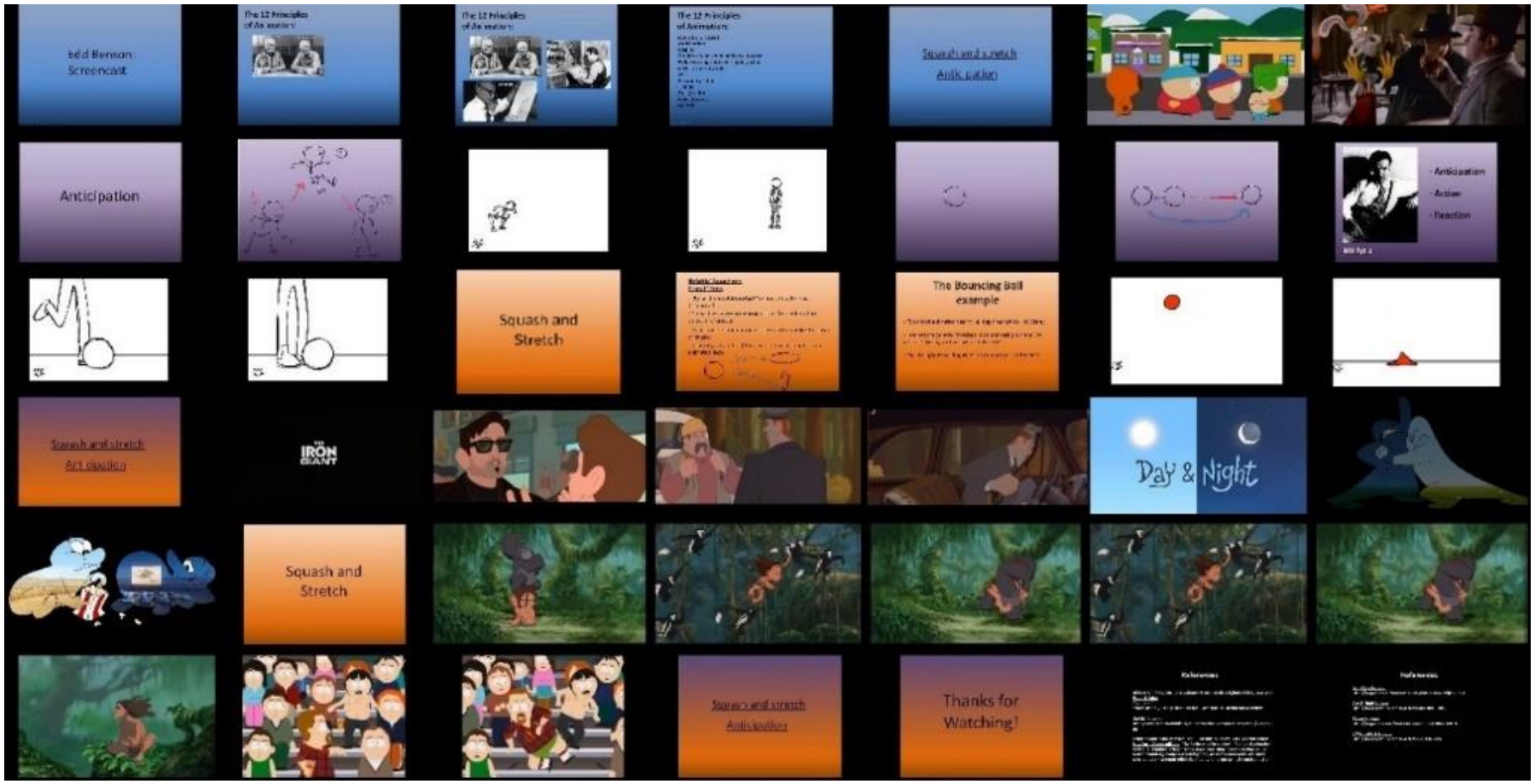


Fig. 26 - Screencast 'Principles of Animation', full structure.

7.2. Screencast 2: 'Principles of animation'

7.2.1. Overview.

This screencast explains two fundamental principles of animation, Squash-and-stretch and Anticipation. PowerPoint-style frames are used as a backbone for the overall structure, with headings, bullet-points, diagrams, photographs, quotes and references. These frames are interspersed with the student's own drawings and animations, as well as short examples from commercial animated films. Each topic has its own colour background, blue for introductory section, purple for Anticipation and orange for Squash and Stretch (combining the colours where both principles are mentioned together). The speed is skilfully manipulated to show more clearly specific movements or to allow the narration to catch up with the moving image.

The overall emphasis of the screencast is on the practical application of the two principles, and their impact on the depicted physical movement. The voice-over narration is well-paced, quiet and controlled, and at time is juxtaposed with dialogue from animated series *South Park*, to provide humour or additional commentary. The use of personal pronouns demonstrates an interpersonal orientation, with the first-person plural "we" used throughout the screencast. The screencast follows a clear and consistent overall structure, modelled on a lecture or a formal presentation (although, as we shall see, the actual sections combine more than one approach). After a formal introduction and a brief historical context, the screencast proceeds to explain and demonstrate the first principle (Anticipation), with the student's own artwork illustrating the material. This is followed by the second principle (Squash and Stretch), again using the student's own artwork to illustrate the points. This forms approximately half of the total length. The second half contains several clips, showing implementation of the two principles in commercial animated films. The screencast ends with a short summary statement about the importance of the discussed principles. The traditional "Thank you for watching" is expressed both in text and speech and followed by a mellow jazz soundtrack over a list of references.

7.2.2. Selected scenes

Let us take a closer look at a sequence (Fig. 27 below), which reveals a complex enactment of different types of knowledge and multiple affordances. Here the voice-over narration is explaining the principle of Anticipation, which is illustrated it with the student's own short animation of a 'little man jumping'. The sequence starts from explaining the term, whilst the 'little man' figure is standing still. At the precise point when the voice-over narration says, "He must first crouch", the animated figure crouches down and the image freezes, providing enough time to complete the verbal explanation. Once the narration stops, the animated jump is executed in silence. When the jump is completed, the narration resumes to sum up what has taken place.

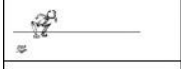
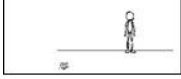
Screenshot	Audio	Visual	Open coding
	It is a device used within the field to prepare the audience to an action or event that is about to occur, such as a man jumping	Animation fades in from black Animation freezes before the jump to synch with vocal narrative	Illustrating the 'anticipation principle' with own drawings and animation Adding a signature to distinguish from borrowed material Displaying procedural competence – through skilled timing Displaying representational competence Considering the needs of the audience by freezing the action for ease of information processing (implied interpersonal orientation) Enacting the narrative / knowledge through own artwork Drawing on technological, mode and disciplinary affordances.
	He must first crouch, moving in an opposite direction to the jump, to prepare himself and the audience for what is about to happen		
		Animation of jump	
			
	It's this anticipatory action that helps to prepare the audience for the upcoming movement or event	Fade to black	

Fig. 27 – Extract from 'Principles of Animation', Jumping Man sequence

This sequence provides a clear example of knowledge enactment and meta-representational competences (MRCs). In conceiving and executing this sequence, the student has enacted a specific theoretical knowledge (the physics involved in a movement), and the discipline-specific procedural knowledge of how to reproduce this physics correctly in drawing and 2D animation. To this we can add timing, that is manipulating and co-ordinating the speed of visual flow in relation to voice-over narration and an anticipated viewer response and comprehension. An ability to anticipate, judge and tweak the timing, is both a meta-representational competence (transferable to any kind of public communication), and a key practical skill in the domain of moving image production, including animation. This demonstrates the

advantage of the screencast format, compared to written work, as well as the potential losses involved if we were to focus only on the content delivered through narration, rather than on the meaning created through a combination of modes and their unfolding in time.

The sequence enacts multiple affordances, including the disciplinary affordances of animation, the pedagogic affordances of educational video and the technological affordances of video-editing. Still image affords prolonged viewing of a particular moment in time, as well as unlimited time for explanation. Moving image, on the other hand, affords viewing the whole movement arc in time, as well as breaking it into key frames representing different stages. Recording and editing technology affords multiple playback and manipulation of speed, to match the visual flow to the voice-over narrative. The disciplinary and pedagogic affordances refer to the kind of examples that lend themselves well to learning the key poses, as well as the conventional procedures for instructional demonstration. The student had to imagine all these possibilities, select them from a field of alternative possibilities, and then enact them through an embodied interaction with technology.

This links back to Norris's (2004) notion of 'frozen actions' (see Chapter 5.4), which have been completed in the past, but their traces are contained in the present situation. The editorial decisions evident in the screencast, are the student's previous actions 'frozen' within the material form of the artefact. They constitute part of the interaction between the author-narrator and the imaginary or real viewer, contributing to the overall visual rhetoric. In the sequence discussed above, a simple decision to freeze the moving image at a specific point in explanation carries rhetorical functions. It provides tangible evidence for the narration, making the argument more persuasive and presenting the author as an expert in both theoretical knowledge and professionally relevant skills (logos-based and ethos-based rhetorical appeal). At the same time, it acts as a foregrounding device, 'telling' the viewer what to focus upon. When the visual move is more important, the narration pauses. When it is the theoretical point that needs to be foregrounded, the movement freezes to avoid distracting the viewer, or even contradicting the narrative point. The student has

skilfully orchestrated the contributing semiotic modes, sometimes allowing them to play 'solo', before resuming their play as a full ensemble.

As shown in another sequence (Fig. 28 below), this is a deliberate strategy, explicitly revealed in the voice-over narration: "If we slow down the film, we can manage to make out some of the anticipatory movements". By using pronouns ("we", and then "you and I"), the viewers are invited to participated in the action, simulating the experience of a live demonstration. Here the conditional clause is combined with the pronoun 'we' and ability-based modal verb 'can' ("if we do this, we can see …"), to reconstruct the author's past actions as a joint action unfolding in the present.

Time	Screenshot	Audio	Visuals	Open coding
03:22 - 03:32		If we slow down the film, we can manage to make out some of the anticipatory actions, like the ones seen here	Fade in from black Animation plays	Slowing down the film to show more clearly Using pronoun "we" Connecting to the viewer with "you and I" Displaying procedural knowledge – analysis Displaying interpersonal orientation – using pronoun Displaying interpersonal orientation – foregrounding time adjustment Using colloquial speech ("bizarrely enough") Drawing on affordances of technology and mode in editing Using slow motion for ease of demonstration (rather than as a semiotic mode)
03:32 - 03:41		Once slowed down, we can clearly see the anticipation, action and reaction	Animation in slow motion and freezes on each 'action' Fade to black	
03:41 - 03:53		When played at full speed, these movements can be quite hard to identify but bizarrely enough you and I can still manage to notice them subconsciously *(sound from animation plays low in background, becomes louder at end – quote "Oh my god")*	Fade in from black Same animation clip as 03:32 at normal speed. Fade to black	

Fig. 28 – The use of personal pronouns in 'Principles of Animation'

This re-enacts the social affordances of a live teaching situation within the representational medium of a screencast. Viewers are invited to take part in the re-enactment, and their acceptance is fully anticipated, as the general collective 'we' is replaced by "you and I" towards the end of the sequence. It is the combination and orchestration of various semiotic modes and their elements, and the student's ability to draw simultaneously on different kinds of affordances, that enables the screencast to achieve its effect. In order to give the full justice to the semiotic work undertaken by the student, these elements and affordances need to be 'decomposed' and 'recomposed' again (Bateman 2011). The extent to which the specific assessment regimes and instrument allow such decomposition, is a possible issue for pedagogic consideration and development.

The final point of interest is the way in which this screencast incorporates clips from *South Park*, an irreverent satirical animated series, which has achieved a cult status and is firmly placed in today's popular culture. The sequence (Fig. 29) occurs early in the screencast, after the introduction and a brief historical overview. Up to this point, the voice-over narration has been explaining that the fundamental principles of animation, such as Squash and Stretch, were developed by Disney animators in the 'classic era' of drawn 2D animation. At 00:32 the narration makes a brief admission that not all animated films rely on these principles. A short extract from *South Park* fades in at this point, as an illustrative example of a low-budget TV cut-out animation based on a different aesthetic from that of Disney. A South Park character is then heard saying loudly: "Yeah, but the animations are crappy".

Time	Screenshot	Audio	Visual	Open coding
00:32 - 00:42		Bearing this in mind it is important to remember that these principles do not necessarily apply to all animations *(During the voice-over narration, the South Park is very quiet, but it becomes louder when the voice-over narrative stops. We hear one character say clearly - **"Yeah but the animations are crappy"**)*	Fade in from black Animation plays Fade to black	Offering alternative Using formal tone Letting South Park humorous / irrever Using humour – int Drawing on popula Creating cohesive t

Fig. 29 - Extract from 'Principles of Animation', incorporating South Park commentary

This example raises a potential issue for assessment: which elements are to be taken as 'meaningful' in relation to the module learning outcomes and assessment criteria? In traditional essay-based approaches, the sentence "these principles do not necessarily apply" would have been one of the key points within the argument, demonstrating a critical awareness of complexities and contradictions, and adding depth to the discussion. An essay would have probably explained that the application of this principle in animated films would depend on a number of things: the budgets and time available for production, the material used, the overall aesthetic, the specific technique (for example, hard puppets, Claymation, drawn 2D or computer-generated 3D animation would have different approaches to Squash and Stretch). Such elaborations are often adopted in the screencasts too, especially where the assessment criteria privilege the content of the narrative over the visuals.

But in the sequence above (Fig. 29), a different convention is used, more characteristic for new popular genres such as Internet meme or a particular type of YouTube reviews with rapid-fire narrative delivery accompanied by simple and in-your-face visual gags. The sequence recontextualise a one-liner from a popular fictional character to make an ironic counterpoint. After making the point that not all animations involve Squash and Stretch, we would expect some elaboration and examples. Instead, the narration stops, the background sound from *South Park* fades in, we hear a quick interjection "Yeah, but the animations are crappy", and then the extract fades out and is replaced by the next section. Within ten seconds, a point is made, an example provided, the viewer is entertained, and the author's street-cred established.

Whether or not the argument has suffered in the process, is a matter of perspective. From an 'academic' point of view, one could question what is meant by 'crappy' and whether the level of critical analysis is appropriate to the university level. From the point of view of creating media for the Internet, this sequence reveals a sophisticated understanding of popular styles and genres, and the ability to use resources with maximum efficiency. What is at issue here, is to what extent these competing perspectives can be accommodated within the assessment regimes. I will not take this discussion further, but this issue could be productively considered in future research and pedagogic practice.

This sequence also shows the patterning of the communication design (Fig. 30 below) and its directional, explanatory and affective segments. Just after the greeting and the title slide, the screen shows the bulleted list of twelve fundamental principles of animation, but the voice-over explains that only two of them will be discussed. The two principles then appear on the title slide, setting the agenda for the screencast. These title slides, usually with consistent colour and design, are navigational features, often used in instructional videos to demarcate specific sections and allow the viewer to fast-forward or rewind to them. Together with various kinds of emphasis, they help the viewers navigate the content and direct their attention to specific parts of the message. The explanation is then delivered in a pattern which is broadly similar to most of the other screencasts, and 'instructional genres' in general, alternating statements of rules or principles, elaboration, examples and illustrations. However, in

this case the examples also add situational interest, firstly by using a 'cult TV' cartoon series, and secondly by creating a humorous exchange, as explained earlier. Situational knowledge from popular culture and cult animation is brought into play in a way that connects to disciplinary conceptual and procedural fundamentals, rather than merely fragmented anecdotes (see Appendix 6.2 for the full list of knowledge codes).

Fig. 30 - A fragment from 'Principles of Animation' in MMAV interface

The function of this segment is largely interpersonal, aiming to create affective engagement by appealing to the viewers' sense of humour and their knowledge of popular-cultural TV tropes. Whilst it is executed very skilfully and effectively, it also highlights an important issue that I have not mentioned so far, that is copyright. Unlike other examples discussed so far in this chapter, here the images from existing commercial media are not used for the purposes of 'review and analysis', removing the standard justification for educational use. This is not a problem, as long as the artefacts are not distributed, but serve purely for assessment purposes. However, the stated purpose of the screencast is to create a learning resource for others. Although largely hypothetical, the wording still allows the possibility that at some point this purpose may materialise, in which case permissions would need to be sought. Making more explicit references to this possibility within the assignment brief would enable the students to consider their production strategies in the light of their own aspirations regarding possible future distribution after assessment.

The final scene represents another issue for further pedagogic consideration: what happens when the students reuse the work produced in practical modules as visual illustrations within the screencast produced on another, theoretical module. The tutors I talked to, and the interviewed student-participants, have emphasised that this is a very important benefit of the screencast assignment. Firstly, it allows the students to create stronger connections between different modules, and between theory and practice. Secondly, it lessens the potentially unreasonable burden of creating extra artwork on theory modules, where practical production is not supported in class. Thirdly, it allows the students, early on in their studies, to apply their evolving expertise in the production of "epistemic objects" for others (Kharaee and Gasson 2015). For the most part this strategy has worked very well, but there are potential difficulties involved in moving work from one assessment context to another.

The 'bouncing ball' sequence shown in Fig. 31 is the case in point. In the top row, the voice-over explains how animating a bouncing ball without applying the principles of Squash and Stretch makes the ball seem static and unrealistic. The second row shows an animation where too much Squash-and-Stretch was applied, so the object no longer looks like a ball, distracting the viewer's attention from the quality of the animation. The voice-over narration, however, ignores this, and only focuses on the fluidity of animation "that has not been present before". Whilst the animated move is indeed better, the fact that the ball becomes distorted beyond recognition, is bound to distract an unprepared viewer.

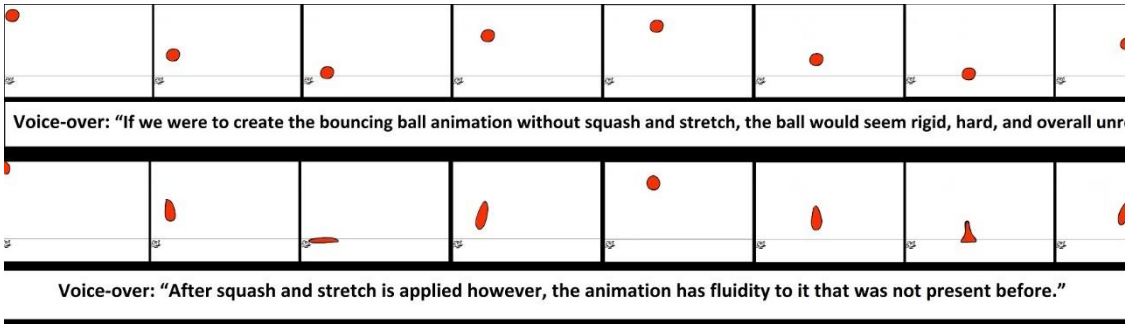


Fig. 31 – The 'bouncing ball' extract from 'Principles of Animation'

In its originating context (an animation exercise on an introductory practical module), the status of this sequence was very different. As the student's first piece of animation, successfully completed and showing a smooth and realistic movement, it would have probably gained a very good grade. The shape of the ball would not be important in that context, especially since cartoons frequently use extreme exaggeration. But in the new context of a screencast as a learning resource, the narration and the visuals tell different stories, one talking about a bouncing ball, but the other showing an object which does not resemble a ball. Ideally, this potential pitfall could be turned into an opportunity for the student to reflect on the previously produced work. For instance, the narration could have been slightly altered at this point to say: "the animation is fluid, but if too much Squash and Stretch is applied, the shape of the object becomes distorted". However, this requires the kind of critical skills and habits, which new students are only beginning to develop during their first year. This is even more difficult where the modules are run simultaneously, and the reused artwork may not have had any tutor feedback yet. Inter-module recontextualization, whilst potentially useful, requires joined-up thinking across the programme, and additional support in the first year of study.

7.2.3. Knowledge types

Like most of the sample, the largest proportion of the running time is taken up by demonstrating conceptual knowledge through explanation of rules and principles and analysis of representative examples (Fig. 32). There are instances of situational and general knowledge, fleshing out the context or providing 'narrative glue', and procedural knowledge represented by the demonstration of animation technique. Only one other screencast in the sample ('Walks') showed direct application of the discussed concept in their own creative work, and in both cases, practical application occupied only a small proportion of the screen time.

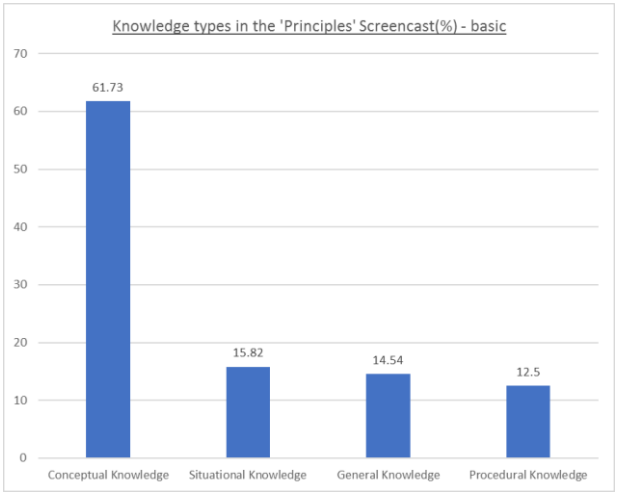


Fig. 32 – 'Principles of animation', summary codes for basic knowledge types (exported from MMAV)

However, these are theoretical modules, with the assignment briefs typically asking the student to explain a term. The time, effort and level of skill required to create these additional assets would not be realistic or appropriate for the module with theory-based learning outcomes. What is more important is that the screencast assignment creates space for the student to include such material if the skills and circumstances allow it.

To compare with 'Colour', this screencast is more practice-focused and peer-oriented. Both devote attention to designing a flow with careful timings, but this screencast makes an additional effort to create situational interest through the use of humorous sequences from popular TV animation. The justification of knowledge (as seen in Fig. 33) draws mostly on empirical observations, similarly to 'Colour' and other screencasts where visual analysis constitutes a sizable proportion of the screencast. However, unlike 'Colour' which adopts more of an 'academic' stance, this screencast also appeals to common sense as part of justification (for example, "it is generally accepted" at 4:27), and has fewer instances of referencing outside sources.

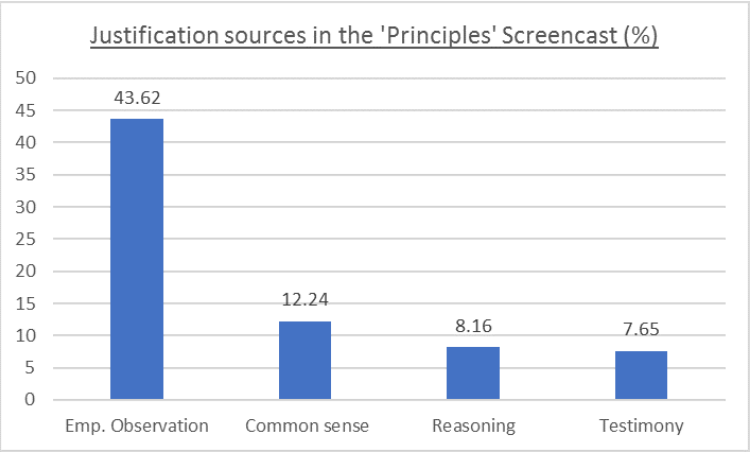


Fig. 33 - Screencast ‘Principles of Animation’, knowledge justification sources (exported from MMAV)

Fig. 34 - The breakdown of screencast 3: 'Walks, movement and overlapping action' (Module 1A)

7.3. Screencast 3: 'Walks, movement and overlapping action'

7.3.1. Overview

This screencast explains the principles behind accurate representation of walking movement in animation. PowerPoint-style frames are employed for most of the structure, except the middle section representing the student's own animations, imported directly into the video-editor. References are used in several ways: text, images of books, and voice-over narration. The commercial film extracts are embedded into the PowerPoint-style environment, helping to maintain formal cohesion throughout the structure. The middle section has a more artisan look, with a crumpled-paper background, hand-drawn stick figures and handwritten captions. Linear wipe transitions and fade-ins are used to connect the sections.

The voice-over narration is clear, warm and well-paced. The soundtrack from film clips fades to mute when the narration begins and becomes louder in the breaks. There are few pronouns, except in generic phrases ("I will explain"). On-screen images are described as a statement of fact, rather than a shared viewing experience, for example "in this clip, Elmer Fudd is trying to", or "in a walk this is barely noticeable" (rather than "we see Elmer" or "we do not notice this").

The screencast begins with a short introduction and content outline. The importance of walks for characterisation is explained verbally and illustrated by short clips from a cartoon (Rabbit Seasoning, 1952). This is followed by the middle section, which deconstructs a walk cycle and explains the physics behind it. The effect of weight and resistance on posture is then illustrated with a clip from 101 Dalmatians (1961), and the overlapping action with a clip from Fantasia (1940). The final examples fade out to be replaced by fading-in references, whilst the voice-over thanks the viewers.

7.3.2 Selected scenes

This screencast displays interpersonal orientation through the care taken to guide the viewer. Its skilful editing includes timing, explanatory captions, appearing and disappearing arrows and pictorial icons. Some clips are slowed down to foreground the point and synchronise the visuals with the voice-over. Bullet-points are revealed, and icons fade in and out, in time with relevant points. Whilst the voice-over is formal, personification and humour are introduced through visuals, as shown in the extracts below, explaining the physics of human walk (Figs. 35a and 35b).

Time	Screenshot	Voice-over narrative
01:59 - 02:07		In Richard Williams' *The Animators Survival Kit*, walks are described as a process of falling over and catching yourself just in time. This is most noteworthy in the up and down positions.

Fig. 35a – The middle section of the "Walks" screencast – starting the explanation

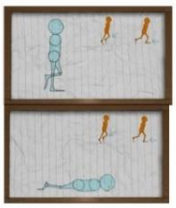
Time	Screenshot	Voice-over narrative
02:07 - 02:22		The leg which is not in contact with the ground on the up have to swing forward and catch the weight of the body as it falls on the down, or the character continues to fall. (*Sound "Thud" when character falls over – the only sound effect used*)

Fig. 35b - The walk mechanics explained in more detail – the puppet falls

The extract begins with an animated image of a walking 'puppet figure' (Fig. 35a). The voice-over narration references Richard Williams' (2001) *The Animator's Survival Kit*. As Williams' definition of a walk is mentioned, a small image of his book appears in the corner, along with a handwritten quote: "A process of falling over and catching yourself just in time". The voice-over explains that during the walk, the leg must "swing forward and catch the weight of the body ….", at which point two small stick figures appear in the upper right-hand corner, with arrows pointing out the leg movements (Fig. 35b). By now, the book and the quote have faded out, so the overall image remains clean and uncluttered.

Before continuing with the scene description, let us pause and consider what has been happening so far. The elements described above represent a succession of foregrounding devices, edited together in the way that maximizes guidance but minimizes distraction. This is not simply about the correspondence of meaning between image and speech (although this is important), but also about the spatial and temporal relationships between different visual elements. The small size of the

secondary images, and their perfectly-timed appearances and disappearances against the larger and constantly present main image, ensure that the layout remains meaningful and aesthetically pleasing, but also keeps the viewer focused on the main figure and the key points in the narration. The fading of the elements in and out ensures visual continuity between each frame and the adjacent frame, as well maintaining the consistent visual rhythm, fitting for the pace of the narrative. However, in the next segment, the student has gone above the requirements of the brief, introducing creative embellishments, humour and personification.

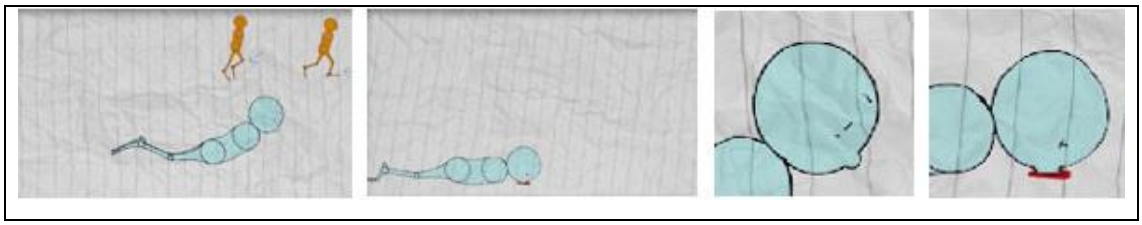


Fig. 36 – 'Walks' screencast, a more detailed breakdown of the fall. The two images on the left are the actual frames from the screencast. The two images on the right are the magnified fragments of the same frames, showing almost imperceptible changes in facial expression

As the voice-over finishes the sentence with "or the character will fall", the animated 'person' falls with an audible 'thud' sound effect. A small red dot appears under its face, indicating a nosebleed. Just before the fall, tiny lines appear on the face, and then the eyes change into small crosses (Fig. 36, right). These formal elements are conventionally used in comic books and animated cartoons to suggest worry or surprise (in the first case), and that the character has passed out (in the second case).

These details are extremely small and appear for a very short time, so it is almost impossible to see them without significant enlargement and slowing down the playback. Initially they escaped my attention, until I got engaged into a fine-grained multimodal transcription, viewing extracts of interest frame by frame in MMAV environment. It is almost as if the student has introduced these details for himself and a few friends 'in the know', revealing an extraordinary investment into creative aspects of university coursework.

Towards the end of the sequence, the two images in the corner fade out, whilst the 'person' scrolls to the left and disappears out of the frame (Fig. 37). The scene fades out and is replaced by the same 'person', but this time standing still with arrows running through it, to indicate weight and tilt. The narration explains the physics involved in the depicted action, before a hand-written sentence appear on the screen: "Walks are all about balance". Its central position, the large font size, the use of capital letters and the two lines underscoring the word 'balance' create a visual emphasis – this is, clearly, a key point. Structurally, it sums up the previous segment, as well as introducing the next one, which continues to elaborate on the same point, but covers different aspects with different animated figures. The phrase "Walks are all about balance" is therefore not a section heading, but a chunking device, breaking down a continuous section into smaller-size segments, and reiterating the main point that the viewer needs to bear in mind. Its function is also similar to the use of framed 'bite-size' reiterations on the margins of contemporary textbooks.

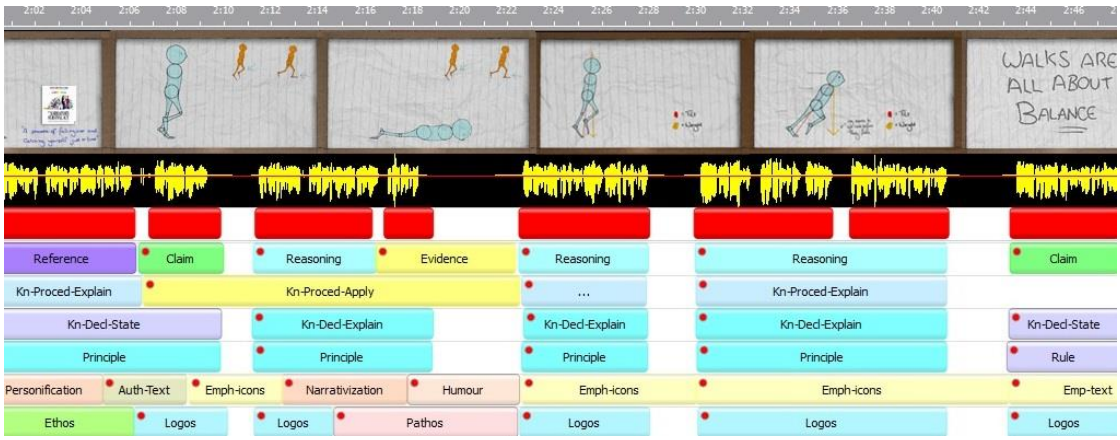


Fig. 37 - A fragment from 'Walks' in the MMAV coding environment

The fragment of MMAV coding environment in Fig. 37 reveals the argumentation patterns within the section. It starts from stating a theoretical principle in the "reference-claim" format. This is followed by reasoning, which consists of verbal explanation and visual evidence. The visual evidence involves practical application of procedural knowledge, as well as enacting declarative knowledge through an animated 'person' in a rudimentary story situation ('nosebleed' – 'passing out'). The explanation continues in several further segments, before repeating the pattern: a claim is made, an underlying rule is stated, the principle is explained in more detail, and visual evidence is provided. The rhetorical appeal throughout this section is largely logos-

based, relying on logical explanations and technical drawings. Having said this, the section also contains an ongoing ethos-based appeal, due to the student's ability to represent the discussed principles with expert precision through drawing and animation. The visuals present the proof that the principles work, and that the author's expertise can be trusted. In a similar vein, using an animated 'character' within a rudimentary 'story', with 'inside' references to popular-cultural conventions, a crumpled-paper background and handwritten text, add an ongoing pathos-based rhetorical appeal, engaging our emotions and situational interest.

The rest of the screencast uses the style of PowerPoint presentation, with its typical structure and slide layout, including a bullet-pointed outline of content, headings, conclusions and references (see Fig. 38). This serves a framing device, to which all the other elements are subordinated. Ubiquitous within educational, professional and business environments, the temporal and spatial order of PowerPoint presentations is a familiar and prominent semiotic resource. It is an example of a "genre, which already exists as a design and is chosen and redesigned by the designer" (Bezemer and Kress 2016). It is used as a framing device in half of my sample, usually redesigned and mixed with resources and conventions from other genres and domains.

Fig. 38 - PowerPoint-style frames in the 'Walks' screencast, at 00:10 and 01:34

In this screencast, the structure has been approached creatively and adapted to the anticipated needs of the viewers, as well as a cohesive device. Looking at the example in Figs. 38 and 39, the blue background with brown borders has been used in the sections dealing with meta-communication and the analysis of commercial films, as opposed to practical illustration (located in the 'hand-crafted' style section).

The final point is the use of film clips to illustrate the explanation (Fig. 39). Unlike most other screencasts, which simply cut to the film clips, here they are incorporated into the 'house style', playing two simultaneously within the same frame. This could lead to cognitive overload for the viewer, if it wasn't for editing. In both examples, the voice-over narrative makes a very general point, either introducing or concluding the topic. The images 'loop' a very brief movement, partly as an illustrative example, and partly for situational interest, without distracting from the narrative.

Voice-over: "They are essential to any animation for these reasons, however they are used to enhance a characterization is perhaps most prevalent in mid-century animation, such as Looney Tunes and Caspar the friendly ghost"

Voice-over: "As you can see, when effective overlapping actions are combined with well animated walks, the effect is very powerful."
[*The voice-over stops and the Heigh-Ho song from the film soundtrack begins*]

Fig.39a and 39b. Two frames from 'Walks' (00:27 and 04:37), showing two clips in the same frame

The situational interest is evident in the second frame (Fig. 39b), where the voice-over narrative ends and "Heigh Ho" song from *Snow White (1937)* fades in. Although the song and the last clip are not needed for the explanation, they add an aesthetically pleasing effect, by creating parallelism at the start and the end of the screencast and strengthening the cohesive ties through the formal structure.

Voice-over: "The contrast between this and Bugs Bunny's more laid back walk provides extra emphasis"

Fig. 40 – Sequence from 'Walks' showing the layout of text and moving image

The student has used a different approach in another sequence, where it is more important to follow what is happening in the image frame (Fig. 40), the layout changes

to just one moving image within the frame. A longer clip from Warner Brothers' cartoon *Rabbit Seasoning* (1952) plays, whilst the voice-over analyses the different character's walks. The few bullet-points on the side 'unveil' gradually in time with the points made in the voice-over, under a rhetorical heading "Why are walks important?" Considering that the screencast was created in the first semester of the first year of study, there is an impressive display of multiple representational and technological competences, along with the newly acquired disciplinary knowledge. Some of these competences must have already been in place prior to joining the university, and the screencast assignment allowed the opportunity to build on these.

7.3.3. Knowledge types

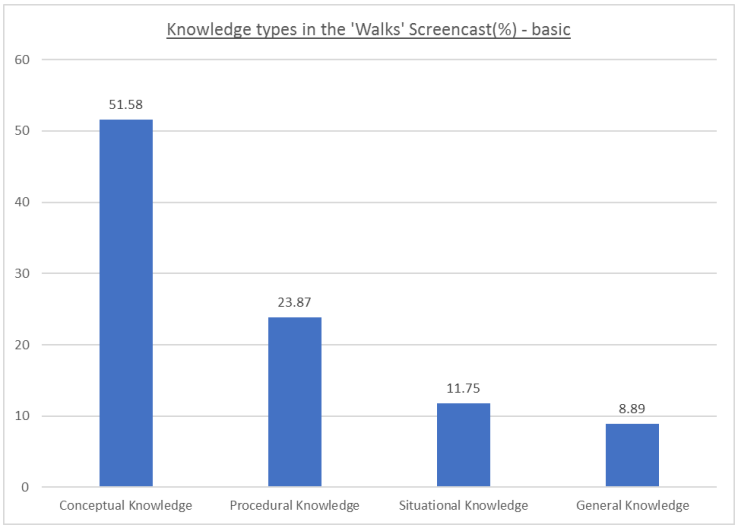


Fig. 41 - Screencast 'Walks', the summary of codes for basic knowledge types (exported from MMAV)

Conceptual knowledge, once again, takes up the largest proportion of the total run-time, however 'Walks' also displays a significant amount of procedural knowledge, more than any other screencast in the sample (Fig. 41). A more detailed breakdown of knowledge codes (Fig. 42) shows a balance between different types of knowledge communication, which included explanation of concepts, techniques and principles, recognising their use in specific examples and applying them in practice. In the process of explanation, there are various connections made, for example between techniques, the contexts of use and the impact on the viewer, or between theoretical knowledge and practical application.

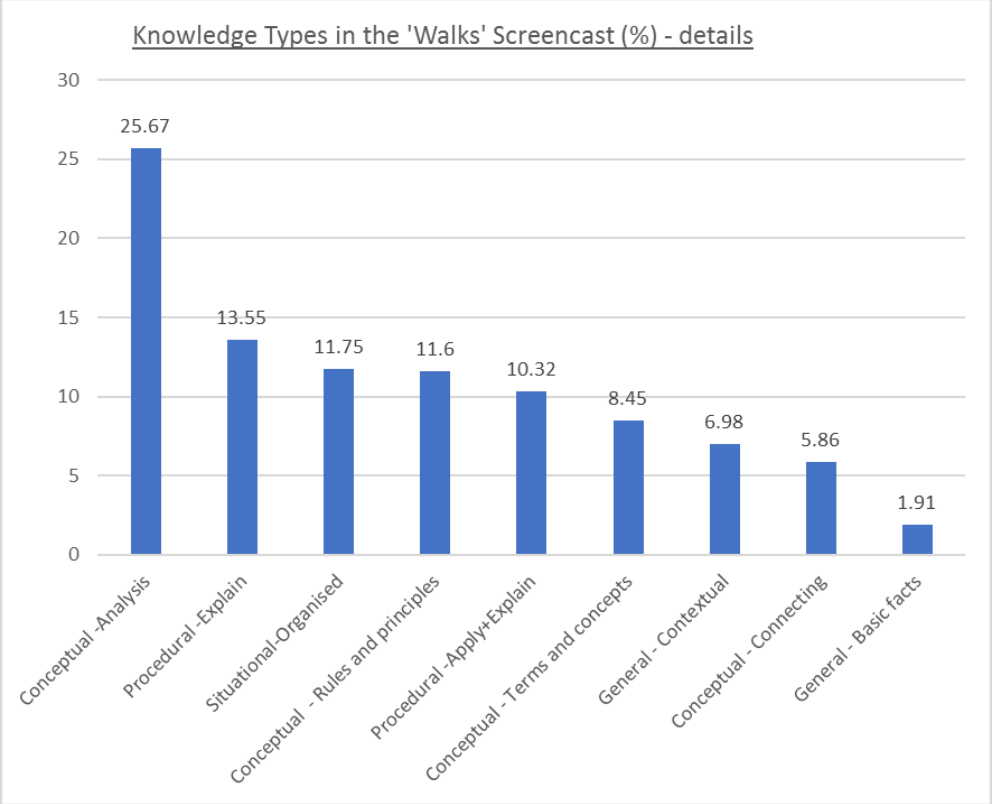


Fig. 42 - Screencast 'Walks', more detailed knowledge type codes (exported from MMAV)

To illustrate the coding for knowledge and for communication design, let us return to the previous example of a 'walking man falling down' (Fig. 43). The two knowledge coding strips capture the way in which explanations of terms and principles (conceptual knowledge) is closely integrated with practical demonstration and explanation of what would happen if the technique was applied incorrectly (procedural knowledge). The three coding strips at the top refer to the communication design within this extract. The argument begins with referencing an authoritative source stating that "a walk is the process of falling and capturing yourself" with the student's elaboration that this is most noticeable in the up and down positions. The voice-over explains that if the leg does not catch, the man will fall, simultaneously demonstrating this through animation. The justification of knowledge claims in this extract is basedon testimony (citing a textbook) and empirical observation (inviting the reader to observe what happens if the conditions change). Later, empirical observation is used during the analysis of film examples, along with reasoning and common-sense observations.

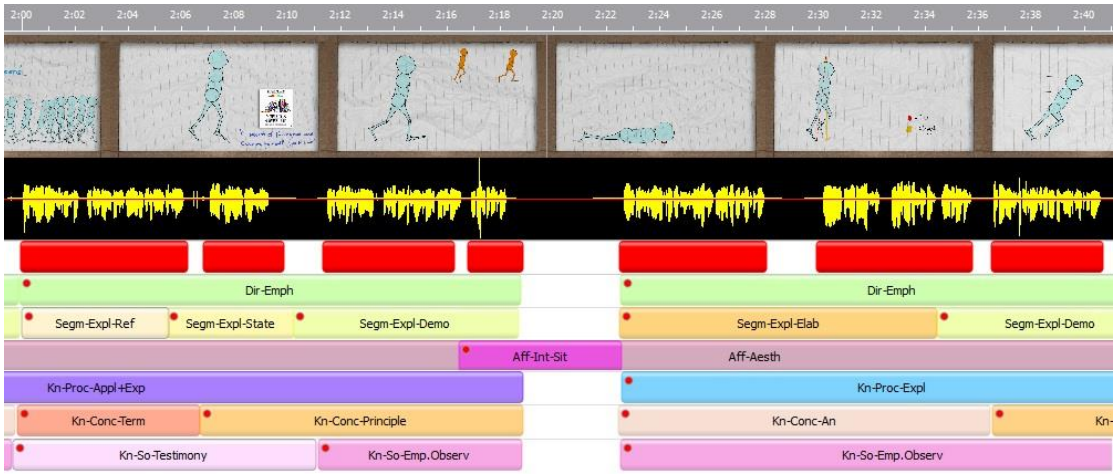


Fig. 43 - *Fragment from MMAV analysis of the 'Walks' screencast*

The chunking of content represents both a design feature within the screencast, and a communicative skill, which are captured under the higher code 'segmenting'. The viewer's attention is directed to the most important parts of the message, emphasised with pictorial and diagrammatic elements. For example, the image of the cited book signals that an authoritative source is being used. Small drawings in the top corner show the 'up' and 'down' leg positions mentioned in the voice-over narrative. Red and yellow arrows are drawn through the walking man's figure, with the legend in the bottom right corner explaining their meaning. In addition to these 'directing' features, as discussed earlier, the sequence employs humour and a consistent aesthetic, which provide situational interest and are therefore coded as affective design features.

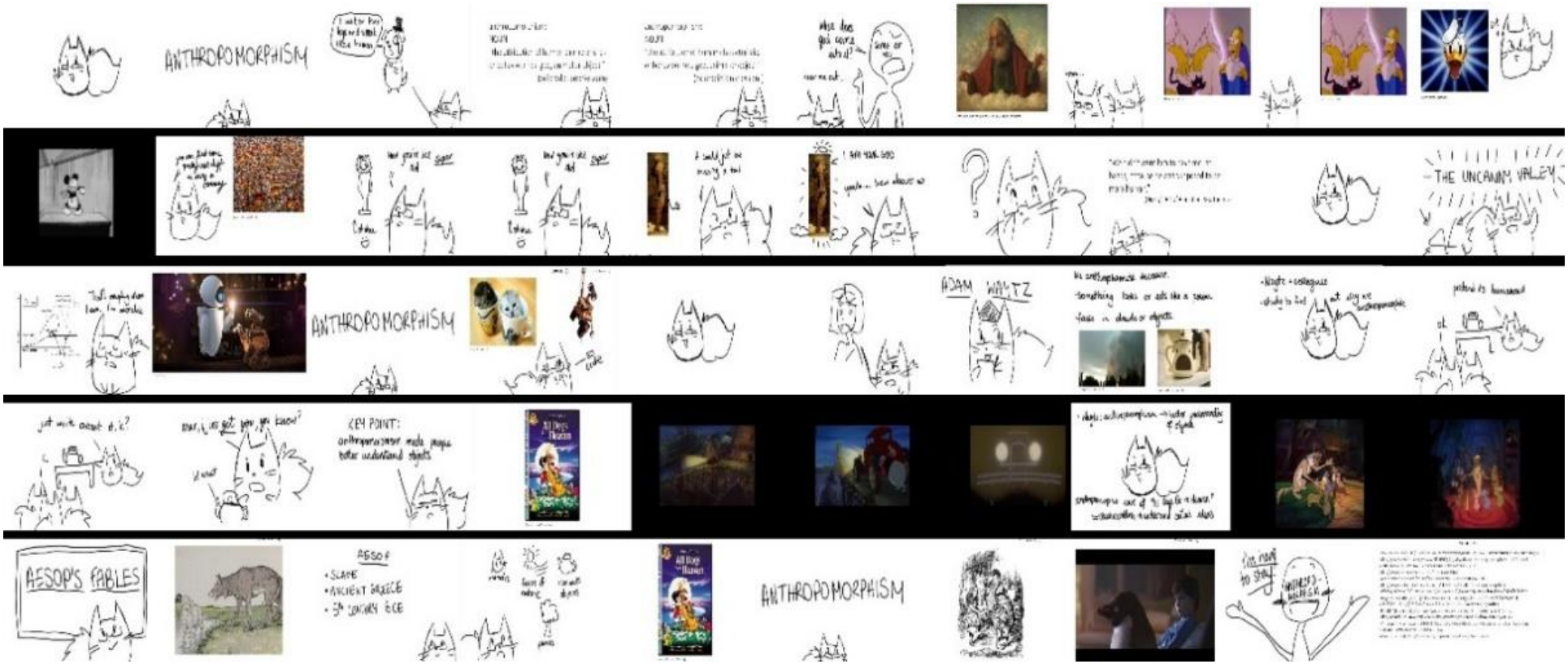


Fig. 44 - The *breakdown of screencast 4: 'Anthropomorphism'" (Module 1A)*

7.4. Screencast 4: 'Anthropomorphism'

7.4.1. Overview

This screencast focuses on anthropomorphism, illustrating the concept with a combination of own drawings, photographs found online, and screenshots from films, books and websites. The screencast also contains two short moving image clips from "*All Dogs Go to Heaven*" (1990). The vocal delivery medium-paced and informal. Personal pronouns are used throughout, along with rhetorical and tag questions, verbal and visual humour, exhibiting a strong interpersonal orientation.

Most frames contain text in the form of 'speech bubbles', titles or bullet-points. The narrative structure is more complex than in other screencasts, with vocal delivery pursuing the main line of the content presentation, and the on-screen text providing a parallel line, which counters the main narration with jokes, colloquial and meme-like phrases and the 'zany' actions of the drawn cat character. This creates an irreverent running commentary, which is used consistently throughout, overlaying the voice-over narrative. The basic underlying structure represented by the voice-over is based on a less formal version of a standard presentation or an 'explainer video'. But the visual style and the textual narrative follow the genre conventions of a comic strip.

The screencast begins with a definition of anthropomorphism, which is illustrated with examples from art and animation. This is followed by an explanation of why anthropomorphism has been used so widely, for example the need to create resonance with the audience, as well as evoking the 'uncanny valley' theory as a precaution against excessive realism. Instructional tropes are used here, including a graph and references to an experimental study which examined human tendency to anthropomorphise. The study is explained in some detail and enacted on screen by a host of cat characters playing the researcher and the participants. The final point is about anthropomorphic morality tales, with a film clip illustrating this and some references to Aesop's Fables. The screencast ends with a formal conclusion and a list of references.

7.4.2. Selected scenes

We have already seen earlier how a student-produced screencast can draw on popular culture, and this is particularly evident in "Anthropomorphism". A mix of comic narrative conventions and Internet memes are used here as a consistent style of delivery. The anthropomorphic cat-narrator embodies the main theoretical concept, anthropomorphism, as well as enacting contradictory roles, sometimes assuming the role of the 'tutor', and at other times challenging the narrator with irreverent behaviour and comical remarks.

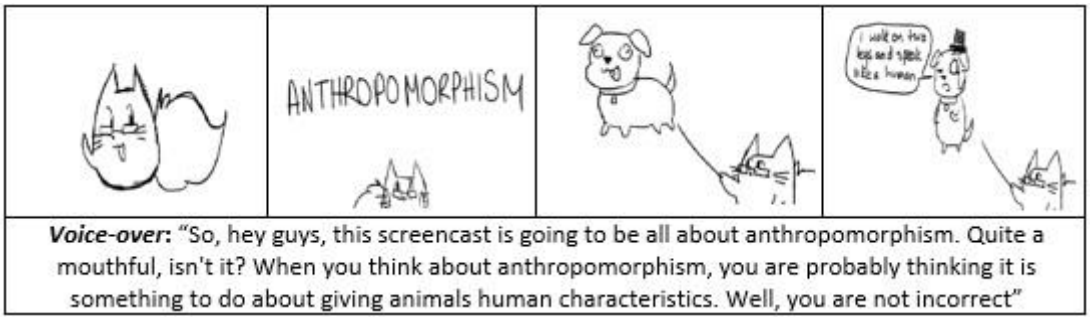
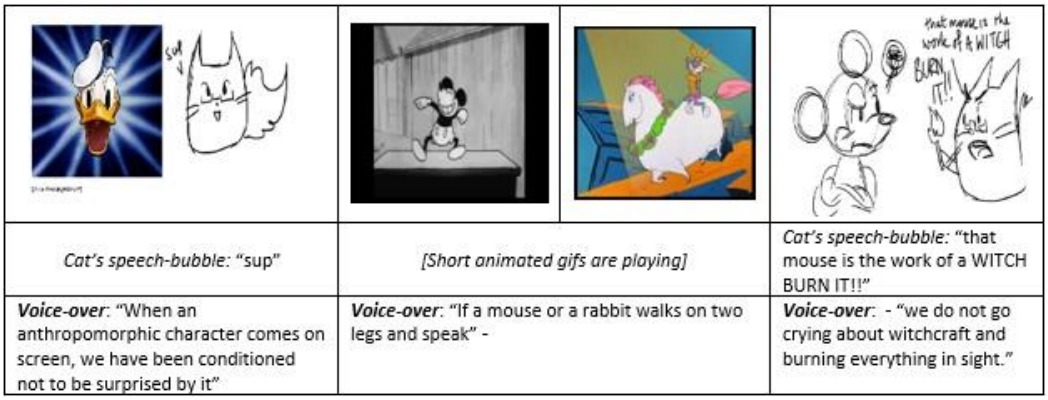


Fig. 45 – The introduction sequence from 'Anthropomorphism'

As seen in Fig. 45, the opening segment of the narration starts from directly and informally addressing the audience ("So, hey guys"), followed in the next sentence with a tag question ("Quite a mouthful, isn't it?"). Tag questions are mostly used in colloquial language, and along with "hey guys" this establishes the mode of address for the rest of the screencast. By evaluating the central concept as "quite a mouthful", the narrator is presented as part of her implied peer group, rather than positioning herself as an expert 'instructor' vs the 'student', as was the case in the previous screencasts. In doing so, it also reveals assumptions about the students, presumably rejecting complex words. The cat is set up as the main narrator by waving to the viewer when the voice-over says 'hey guys', along with the glasses, a teacher's pointer and later a blackboard, which connote authority. This authority is soon revealed as playful and changeable, with the 'cat-tutor' being constantly challenged by the 'cat-joker/commentator'. Because the cat figure is, at least partially, linked to the narrator, the student establishes her own specific credibility, simultaneously assuming the role of a tutor, and rejecting it through playful and comical mode of peer address.

This is often achieved by using text and speech for different registers, for example in the 'historical information' section which occurs at the end of the introduction (Fig. 46). At the start of this section, the voice-over explains that we are used to seeing anthropomorphic animals, whilst the visuals show several stills and animated gifs from classic Disney and Warner Brothers' cartoons. The cat's speech bubble says 'Sup', referencing Bugs Bunny's catch phrase 'What's up Doc?', and the Internet meme 'Sup' which often contains a photo of a cat.



Cat's speech-bubble: "sup"	*[Short animated gifs are playing]*		*Cat's speech-bubble:* "that mouse is the work of a WITCH BURN IT!!"
Voice-over: "When an anthropomorphic character comes on screen, we have been conditioned not to be surprised by it"	***Voice-over***: "If a mouse or a rabbit walks on two legs and speak" -		***Voice-over***: - "we do not go crying about witchcraft and burning everything in sight."

Fig. 46 - Screencast 'Anthropomorphism', showing different registers

The images then switch to a hand-drawn frame containing the cat and the image of Mickey Mouse. A seemingly superfluous phrase ("we do not go crying about witchcraft") is included at this point into voice-over narration, as a cue for the cat's behaviour, initiating the chain of comic-like actions. The cat is holding a torch, with the speech bubble saying "that mouse is the work of a WITCH. BURN IT!!". This takes exaggeration to the point of incongruity which is often used as the basis of humour. The phrase "grab your torch and pitchfork", with different versions and visual equivalents, can be often found in Internet memes and popular TV animation such as *The Simpsons* and *South Park*. The punctuation and capitalization resemble 'text-speak', also used in online chat and forum threads. So in under eight seconds, this segment evokes several intertextual references to contemporary popular culture which the peers are expected to recognise and appreciate.

Time	Screenshot	Audio	Visual	Open code
01:08 - 01:12		In 1939 pieces of a sculpture were found in a cave in Germany	Text in cat's speech-bubble: *"you can find some pretty cool stuff in caves in Germany"* Image of a crowd with German flags. Cat is content, looks up to image	Using tag question Using pronouns Using avatar to make aside comments and visual jokes Using metonymy (people with German flags = Germany) Creating embellishments (the smiley face) Commenting on own drawing (telling it is a statue + smiley face) Displaying Dialogical / Interpersonal orientation Incorporating photographs of artefacts Creating embellishments (narrative) Establishing credibility – "are believed", "it is considered" - not referencing
01:12 - 01:23		Those pieces are believed to date back to 4000 years ago, and depict a man with a head of a lion. Although pieces of it are still missing,	Text in cat's speech-bubble: *"you are like super old"*. Drawing of statue, arrow pointing to statue. Text on arrow: *"statue"*. Smiley face under arrow (":D") Puzzled cat looks up at statue	
01:23 - 01:38		and to me it looks a bit like a lion standing on its back legs, don't it? So maybe it is not a man with a lion's head, just a lion with the very human ability of walking on two legs. It is considered an anthropomorphic piece, one of the world earliest figurative sculptures	Text in cat's speech-bubble: *"it could just be missing a tail"* Photograph of statue, with a tail drawn on. Happy cat looking out to the viewer	

Fig. 47 – The use of visual fillers in "Anthropomorphism"

In some places, the screencast uses visual 'fillers' for the frames where a suitable image may have been difficult to find. For example, at 01:08, the narration states that pieces of an ancient sculpture were found in Germany in 1939 (see Fig. 47). This is a very short frame, lasting four seconds, just enough for a simple factual statement. A metonymical image, possibly from the fall of the Berlin Wall, depicts German flags carried by a crowd, presumably to illustrate 'Germany', even though the narration refers to a very different time and event. The cat is in the same frame, making a comment: "You can find some pretty cool stuff in caves in Germany". This carries no other purpose than entertaining the viewer and maintaining formal cohesion, in other words, displaying both interpersonal and textual meta-functions.

The cat's running commentary continues, emphasising specific details and lightening the tone. Continuing with the same example (Fig. 47), the phrase "you are like <u>super</u> old", creates an additional emphasis on the factual content (the age of the statue) as well as adding colloquialisms 'like' and 'super'. An arrow pointing to the drawn statue, with the label 'statue' and a 'smiley' similarly carry out interpersonal and affective functions. The visual embellishment makes the frame more engaging, whilst addressing the viewers as peers within the Internet-based popular culture. In the final frame of the above extract, the narrator says: "to me it looks a bit like a lion standing on its back legs", and the cat remarks: "it could just be missing its tail". This prompts the student to draw the 'missing tail' on the photograph of the statue, bringing to mind multiple popular-cultural 'adaptations' and 'embellishments' of Mona Lisa, children drawing beards on 'serious' pictures, and early 20c animated shorts which

frequently included live footage of the artist drawing and interacting with the often 'unruly' animated character. More recently, this approach has been used in RSA Animate 'illustrated lectures' (see Fig. 48). Therefore, the action of drawing the missing tail on the photograph of a historical statue, is not simply entertaining, but is also apt for the chosen genre and the disciplinary field of animation, evoking both its historical heritage, and the more recent uses in animated lectures and explainer videos.

Fig. 48 - Screenshots from three existing animation examples incorporating the artist's drawing hand. Left – Humorous Phases of Funny Faces (Blackton, 1906), centre – Out of the inkwell (Fleischer, 1938), right – Sir Ken Robinson: Changing Paradigms (RSA Animate,. 2010)

In the final segment (Fig. 49), the voice-over returns to the more formal tone, summarising the point about anthropomorphic deities, which "we" (the viewer) have learned so far. The visuals and textual comments, however, remain playful, drawing the comic-style halo and the clouds around the statue. The statue's claim "I AM YOUR GOD" prompts cat's reply: "yeah … how about no", which references yet another popular Internet meme.[13]

01:38 - 01:45		**Voice- over**: Some think it might be a deity, but we have learned earlier that God and deities fall under the umbrella term of anthropomorphism

Fig. 49 - Parallel narrative delivery and the uses of comic and meme features in 'Anthropomorphism'

[13] The phrase 'how about no' even has its own entry in the "know your meme" webpage – see http://knowyourmeme.com/memes/how-about-no

This use of colloquial language and meme-based text continues throughout the screencast, punctuating the more 'serious' or factual information. The sequence in Fig. 50 below introduces an experimental study which examined human tendency to anthropomorphize objects and animals. The voice-over is explaining the study, whilst the visual frames enact the described research situation, with the cat assuming the positions of the narrator and researcher, and simultaneously mocking both.

IMAGE					
TEXT	*"Waytz + colleagues Study to find out why we anthropomorphise"*	*"pretend it is human" "ok"*	*"just write about it. K?" "K."*	*"man, I just get you, you know?" "lol what"*	*"Key point: anthropomorphism made people better understand objects"*
SOUND	**Voice-over**: "Waytz and his colleagues wanted to find out what makes us do it, and in order to do that they did a little experiment. They asked one group of people to write an essay describing an everyday object like they were a humanoid. So, they anthropomorphised them."		**Voice-over:** "A second group where asked to describe them normally. If the objects were just like that, as objects. It turned out that those that anthropomorphised the object better understood it than the other group"		**Voice-over**: "Key point, anthropomorphism made people better understand objects."

Fig. 50 – Image, text and sound in the extract from "Anthropomorphism"

The first visual frame reiterates the key information from the voice over in hand-written bullet points. The second frame shows three cat figures representing the test group, and a cat-researcher pointing at a teapot ("Pretend it is human". "OK"). The third frame is visually identical, but we understand from the voice-over that this is now the control group. The text becomes more colloquial now ("just write about it. K?". "K."). This culminates in the fourth frame, as one of the cats addresses the teapot: "Man, I just get you, you know?", underscoring the point that anthropomorphising enhances understanding. This is met with the teapot's response "lol what", again referencing popular culture (text-speak and Internet), both through the phrase itself and the lack of punctuation. In the final frame, the cat resumes the role of the tutor-narrator, the pointer and the glasses reappear, and the on-screen text reiterates the key point from the voice-over, formally concluding the segment.

7.4.3. Knowledge types

This screencast example is particularly interesting for two reasons. Firstly, it pushes the boundaries much further than any other screencast in the sample, and secondly it shows an inherent tension between popular-cultural form and academic content, which may be too challenging for first-year students to resolve. Whilst demonstrating discipline-relevant knowledge in constructing a simple comic-style narrative or employing an apt 'persona' to embody the concept of anthropomorphism, the voice-over mainly contains general knowledge. There is a high stylistic cohesion, but very little argument cohesion, with not as clear chains of 'claim-evidence' as seen in the first three screencasts. The extracts coded for any kind of knowledge represent under 64% of the screencast total running time, compared with 105% in 'Colour', 104% in 'Principles of Animation' and 96% in 'Walks'[14]. Obviously, these quantifications are rough and problematic, especially with a single coder, but this may still point to the impact of specific style and mode of address, and I will return to this in a moment.

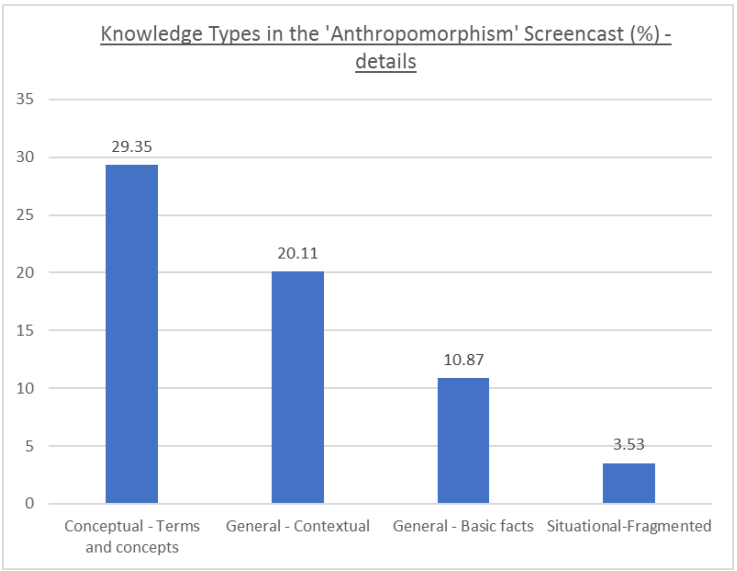


Fig. 51 - Screencast 'Anthropomorphism', the knowledge type codes (exported from MMAV)

[14] Please note that the totals exceed 100% as more than one knowledge type can be displayed simultaneously

As seen in Fig. 51, this screencast involves conceptual knowledge in the form of definitions and elaborations of the central concept 'anthropomorphism', rather than rules, principles or analysis. The largest category is 'general knowledge', which combines common-knowledge facts with some more specific contextual information. An example of 'basic facts' would be statements such as "Christianity claims that God looks like a human" (00:34), or that the film *All Dogs Go to Heaven* (1989) "teaches children about death, acceptance, love and loyalty" (04:11). Both statements have relevance to the central concept, and they are brought in as part of explanation. But it is more of a lay-person knowledge, rather than a 'learning gain' from a University theory module. An example of contextual general knowledge is the statement that the idea of using animal characters in films to teach children goes back to Aesop's Fables (04:53). It could have been coded as conceptual, if the statement was part of the initial definition, or provided an opening for an analysis of a specific fable, with a stronger link to the concept. But here it appears right at the end of the screencast, after the discussion has deviated from the key concept (anthropomorphism) to much more general points about these films representing morality tales. The example of Aesop's Fables is brought in to provide some historical context for the secondary discussion which is not directly linked to the conceptual explanation.

The high percentage of 'general' knowledge may be due to the topic, as the explanation can be based purely on contextual information. Having said this, the topic does not preclude more technical and procedural explanation, for example, looking at body language or employing available drawing and animation textbooks which discuss the 'rules' of depicting recognisable behavioural traits, or specific lines and shapes associated with human or animal form. The assignment brief does not dictate what information the student should use, apart from the expected minimum citation of the set module readings. Other than this, the choice of focus (technical, historical, cultural, aesthetic) and any other research materials are left up to the students. This then becomes part of the student's overall screencast strategy – as we shall see in the interview section, different students approached the task with very different personal aims in mind.

This brings me back to the earlier point, about the potential tensions between the popular-cultural form and the expected knowledge content, or the 'informative' and 'engaging' functions. The screencast format in general does not lend itself to complex discussion as easily as an essay, partly due to length limitations, and partly due to its emphasis on continuous visuals, which may result in prioritising concrete instances over abstract concepts. Because informal popular-cultural style is chosen as the defining feature (rather than merely inserting a couple of jokes or embellishments), it requires a constant stream of playful 'asides' to maintain textual cohesion. This parallel commentary does not intend to strengthen the main message, but rather to playfully counteract it, taking up the already limited time and space. Once this strategy has been adopted and implemented at some length, it becomes almost impossible for the screencast to change its register without falling apart. This significantly restricts what sort of knowledge can be brought in and how it is communicated.

Fig. 52 shows a sequence with a film clip, which screencasts typically use as a representative example, with some analysis or commentary. In this case, the commentary might have looked at the humanlike design and acting of the animal characters, to bring out what makes them anthropomorphic. However, this screencast takes a different approach. The extract starts with a frame containing the cat image and a hand-written bullet-point – "anthropomorphic cast of All Dogs Go to Heaven teaches children to understand certain ideas". The voice-over jokingly says: "What better way to show a kid that being selfless is great, than by a singing dog?", and the film clip begins, playing a song about sharing. As soon as the clip ends, the narrative moves on to the contextual point about Aesop's Fables, without any further comment or analysis. Therefore, the song clip does not so much communicate knowledge, besides the very point that the animals are anthropomorphic, as provides the light relief after a long explanation of an experimental research study.

Fig. 52. *The song sequence from 'Anthropomorphism' (imported from MMAV)*

This explains why the knowledge codes for this screencast do not reach 70% of the total run time, whereas in other screencasts they were higher. In terms of justification sources, testimonial comes out the highest, even though this is largely due to one long segment explaining the experimental study, rather than being peppered with references. Reasoning and appealing to common sense, or to the assumed common experiences, are also present.

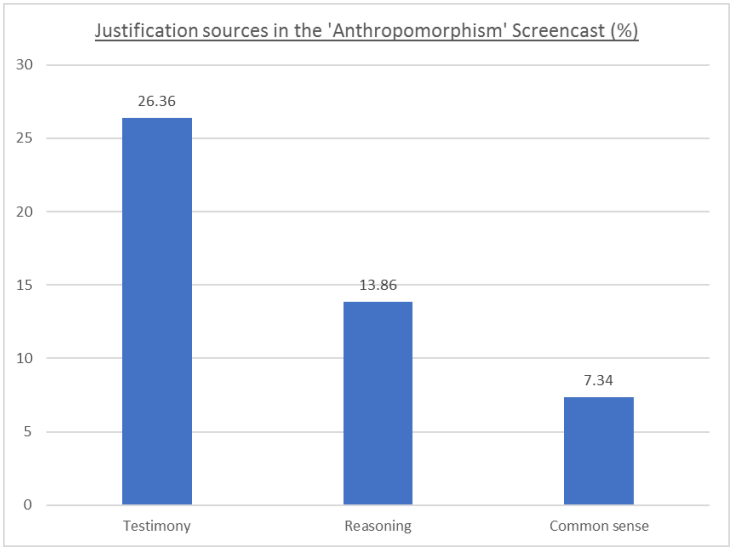


*Fig. 53 - Screencast '*Anthropomorphism*', knowledge justification sources (exported from MMAV)*

All in all, the chosen strategy has resulted in a very engaging and audience-oriented screencast, but it also opens up questions to what extent it is possible to use such an approach and provide a sufficiently informed theoretical explanation, especially by a sole student in the first year of study. Reconciling so many different, contradictory or even mutually exclusive objectives, at some point can become counter-productive. However, the ability to combine 'serious' content with entertainment, and to present diverse perspectives in a cohesive formal whole, can have many applications in media-making and other fields. So this in itself is a useful challenge for media students, provided that the inherent tensions can be managed within the assignment brief, and the students receive guidance on possible pitfalls.

Fig. 54 - The *breakdown of screencast 5: 'Blue-screen compositing' (Module 1GDA)*

7.5. Screencast 5: 'Blue-screen compositing'

7.5.1. Overview.

This very short (3.26 min) screencast focuses on Blue Screen and Match Moving techniques used in film and visual effects. The technical explanation is supported with still images and video clips, roughly in similar proportions. The clips are not referenced but seem to be sourced from online video tutorials or bonus content from commercial DVDs, explaining how specific effects have been achieved. There is a sequence of screen-capture, showing technical procedures. Most frames contain either single stills from existing media, or a combination of two such stills in one frame to enable comparisons. There is very little writing, mostly used as headings, section markers, or referencing specific brands (Nuke, Reflecmedia or AfterEffects).

The screencast uses vibrant background colours visually referencing the main topic (Blue / Green screen compositing). The voice-over narration maintains a lively pace, with pauses indicating changes between sections. No other sounds are used. The tone is friendly but formal, and the overall delivery resembles a mix between a practical-technical tutorial and a specialist product promotion, possibly inherited from the source material used. Clearly structured and signposted, it starts from defining the first technique and explaining how it is used in the industry, then proceeding to the second technique, and finally demonstrating some of the capabilities of the relevant software. The lead-out is represented by the voice-over saying, "From these basic principles, visual effects artists create wide range of dazzling scenes to bring films and narratives alive", over a textual slide thanking the viewers. The ending is somewhat abrupt, the vocal intonation suggesting that more content was going to follow, possibly some examples of the 'dazzling scenes' mentioned. The length is 30 seconds shorter than the specified minimum, and half of the allowed maximum, and there are no end credits. This suggests that more content may have been planned but the screencast may have been submitted unfinished.

7.5.2. Selected scenes

As demonstrated in the transcript fragment in Fig. 55, the screencast uses a friendly but formal language with only a few personal expressions, no rhetorical or tag questions, and no second-person pronouns. First-person singular pronouns are used for organisational purposes, in generic phrases expressing authorial intention ("I will be covering", "I will move on to"). The audience is addressed in a neutral fashion using infinitives, passive voice and modal verbs referring to need and ability ("needs to be imported", "can be used to create effects", "doing this will achieve this result").

Time	Screenshot	Audio	Visual	Open coding
01.19 - 01.27		Another method for attaining green screen is Reflecmedia green screen ring. This method is a little bit more difficult to set up, but can give a much better result. This method is to have a ring of LED lights around the lens of the camera, which will shot light onto a screen. The screen has tiny glass particles in it, which reflects light back into the lens, giving he effect to the camera that the background is green.	Image fades quickly in after two seconds of blue screen	Using the tone of Video tutorials]Displaying practical orientation "is a little bit more difficult to set up, but can give a much better result" Assuming consensus on "better result" Using brand names Explaining the method / technique
01.27 - 01.41			Quick transition to film clip. Reference in bottom right corner.	
01.41 - 01.46		This method gives a better output and can be used to create some very cool effects.	Quick transition. Blue screen for 2 second, then static image flips in in the middle. Image flips out in the middle	Employing tone of Vlogs / Video tutorials ("can be used to create some very cool effects") – rather than analysis / lecture Not naming film or effect
01.46 - 01:50			Static screen dominated by the word "How?", which rotates in, then out again. 3 sec empty blue screen – Then – The left side of the screen flips down from the top, the right side from the bottom to reveal pics. Same repeated to remove pics *Headings: Nuke, After Effects*	Punctuating the material with questions Displaying Dialogical / Interpersonal Adopting the tone of Video tutorials Displaying practical orientation "it needs to be imported" Using brand names Using consistent editing techniques / transitions / colour / font Cohesive ties with 00;11, 00:30, 02:14, 02:23
01:50 - 01:59		Once the footage has been shot, it needs to be imported into PC software capable of Chroma Keying. The process for each piece of software has a few differences, but it is essentially the same across the board		

Fig. 55 - 'Blue-Screen Compositing', a fragment from the multimodal transcript

The supportive-advisory tone softens the formal delivery, along with occasional colloquialisms, for example explaining that a certain method is "a little bit more difficult to set up but can give a much better result". What is meant by 'better' is not explained, possibly assuming a peer audience with some shared knowledge and understanding. The shared understanding is further reinforced by the inclusion of brand names as a rhetorical device. Unlike the consumer brands promoted by YouTube celebrities, this screencast deals with very specialised 'industry-standard' software and hardware, guiding the potential viewers to the equipment required to experiment with the compositing techniques. In the highly technical field of visual effects, the knowledge of the most current software adds credibility, so foregrounding the 'right' equipment positions the author as an expert, especially for peers already 'in the know'. The focus on the most respected brands is continued throughout. Whilst

saying “this can be shot with **any** camera”, the screen shows an iPhone, a Canon-EOS600D, and RED Pro 5.0, a professional digital cinema kit, rather than cheaper phones or low-end consumer cameras. The inclusion of brands also serves as a shortcut to crediting the sources (some clips seem to have come from Reflecmedia’s own videos). The use of such images here is therefore a visual-rhetorical device, creating additional meanings, over and above those conveyed by the voice-over.

This becomes even clearer in the segment 01:41(see Fig. 56). Here the student uses a screenshot from *Harry Potter and the Philosopher’s Stone* (2001). Up to this point, the voice-over narrative has been describing one of the green-screening methods, so the screenshot is used to illustrate the point that the method can help create “some very cool effects”. Neither the effect nor the film is named, but both are taken as obvious, expecting the audience to recognise them from the screenshot.

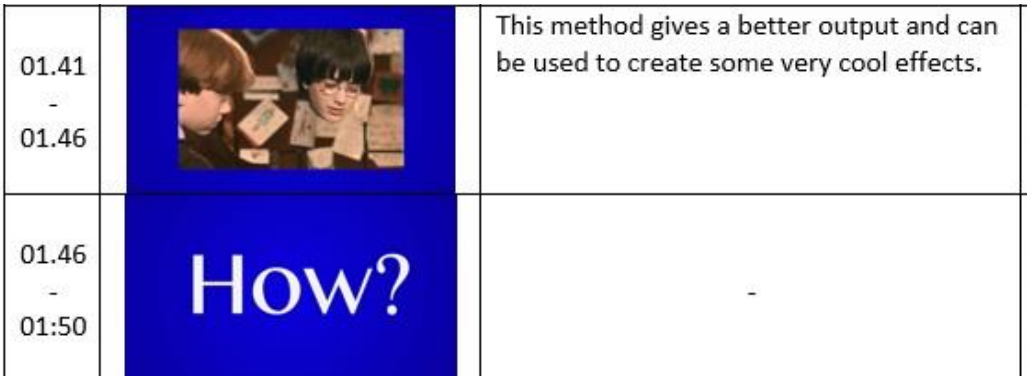


Fig. 56 - ‘Blue-Screen Compositing’, an enlarged fragment of the previous sequence

Rather than duplicating each other, the sound and the visuals are working together to create a multimodal argument, understood by a specific community of peers and their tacit knowledge of popular culture and specific visual effects. By contrast, in those screencasts that model themselves on a lecture, the film and the effect would have been named. The created redundancy would have been justified by the need to reinforce the key point, and to comply with the generic conventions. Since this screencast models itself on a different genre, it follows different conventions.

The extract above is followed by the statement that “many VFX guys like to use multiple chromakeys” (02:06), using the language typical for video-tutorials that can be found on YouTube. The phrase ‘many VFX guys’ serves an interpersonal function by using colloquial language, as well as containing an ethos-based rhetorical appeal by indicating the professional relevance of the material presented. A degree of familiarity and affiliation to a specific professional community is suggested by using ‘VFX guys’ (as opposed to ‘Visual Effects professionals’). These colloquialisms are not used consistently but alternate with more formal and impersonal expressions such as “used extensively in the film and TV industry” (Fig. 57).

Fig. 57 - ‘Blue-Screen Compositing’, an explanation of the green-screen set-up

The flow of the screencast is punctuated by short questions ‘Why?’, ‘How?’ and ‘Where?’, which serve structural and rhetorical functions. Rhetorically, they assume a dialogical approach, counterbalancing the impersonal language adopted throughout. During these frames, each lasting approximately three seconds, there is no sound, nor images. The viewers are asked to pause and consider ‘why’ or ‘how’ the relevant techniques are used, and to prepare themselves for the ‘answers’ that follow. This is a typical rhetorical technique in various kinds of public presentations (speeches, lectures, sales pitches) as well as certain genres of writing. Structurally, the questions break down the narrative into meaningful ‘chunks’, marking out the main sections instead of topical headings. At the same time, they smooth the transition between the end of one section and the content of another section. Using single-word questions in a consistent font, size and colour adds formal cohesion to the screencast. Consistent editing transitions, with images and text ‘folding’ into the screen, either from above or below, also create cohesive links throughout the piece. The answers to these questions reveal a practical-technical orientation to visual effects, rather than theoretical issues. The focus is on concrete and physical actions (“easy to set up”)

supported by literal illustrations (showing a green wall or different types of cameras in synch with the narration).

Despite its shortness and minimalism, the screencast demonstrates the student's editorial decision-making and attention to the mode of address. Whilst the content is mostly delivered through voice-over narrative, the combination of speech, image, text and editing are used rhetorically to position the author as knowledgeable within the given professional field.

7.5.3. Knowledge types

The emphasis on concrete actions and industry-relevant situations means that the most prominent knowledge evident in this screencast is 'situational organised' (see Fig. 58). At first glance it may look as though the screencast is focused on technical procedures, however during iterative coding, it became clear that what is being explained is not how to carry out them out, nor their underpinning principles.

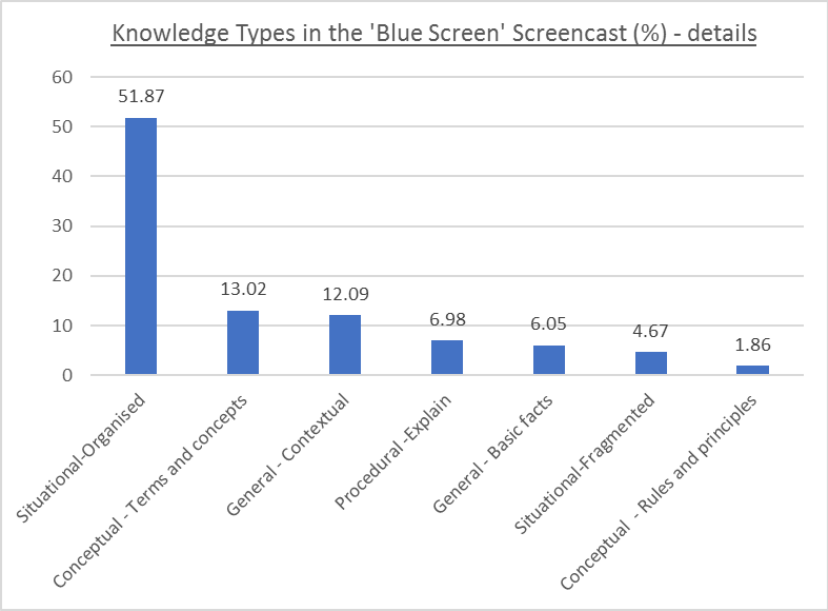


Fig. 58 - Screencast 'Blue Screen', knowledge codes (exported from MMAV)

Rather, the focus is on the circumstances surrounding their use, such as typical application contexts, the relevant equipment and effects achieved. This falls under the definition of situational knowledge, which is organised rather than fragmented. As

explained in Chapter 6.4, situational knowledge is a useful starting point which helps novice learners to contextualise theories in common experiences and situations, and if sufficiently organised, it can "create a representation of the problem from which additional knowledge (conceptual, procedural) can be invoked" (De Jong and Ferguson-Hessler 1996, p 106). Whilst simple and descriptive, the screencast does not draw on 'common sense' or general knowledge. It is highly focused on an industry where the student aspires to work, and the same is assumed of the intended audience.

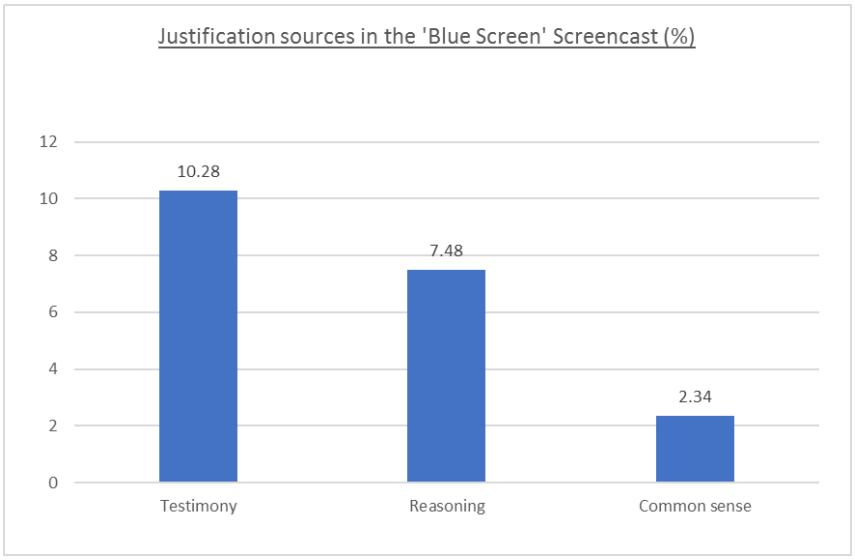


Fig. 59 - Screencast 'Blue Screen', justification sources (exported from MMAV)

Most of the justification comes from testimony using respected brands or the 'making of' DVDs, rather than academic texts. The viewer is engaged on the basis of assumed professional relevance, rather than theoretical explanation or affective design. The message seems to be "you need to learn about this, because the 'guys in the industry' are using this and because you can create cool effects". Both visually and verbally, the screencast is oriented to the 'practical reality' of filmmaking, as opposed to analytical-conceptual discussion of theoretical aspects (for example, the impact of visual effects on narrative, realism, immersion or other abstract matters). Since the assignment brief is very open in that regard, leaving the precise focus to the students, it is logical to assume that this orientation reflects the student's own interests and priorities within the chosen field of creative practice.

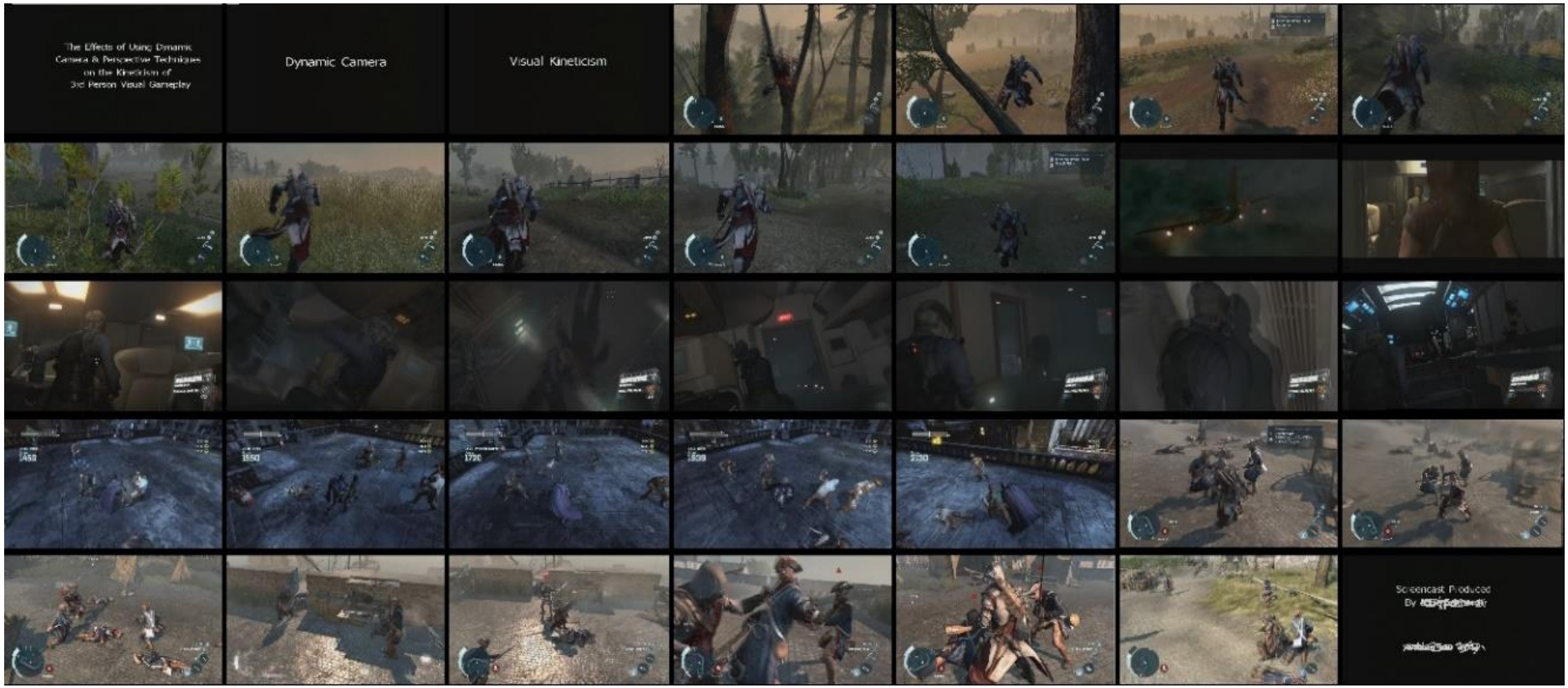


Fig. 60 - The *breakdown of screencast 6: 'Dynamic game camera' (Module 1G)*

7.6. Screencast 6: 'Dynamic game camera'

7.6.1. Overview.

This screencast focuses on the use of dynamic game camera in video games. It starts with a formal introduction, defining the concept and scope, then proceeds to explain and demonstrate the two main concepts (Dynamic Camera and Visual Kineticism), based on two game examples. This is followed by a demonstration of both concepts working together, in two contrasting combat scenes from different games. The screencast ends with a brief conclusion, before thanking the viewer. The final frame contains the student's name and date of production, with no credits or references. Within the formal overall style, the language displays a strong interpersonal orientation. The first-person pronouns 'I' and 'we' are used consistently throughout the screencast, in reference to each action taken, for example "I have set the character Connor to …", or "If I hold down the left trigger, we notice that the camera moves…".

The narration is accompanied by real-time gameplay sequences captured from three games: *Assassin's Creed 3* (2012), *Resident Evil 6* (2012) and *Batman: Arkham City* (2011). These gameplay sequences constitute most of the visual flow, except one short non-interactive cut-scene, and four textual frames. The textual frames are minimalistic, with centred white-on-black text, representing brief headings and signature. The gameplay footage is used to illustrate and elaborate most of the points made in voice-over narrative, with the student enacting the described moves and demonstrating their impact through his game avatar. The audio from the three games is present but kept low in the background, adding authenticity without distracting the viewer. The overall structure can be described as a mix of live demonstration and a 'Let's Play video' genre (explained later in this section). There are no clear visual markers for section breaks. It looks as though several unabridged game sequences were stitched together. As we shall see, this is not the case, and the seemingly uninterrupted flow is substantially edited to create a specific genre aesthetic.

7.6.2. Selected scenes

The introductory sequence in Fig. 61 illustrates the overall approach taken in this screencast, that is enacting the content through the actions of the avatar within the game environment. Rather than using naturally occurring gameplay with all its visual 'noise', the performed actions are tailored and precisely timed to match the voice-over. In this sequence, the narrator is explaining the effects of a dynamic game camera, whilst the avatar is enacting a set of movements which trigger these effects. This takes place on two levels.

Time	Screenshot	Audio	Visual	Open coding
00:52 – 01:06		Firstly, I want to use an example to show how simple dynamic camera techniques can create the illusion of increased rate of movement for the character on screen. The game I have chosen for this is UBI Softs Assassins Creed three I have set the character Connor in an open space environment, to best illustrate my point	Gameplay video from Assassins Creed 3 fades in from black. The avatar is sitting in a tree, the camera adjusts slightly and starts to move, jumping from tree to tree. The avatar jump down from the tree and starts walking	Providing an outline Explaining intentions Unpacking the topic Presenting an example Describing completed actions ("I have set") in preparation Conveying the sense of being prepared – adding authority
01:06 – 01:10				
01:11 – 01:23		So I will begin by making him run forward. The camera is, as I would put it, remaining static, it is always a fixed distance from the character, and thus he appears to maintain a constant running speed. Now if I hold down the left trigger, the command normally used to focus on a specific target when in range, we notice that the camera move slightly closer towards the character	The avatar runs down a road	Using first person pronoun Describing actions in present tense Explaining and doing the action Explaining and showing result Inviting the viewer into the action ("if I […] we can see")
01:24 – 01:32			Camera position change, closer and to the right of the avatar as he runs	
01:33 - 01:42		This alone has already impacted on how we see the character's rate of movement, as the closer we are to a character on screen, the faster it appears to move.	Avatar running along the road, turn into the forest and jumps over a couple of fences which are in the way	Using first-person plural ("how we see") Explaining the general phenomena Explaining the reasons

Fig. 61 – Extract from 'Game Camera' multimodal transcript

On the software level, the on-screen avatar enacts the moves in a recognisable way, through pre-programmed algorithms. Behind this, the student-author is manipulating multiple controls to execute the precise move sequence (mechanical-kinetic level), which is required for the explanation of the chosen concept (conceptual levels). At 01:11, the narrator says: "So I will begin by making him run forward", and the avatar begins to run, enacting the words directly and literally. The invisible actions of the student-creator manipulating the controls are foregrounded in the next segment at 01:24. As the voice-over says, "if I hold down the left trigger …", the camera effect becomes visible on screen, and the voiceover confirms what we see: "we notice that the camera moves slightly closer". The avatar continues to run, controlled by the student as he is navigating the virtual environment, then a shift in camera angle is

triggered by the student, to illustrate an additional point. The segment concludes with the voice-over narration, linking this very specific effect demonstration to a more general point.

The next extract (Fig. 62) explains the effect of dynamic camera on the visual kineticism of *Resident Evil 6* gameplay. This episode is taking place inside an airplane, which is under attack and has already lost a pilot. The plane is out of control and hits turbulence. As the narrator explains the camera techniques used to represent an additional environmental aspect, the game avatar, controlled by the student, is trying to move forward, and is thrown about by the game engine, simulating turbulence.

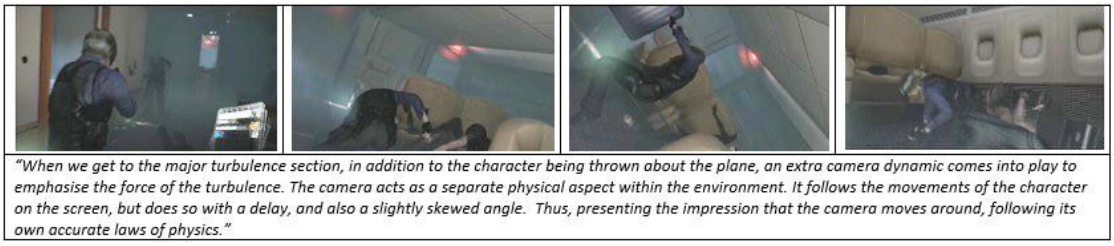


Fig. 62 - Extract from 'Game Camera', example of multimodal ensemble

The multimodal ensemble activated in this extract includes in-game sound (conveying chaos), in- game graphics and engine (shaking and turning environment), the avatar movements and shifting point of view (both controlled by the student), and the voice-over narration explaining the camera techniques. As we hear the words "emphasise the force of the turbulence", we can see the characters fall over, whilst the plane cabin turns on its side, and the objects fly around in the air (Fig. 62). The camera techniques are unfolding in front of us, illustrating the narration through delays, skewed angles, shakes and turns, abrupt stops, as well as the visual consequences of the student-triggered actions. Without these edited and precisely timed images, the voice-over would not be able to convey the full impact of these techniques. In an essay, the description would have been possible, but it would take up too much room to describe all the details that we can see in the twenty seconds of this sequence.

The third sequence (Fig. 63) uses a similar approach to the screencast discussed in Chapter 7.2, where the use of pronouns and clauses simulated a live demonstration, and invited the viewers to participate in the reconstruction of the student's past 'frozen' actions. There, the relevant principle was enacted through an animated 'jumping man', perfectly timing it to the narrative with editing techniques such as slow-down and freeze-frame. In the sequence below, a similar effect is achieved within student's in-game interactions. In frames 1 and 2, the narration is making a general point, whilst the student's avatar engages in combat. The enemies are attacking the avatar, but the avatar is standing still, only occasionally parrying the incoming attacks.

Fig. 63 - Extract from 'Game Camera', fight sequence from Assassins Creed

By reducing the number of on-screen actions, the sequence becomes less distracting for the viewer. The combat is prolonged, allowing more time to complete the verbal narrative. At frame 3, however, the narrator moves to demonstration, by saying "if I successfully chain together certain button commands …". The avatar resumes combat and initiates an attack sequence, demonstrating the "cinematic style special move", the outcome of which is seen in frame 4. The narrator follows with an invitation to joint action, by changing from first-person singular to first-person plural: "When we execute the special move notice how the camera's fixed centre-point changes from Connor only, to include the enemy he is attacking" (05:53). The move has already been executed during the screencast production, and what we see here, is the student's multiple 'frozen actions' recast by the narration as a 'live action' undertaken jointly by the narrator and the viewers, and unfolding in real time.

Although this screencast has many similarities to 'Principles' or 'Walks' screencasts (discussed in 7.2 and 7.3), the look and feel are entirely different due to adopting its visual aesthetic from a different genre, Let's Play video. The content and vocal delivery are still instructional in nature, but the way the visuals are edited makes us feel as though we are watching someone play. To make this point clearer, let us briefly consider the Let's Play video genre.

Rooted in the gaming culture, Let's Play video (LPV) is one of the YouTube success 'industries', spanning from DIY recording of difficult gameplay with bloopers and irreverent commentary, to slick, professionally-edited and increasingly monetized walkthroughs of popular videogames. Whilst early amateurs recorded their gameplay sessions to show off their skills and interact with fan communities, more recently they have been used to make money or promote intellectual property (Nylund 2015, p 56). In 2015, eleven out of twenty most popular independent YouTubers produced them, including Felix Kjellberg (aka PewDiePie), the number one vlogger with more than 60 million subscribers (Jacobs 2015). At the core of LPV is a captured gameplay session with a continuous commentary. It can be seen as a hybrid of several other forms, including page-based game strategy guide, 'fly-on-the-wall' documentary and video-blogging. Unlike live streaming, LV videos are "acted out performances, with their own agendas and functions" (Nylund 2015, p 57). They are carefully scripted and curated, to avoid 'dead air' or too many confusing and imprecise movements, and to foreground the desired aspects. However, whilst instructional videos are clearly segmented and signposted, the editing of LPV preserves the illusion of authentic gameplay, with a seamless flow and seemingly spontaneous commentary. This explains the differences between 'Game Camera' and other screencasts. Its lack of text, section headings, frames, diagrams, or any obvious visual signposting reference the aesthetic and genre conventions which are part and parcel of the Game Design students' peer culture.

7.6.3. Knowledge types

In this screencast, the highest proportion of the running time is taken up by communicating conceptual knowledge. This is consistent both with the nature of the task ("explain the term"), and the theory modules in the first year of study, where the students acquire subject-specific vocabulary. However, most of conceptual knowledge in this screencast is expressed through analysis, rather than defining and explaining the terms (Fig. 64). This may be the outcome of adopting the 'Let's Play' video approach, where the voice-over narrative comments on the actions unfolding on screen in constant on-going motion.

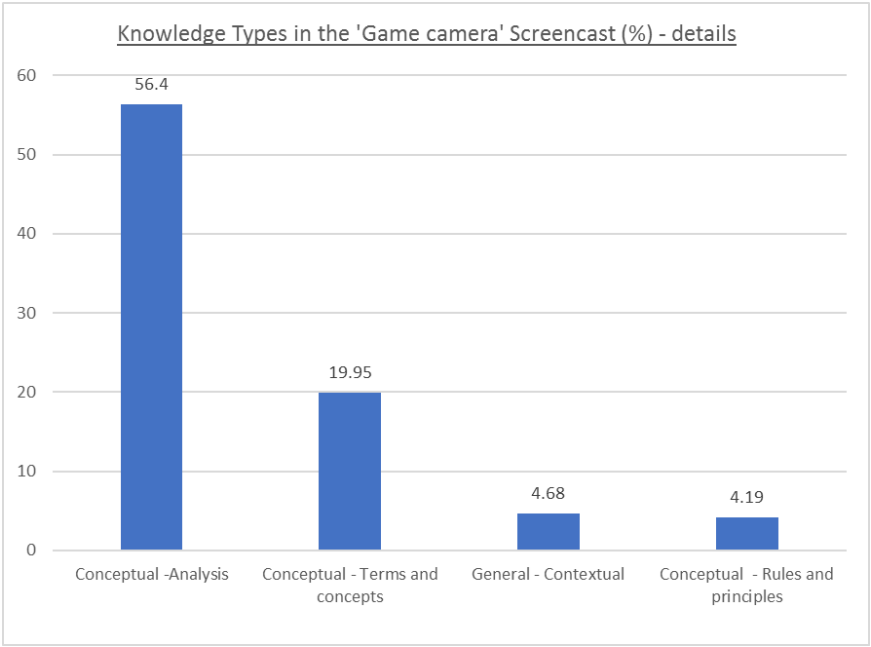


Fig. 64 - Screencast 'Game Camera', knowledge codes (exported from MMAV)

The absence of procedural knowledge in Fig. 64 seems counter-intuitive, but this is because no subject-specific procedures are discussed in themselves, but only their consequences for the player. What makes this screencast 'feel' procedural, is its interactive in-game environment. The coding would change to procedural if the student explained the design and production techniques behind these camera effects. In the same way as the comic-strip style and tone of the 'Anthropomorphism' screencast have enforced simplified and casual approach to the subject matter, the dynamic of 'Let's Play' approach privileges simulated practical demonstration over abstract concepts. Again, this may account for the differences in knowledge

justification sources, as this is the only screencast without any references to outside views. Most of the justification is rooted in empirical observation of in-game actions, with some reasoning (Fig. 65)

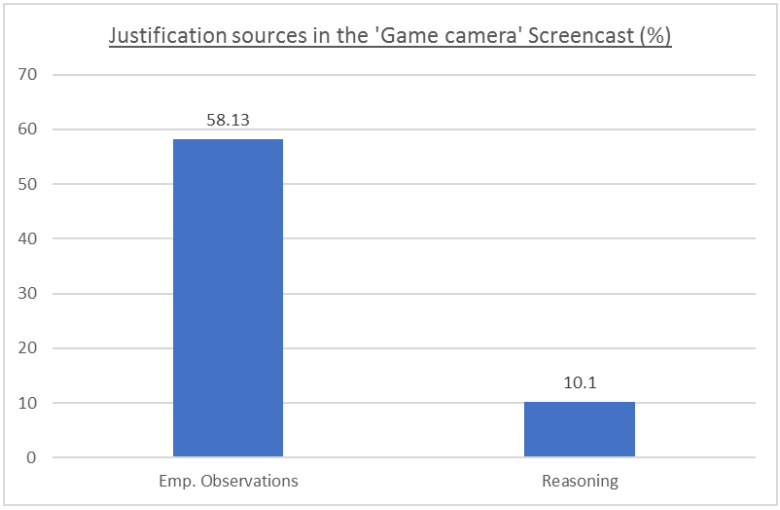


Fig. 65 - Screencast 'Game Camera', Justification sources (exported from MMAV)

Along with conceptual and analytical knowledge, this screencast reveals well-developed representational and design competences and the mode of address apt for the intended peer audience. It mixes the conventions of instructional genres (based on simulated demonstration) with the conventions of popular 'Let's Play' video genre (in the construction of the visual flow). In addition to instructional, representational and technological affordances, the screencast adapts and repurposes the social affordances of one context for a different context. The social affordances of gaming and YouTube content creation are re-enacted to teach about a set topic in a more engaging and peer-oriented way. At the same time, this screencast, along with 'Anthropomorphism', pushes the boundaries of institutional assessment formats, to make the work more gratifying and relevant to the student's own interests.

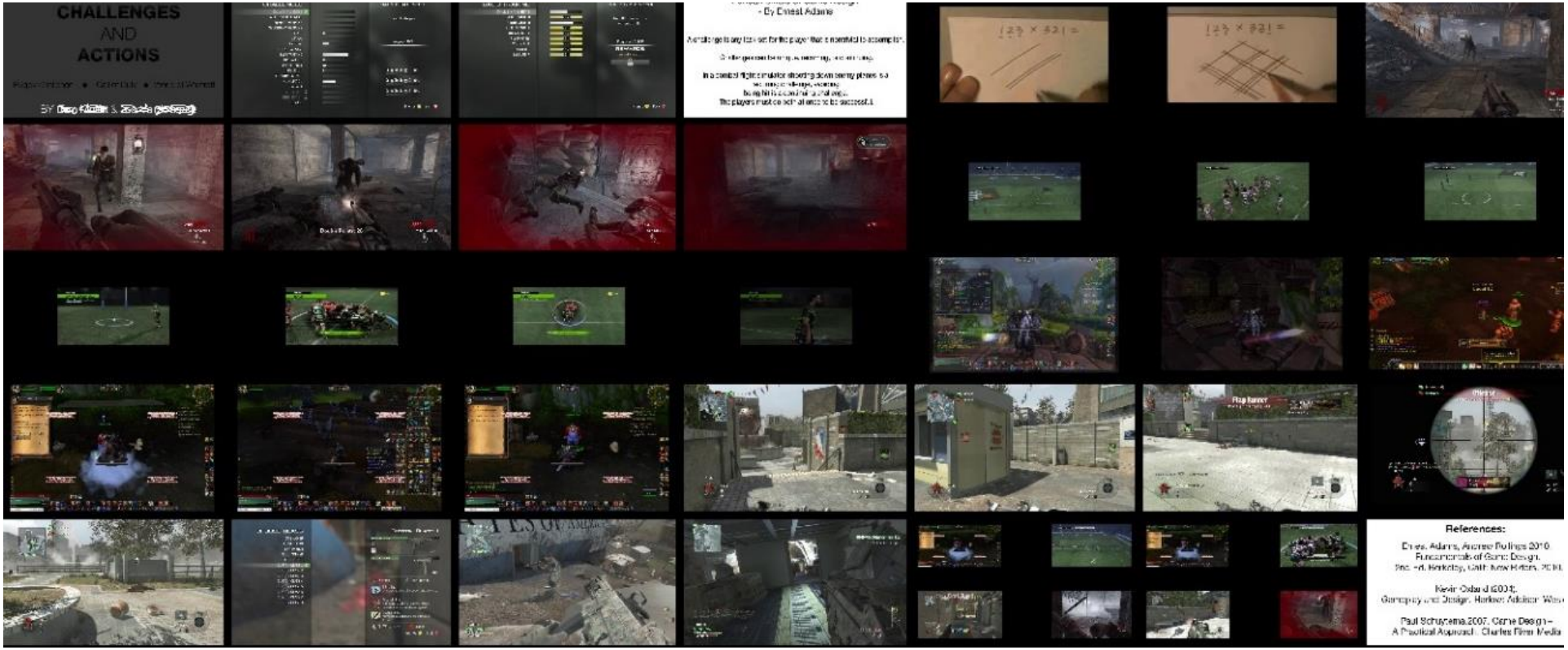


Fig. 66 - The breakdown of screencast 7: 'Challenges and Actions' (Module 1G)

7.7. Screencast 7: 'Challenges and actions'

7.7.1. Overview

This screencast, produced by a team of two students, focuses on challenges and actions in videogames. The explanation of both key terms is illustrated with screenshots and real-time gameplay sequences from three games: *World of Warcraft* (2004), *Call of Duty* (2003) and *Rugby Challenge* (2011). In addition, there is a title frame, a short video from an unknown source, and two textual frames resembling PowerPoint slides and containing bullet-points and a list of references.

The students take turns to speak, taking a sub-section each. The narration unfolds in a measured pace, against in-game sound, which sometimes results in inaudible instances. It begins with a formal introduction, greeting the viewer, stating the topic, and introducing the presenters. It explains that challenges and actions are important design concepts, referencing a game design textbook. The remaining content illustrates various game challenges implemented in the three games. References to game designers and textbooks are used throughout.

The narration uses impersonal language, with no rhetorical or tag questions, and very few pronouns, mostly used for textual or compositional purposes, rather than an interpersonal function. Second-person singular 'you' is used as a generic pronoun, denoting an average player or designer, whilst first-person plural 'we' expresses authorial intention ("The three games we are looking at"). The screencast ends with a formal conclusion and references.

7.7.2. Selected scenes

The narrative flow in this screencast follows a clear pattern, as can be seen in two different extracts (see Fig. 67). Both start from stating a term, which is then elaborated upon, using reasoning and implementation examples from existing games. The main topic is broken down into several sub-topics, each of them devoted a specific length of playtime, before tying it all together in a conclusion. The screencast demonstrates two familiar themes, already mentioned in this chapter. Firstly, it utilizes the benefits of capturing real-time game processes for illustrating game design concepts. Secondly, it relies on specific shared knowledge on the part of the viewer.

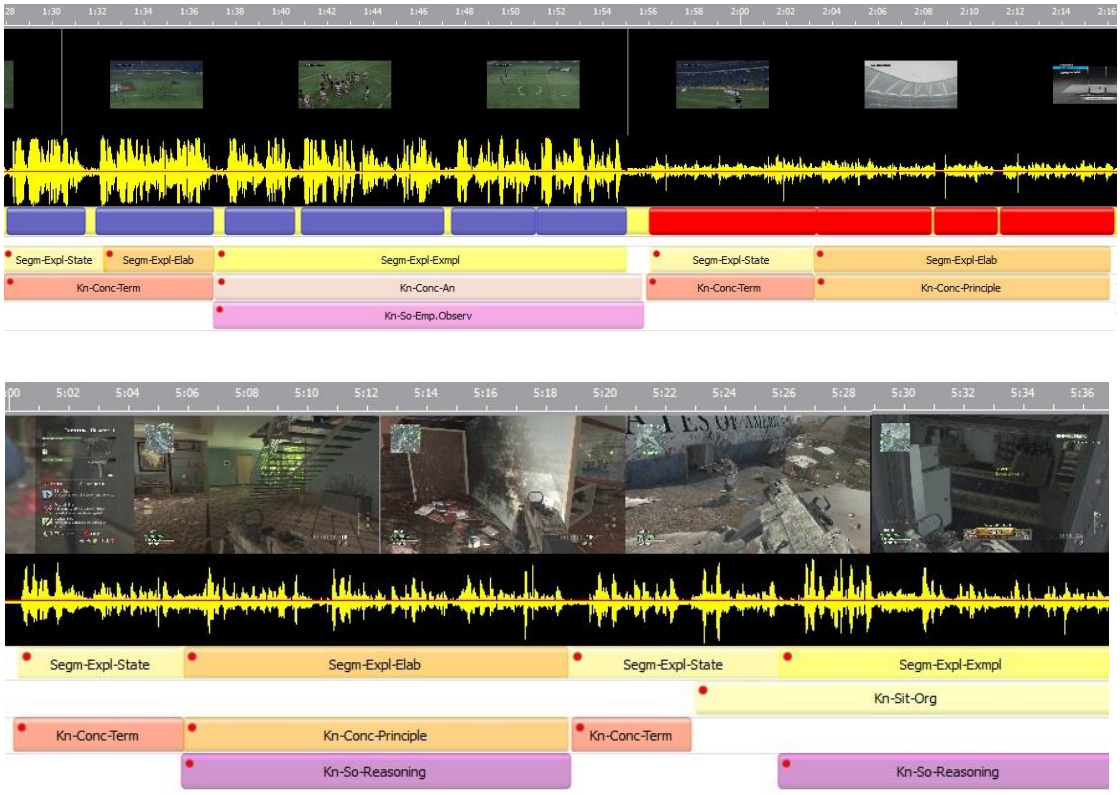


Fig.67 - Consistent patterning in two different segments from 'Challenges and Actions'

The sequence in Fig. 68 discusses optional challenges and actions, using a multiplayer map from *Call of Duty's* and an extract from the students' own gameplay. When the narration mentions kill-shot awards, we can see the avatar performing specific actions, which lead to the appearance of visual "tags" in the top-centre of the screen. The middle image displays the words "Flag Runner", indicating that the player has picked up the enemy's flag, whilst the right-hand image contains the tag "Offence", meaning that the player has just killed an enemy near the primary objective. A 'lay' viewer would not necessarily recognise that these visual tags are not simply information but represent an achievement award. Yet the voice-over does not explain this, but simply refers to "the player [getting] rewards with tasks", expecting the viewers to make connection themselves. This assumes a shared knowledge of the conventions of first-person shooter games, implying a peer audience of gamers and game professionals.

Fig. 68 - 'Challenges and Actions' - gameplay footage illustrating optional challenges

Although game footage is useful when describing visible interactions, it does not lend itself to representing abstract concepts or longer-term processes. The main topic, 'Challenges and Actions' is the case in point. Whilst player actions can be performed on screen, the concept of 'challenge' is more abstract and embeds more than one state. In such cases, the student can typically employ text or a diagram, or create a drawn visual metaphor, or use a found image as a literal illustration, which may not reflect the given context and meaning.

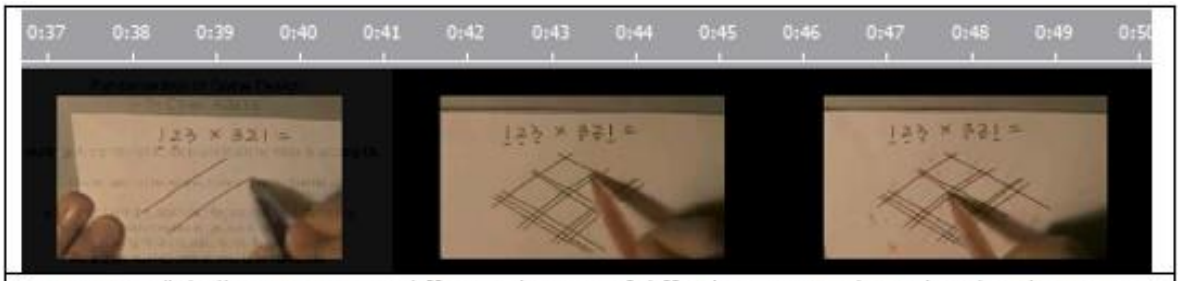


Fig. 69 - Challenges and actions' a video-sequence from illustrating the notion of 'challenge'

Fig. 69 shows a segment, where the narration points out that game challenges "come in different degrees of difficulty", but this is difficult to capture visually. The screencast gets around this by shifting from a design concept 'game challenge', to concrete and familiar actions which involve different degrees of challenge (brushing teeth and solving math problems). Now the narration can be visually represented, but at the expense of the overall focus and depth. It is not completely impossible to use gameplay images to represent abstract design concepts, but this would require much more planning, probably using simpler games, and then 'staging' and rehearsing relevant sequences, rather than using a naturally-occurring gameplay in complex game environments. The process would require much more time, disproportionate to its educational value and the module learning outcomes. It may also require previous experience in screencast production and higher meta-representational competences than can be expected from a first-year student.

The next extract (Fig. 70) encounters the same problem. It uses the footage from *Rugby Challenge* (2011) to illustrate the concept 'nested challenges'. It is initially straightforward, as the narration is dealing with 'small challenges', such as scoring, securing territory or passing the ball. The content is based on the concrete actions observed in the gameplay footage, so the visual flow directly illustrates the points made in the narration. However, this changes halfway through the sequence. The narrative moves to increasingly abstract terms, such as the overall rules and the player's feeling of success, before proceeding to general design guidelines. In the absence of suitable visuals, the students chose to continue running the game-play video, rather than resorting to textual bullet-points or literal depictions. Although no

longer relevant to the narration, the video serves a formal purpose by maintaining an illusion of coherence due to the frame- to-frame visual continuity within the segment.

Time	Image	Audio	Visuals	Open codes
01:37 - 01:47		[Student 2] An example of an overall challenge is in the game of Rugby. The overall challenge would be to defeat your opponent, but under that overall challenge it can be split into smaller challenges. Such as insuring that you score more points than your opposing team, as well as securing more [*INAUDIBLE*] and territory on the field of play. [Student 1] It is also important to know that many challenges are defined by the rules of the game, such as a ball when passed has to go backwards. Rules within games specifies to players what actions they must take to overcome challenges set, but do not directly tell the player how to win. They merely imply the best course of action to succeed is to adhere to the rules set. [Student 2] as designers it is important to give the player a feeling of success when they complete challenges set. It is also a key to provide the players with the correct tools to overcome the challenges. It is all well and good having interesting and engaging challenges in a game, if the player is not equipped sufficiently to overcome the challenges set.	Quick transition to Rugby Challenge game play. Rugby Challenge practice Fade to black	Expanding the concept Providing example Elaborating Using pronoun ("Such as insuring that you score more points than your opposing team") - though in general sense, still assumes the viewer will relate to the game experience Referring to prof community ("as designers, it is important to know") Addressing the viewer as both player and aspiring designer. Alternating between player and designer perspectives Concluding with guidelines Providing design guidelines
01:47 - 02:20				
02:20 - 02:30				
02:30 - 02:39				

Fig. 70 - "Challenges and Actions": tension between narration and visuals

This extract, once again, addresses a peer audience alternating between the perspective of gamers and designers. This reflects the authors' own position as first-year game design students, indicating a possible boundary-crossing between the two communities. In the first paragraph of the transcript, the viewers are addressed as gamers ("your opponent", "ensuring that you score more points"). Although used as a generic pronoun, it still assumes that the viewers will recognise the experience. After an impersonal middle-segment, the viewers are repositioned as aspiring game designers in the final paragraph, which provides a design guideline: "As designers, it is important to give the players a feeling of success when they complete a challenge set" The players become 'they' instead of 'you', whilst their experience is controlled by the narrators and the viewers "as designers". As evidenced in most screencasts analysed in this chapter, such traces of boundary-crossing are not an isolated incident. This points to the important potential of student-produced screencasts to become 'boundary objects' (Wenger 1998), initiating conversations across different communities which the students inhabit, aspire to, or transition between.

7.7.3. Knowledge types

This screencast largely draws on conceptual and situational knowledge (Fig. 71). The conceptual knowledge involves explaining the given game design concept ('challenge') and the rules related to this concept. However, the elaboration does not involve analysis of specific design solutions, nor contradictions or alternative possibilities. Rather, it provides common-sense reasoning, such as *"it would not be good to give a level 90 warrior in World of Warcraft a green sword made for level 10*" (03:12). This represents situated knowledge, defined earlier as the knowledge of typical situations occurring in a particular domain.

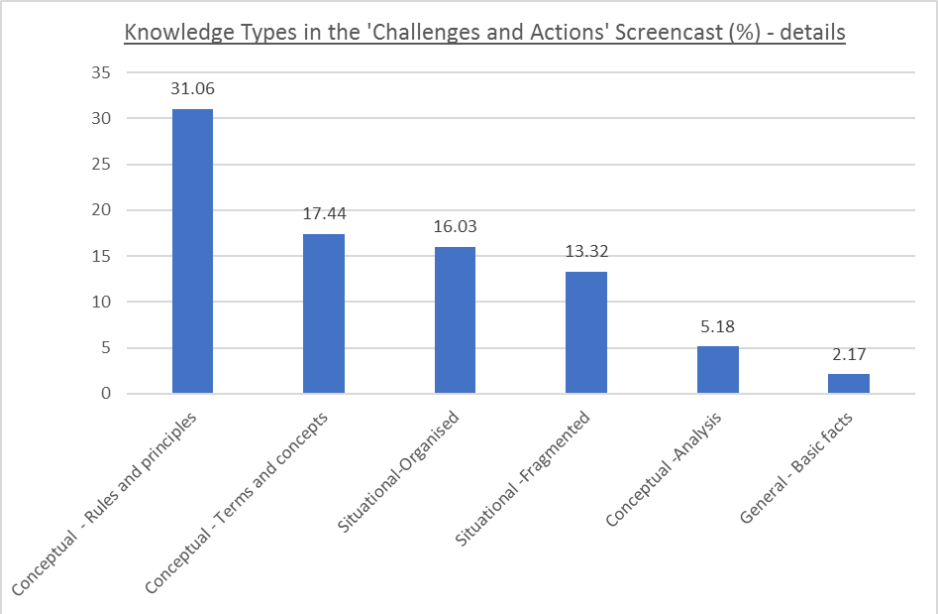


Fig. 71 - 'Challenges and Actions', detailed knowledge type codes (exported from MMAV)

Because the chosen situation is relevant, and the overall reasoning is sufficiently organised, it is possible to use this situational knowledge as a springboard for other kinds of knowledges. In this case, the described situation provides context for conceptual knowledge, but it could have also been potentially linked to procedural knowledge (for example, if the students decided to demonstrate a related design solution of their own). As explained earlier in 6.4 and 7.5, such instances were coded as 'situational organised', to distinguish from the expressions of 'situational fragmented' knowledge, which are too generic or insufficiently linked to the concept under discussion. An example of 'situational fragmented' is at 03:40, where the

students describe the farming mechanics in World of Warcraft, without relating it to the concept of game challenge. In some games farming mechanics are part of balancing economy, but in World of Warcraft it is not, so potentially this example could have been used to support the argument, but in this case it remained unrelated.

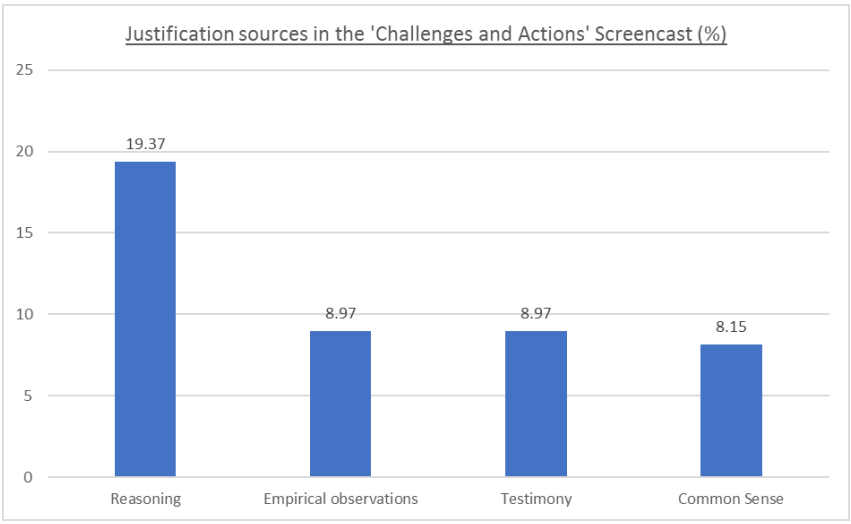


Fig. 72 - 'Challenges and Actions', knowledge justification sources (exported from MMAV)

The justification of knowledge claims mostly comes from reasoning (see Fig.72), which is different from most of the sample, where the highest proportion was either empirical observation or testimony. For the most part the flow of this screencast consists of a statement followed by elaboration in the form of reasoning. This contributes to its 'essay-like' feel, and the script could have been submitted on its own without losing any meaning. It is likely that the script was fully written first, and the images sought afterwards, which may account for the weak 'image-voice' relevance in this screencast, as it is harder to find images to fit in with a ready-made line of reasoning. By comparison, the screencasts with the strongest 'image-voice' relation were those privileging empirical observations, so the script was likely to have been finalised after the images were in place.

Testimony has also been used, but it is less integrated into the overall flow than in most other screencasts. Where the sources are mentioned, the voice-over makes an emphasis on the source's professional credentials as a game designer. Looking back at the overall structure breakdown (Fig. 66) we can see two distinct textual frames, probably Powerpoint slides, which are visually inconsistent with the rest. One contains

bullet-pointed quotes and the other a list of references. As we shall see in the interview analysis in Chapter 10, some students added references as an after-thought, when the screencast was almost complete, typically after seeing other students' work in progress or hearing tutor feedback. It is possible that this was the case here as well, which would explain the lack of integration.

Overall, in this screencast the students make use of their own gaming experience to convey which provides the basis for their reasoning, as well as the situational knowledge as a way of contextualising theoretical content studied on the module. Although the theoretical concepts from the readings are not pursued in much detail, raising the question about the module 'learning gain', it is possible that this was taken further in the written report task. What the screencast does, is provide an opportunity for students to express their prior experiential knowledge and recognise the instances where the newly encountered textbook material fits in with that knowledge, which is an important first step in making connections between academic material, professional aspirations and social and leisure interests.

7.8. Wrapping up the screencast analysis

In the process of conceiving, planning and executing the screencast, the students have activated a complex array of technological, social, representational and disciplinary affordances. They have utilised formal conventions and semiotic codes from different domains and media forms, including cinematography, animation, instructional video, live demonstration, academic presentation, and some newly emerging popular cultural and online genres. Diverse material from these multiple sources and contexts has been recontextualised into coherent artefacts, addressing the dual purpose of the screencast, firstly as assessed coursework, and secondly as a 'learning resource'. Although the screencasts differ in analytical depth and academic skills, they successfully orchestrate these diverse semiotic resources into engaging explanations of subject material, displaying different kinds of knowledge and multiple representational, technological and communication design competences.

Working within the parameters of the assignment brief, the screencasts use voice-over narrative as the primary vehicle for the meaning, with the visuals illustrating the narrative. However, most also contain at least some elements that go beyond simple illustration and carry additional meanings and functions, in some cases creating playful juxtapositions to the main narrative. Whilst generally adopting a formal register for vocal delivery, this is softened by a strong interpersonal orientation, affective visual design features and in some cases popular cultural references.

Compared to the traditional essays and reports, the medium of the screencast seems to provide more room for experimentation. The creative embellishments that could be too easily dismissed as purely decorative, on closer inspection proved to carry important formal and rhetorical functions, for example, creative cohesive links between eclectic source material, or signalling a particular professional aspiration, or calling out to shared cultural experience of the assumed peer audience.

All seven screencasts advanced through at least some shared stages, widely used in instructional and academic context. All seven had, at the very least, an introduction, a conclusion and some headings, and most contained a list of references, either in the form of rolling credits, or a static list similar to essay bibliography. Definitions, statements of rules or principle, examples, demonstrations, diagrams, quotes, graphic illustrations and other ways of representing knowledge. These typical stages in the genres of scientific presentation and instructional video entail both structural functions and rhetorical appeal. Providing chains of statement-elaboration-evidence reveal the explanation as logical (the 'logos' appeal) and present the narrator as an expert (the 'ethos' function). One exception was 'Anthropomorphism' which adopted a completely alternative approach, not easily compatible with academic delivery especially in the first year of study.

All seven screencasts included at least some features to assist navigation and direct the viewer's attention to the message and its most important parts. Some used dedicated title slides between sections, with a distinct look which made it easier to locate the sections when moving the progress bar to fast-forward or rewind the video. In other cases, images and film clips were cropped, rearranged or looped to reduce 'noise' and increase salience of most important part of the message. In 'Colour' and 'Walks', the two screencasts which drew most heavily on instructional genres, additional call-outs were used, such as arrows, textual labels, colour bars, imitated 'zooms' and other kinds of "visual and verbal pointing" (Swarts 2012). Where a demonstration of a technique was used, it was often carefully timed to prepare the viewer for what will appear on the screen. In these cases, verbal and visual content either coincided to point to the same thing or used in turns to prevent cognitive overload. The extent to which these features were present depended on the prevalent genre, but also pointed to the students' individual representational competences, which are particularly diverse in the first year of study.

All seven screencasts used at least some feature of affective design, including humour, references to popular culture or aesthetic appeal, as well as assuming specific identities both for the author and the imaginary viewer. This was used most prominently and consistently in 'Anthropomorphism' as a unifying 'theme', even

though arguably to some detriment to the content. Situational interest was added via South Park references in 'Principles of Animation', and thump sounds, fainting and nosebleed in *Walks*. Even the sombre and lecture-like 'Colour' added music to create a mood, and skilfully used rules of composition to enhance its aesthetic appeal. Much of these features assumed a 'knowing audience', whether in terms of knowledge of popular culture, or professional techniques and software, or both. 'Game Camera' used that year's newest and 'coolest' games as examples, as well as the look and feel of the Let's Play video genre, popular amongst gamers. 'Blue Screen' and 'Challenges and Actions' presented themselves and addressed the audience as future professionals, using relevance as their appeal.

In terms of the capacity of the screencast assignment to convey knowledge, it is difficult to generalise from such a small sample. The types of knowledge represented may depend less on the media and more on the student's individual interests, competences, strategies and aspirations, as well as differences between assignment briefs. All seven screencasts within the sample responded to similar assignment briefs (as opposed to the interviews which drew on a larger number of modules and courses). Bearing in mind the requirements to 'explain a concept' and create a 'learning resource', it is not surprising that conceptual knowledge takes up a high proportion of screen time across the sample, with the exception of 'Blue Screen Compositing' and 'Anthropomorphism' which assumed completely alternative discourses. The 'Game camera' screencast too follows the alternative genre of LPV, however this does not affect the displayed knowledge as it mainly relates to the visual aesthetic. The voice-over narrative still uses the conventions of academic presentation, live demonstration and instructional video, making it easier to display analysis and conceptual knowledge.

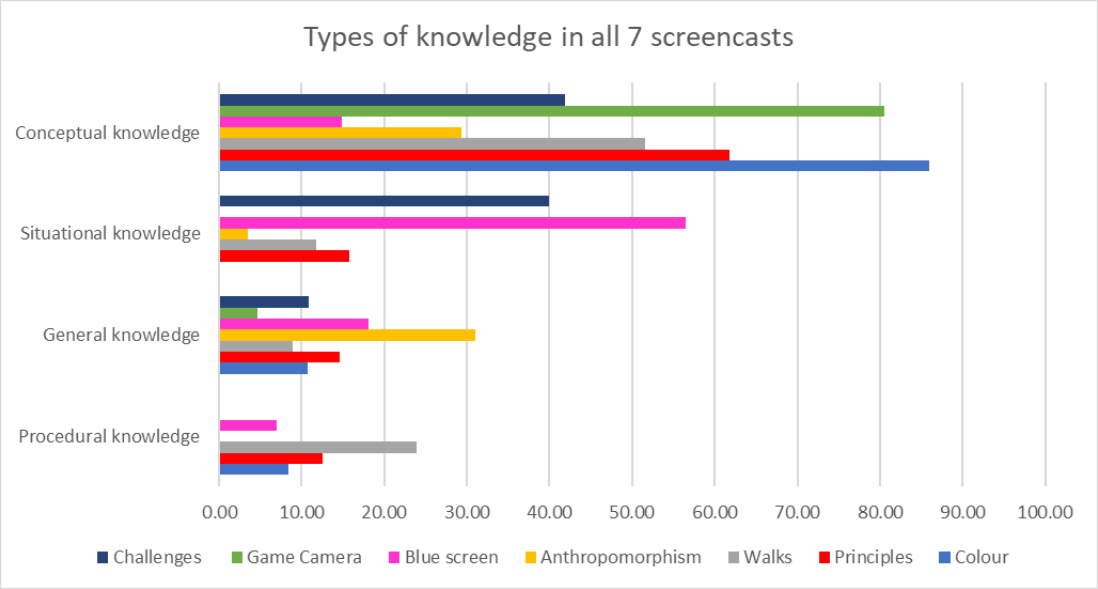


Fig. 73 - Types of knowledge in all seven screencasts

Although procedural knowledge does not look particularly high, it is worth remembering that the assignment briefs had no expectations of demonstrating any techniques in practice. Four out of seven authors brought this in themselves, whether by including their own drawings and short animated sequences to demonstrate practical application of principles or creating an analytical instrument in the form of colour swatches. Further procedural knowledge is subsumed within the 'situational knowledge' category, most notably 'Game Camera' required a very high proficiency in manipulating game controls as well as editing, to create such a perfectly timed demonstration. It was not coded for procedural knowledge, simply because all screencasts involved procedural knowledge of video-editing, so I had to draw the line at the procedures which are directly related to the concept discussed. Together, the expressed conceptual and procedural knowledge can be seen as representing the course-relevant 'learning gain'. Situational and general knowledge, on the other hand, probably represent the knowledge acquired by the student before University, through life pursuits. These two types were often used for contextualisation and cohesion.

The distribution of conceptual knowledge across the sample closely corresponds with evidentiality, which is evident from comparing the top chart in Fig. 74 (evidential) with the top chart in Fig. 73 (conceptual). As discussed in Chapter 6.4, evidentiality refers to the use of evidence on which the knowledge claim is based. In academic work, this is typically represented by referencing, empirical observation and reasoning based on analysis. This is opposite to judgmental statements, where no other source but the speaker's judgment is presented. Judgmental statements can range from unqualified and speculative statements, to reasoning deduced from typical cases and common knowledge (Loos et al 2017). In the same way as evidentiality can involve good or poor sources, judgment can be justified or not.

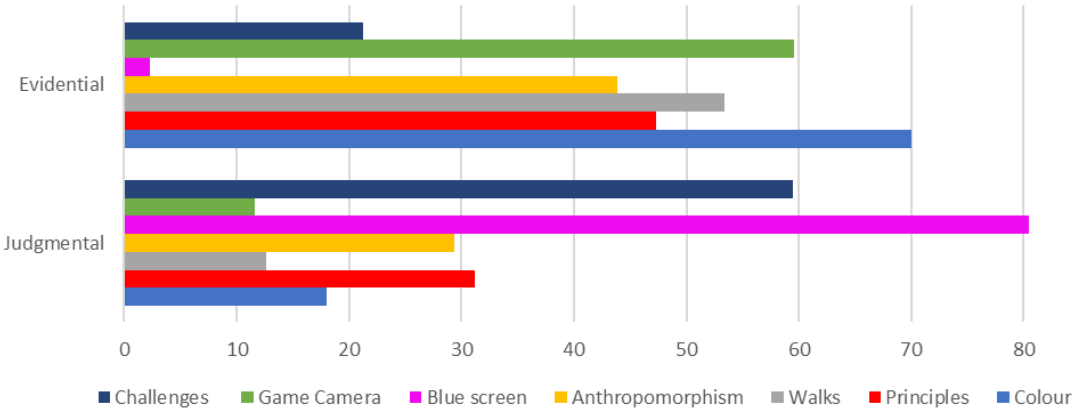


Fig. 74 - Evidentiality in all seven screencasts

Although the sample is too small to generalise, it looks as though evidentiality mirrors the choice of the overall formal strategy, as well as the type of knowledge privileged. As shown in Fig. 74, the three highest-scoring on evidentiality are 'Colour', 'Walks' and 'Game Camera'. 'Colour' adopts a very consistent theoretical-analytical approach modelled on a lecture, with evidentiality carried through academic references and detailed visual analysis. 'Walks' is the closest to the instructional video genre, with aspects of lecture and simulated demonstration. Its evidential base combines textbook references, analysis of film examples and practical demonstration of correct and wrong application of technique. 'Game Camera' does not include any references but adopts a mix of simulated live demonstration and 'Let's Play video' genre, with a tight connection between visual demonstration and voice-over commentary. Everything shown on screen is elaborated upon in voice-over narrative, and everything

said in voice-over narrative is demonstrated on screen. The two screencasts that scored lowest on evidentiality and highest on judgmental statements, are 'Blue Screen Compositing' and 'Game Challenges', both of them privileging situational knowledge and adopted a professional rather than instructional mode of address.

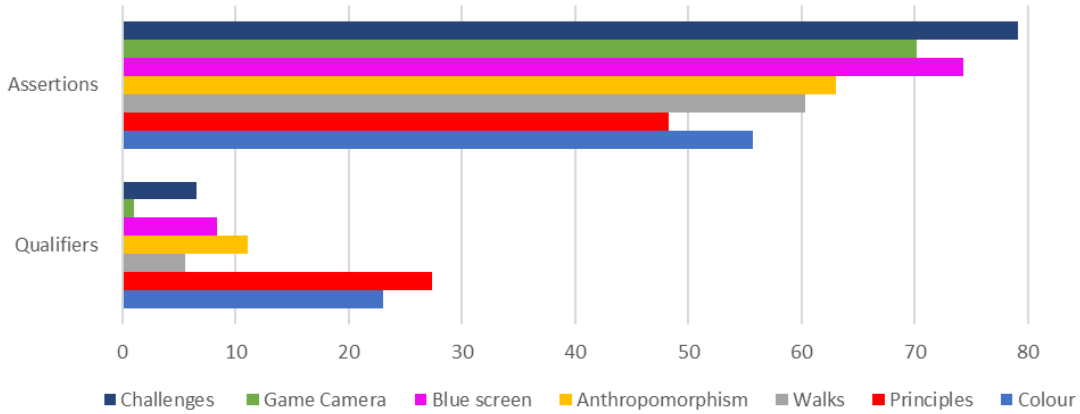


Fig. 75 - Epistemic modality in all seven screencasts

Student learning involves familiarization with the existing knowledge, but also becoming fluent in disciplinary ways of knowing, and the specific modes of discourse that have been developed to represent disciplinary knowing. Airey and Linden (2009) argue that this "can only be achieved through the kind of continued practice which eventually leads to discursive fluency in a number of modes" (p 34). However, they also mention the imitation pitfall, that is the possibility that learners "might simply learn to imitate the order of discourse of a discipline", without acquiring the disciplinary ways of knowing, or the ability "to use disciplinary discourse in a creative way in unfamiliar situations" (Airey and Linden 2009, p 34). In relation to my sample, this can be seen, for example, in the ways in which some screencasts imitated the academic argument structure and its segmentation, without a full understanding of how these segments logically relate to each other. The problems I encountered when coding for 'justification sources' are partly related to this imitation aspect. For instance, one screencast imitated the conventional structure of 'statement – elaboration – example', but on closer inspection the 'example' did not exemplify any prior claim. This was not immediately apparent because of the overall general relevance of the depicted game or film sequence to the overall topic, and the fact that

the segment started with the phrase 'for example'. The same could be sometimes observed in the use of quotes. It is only when I was re-coding each screencast for evidentiality, which involved isolating and questioning the nature of claims and evidence, that I realised that in some cases there was no claim made, for which the example or the quote would provide support. Whether this was an unintended omission due to rush, or lack of understanding, is less important for my study (as I am not assessing the learning). The main point here is that the structure of academic argument was still imitated, and this imitation is "a natural stage on the way to experiencing a disciplinary way of knowing", an insufficient but necessary condition (Airey and Linden 2009, p 44). Assessment needs to take account of this whilst also reflecting "the multimodal nature of disciplinary knowledge", whether scientific or art-based (Airey and Linden 2009, p 45).

Following from the analysis so far, the screencast assignment can be useful in diagnosing the first-year students' existing meta-representational competences and their needs for further development. It provides an opportunity to build on existing skills, as well as practicing the newly acquired skills, within a wider range of choices and possibilities than a written essay. Engaging with the assignment may help students to reflect on the different affordances that modes, tools and technologies offer for given purposes and situations, and where a specific affordance can enhance communication or distract from it. However, as will become clear from the interview analysis and the final substantive theory, there are also potential pitfalls in such assignments, compared to the more familiar formats. Successful outcomes are not a given but require careful attention to the design of individual assignment briefs, as well as joined-up thinking across the whole programme.

PART IV: INVESTIGATING THE STUDENTS' PERSPECTIVE

Part III of this thesis answered the first research question (RQ1), focusing on the nature of the digital audio-visual artefacts, produced for assessment purposes on Media Arts theory modules. Part IV turns to the second research question (RQ2), "What do undergraduate Media Arts students say about their experience with audio-visual assignments on theory modules and their value compared to the more traditional assignments?". It begins with Chapter 8, which reviews current theoretical literature on motivation and self-regulated learning. The choice of concepts was prompted by the interview material itself, and by the frequent use of the terms 'motivation' and 'engagement' in the reviewed pedagogic case studies (see Chapter 3.3). Increased motivation and engagement have been evoked there as expectations and/or outcomes of the introduction of audio-visual assignments. Chapter 9 returns to my own study, and explains the methods and procedures adopted in my investigation of the participants' perspective. It begins with a methodological discussion of the interview context and limitations, then explains how empirical material was generated, including the sampling, the interview schedule and grounded theory coding procedures. Finally, it explains the connection between the initial open codes, existing theoretical concepts and the subsequent higher-order categories used in selective coding. Chapter 10 presents the analysis of the conducted interviews. During coding and thematic reporting, the participants' positions tend to become fractured and decontextualized. In order to provide a clearer and more vivid accounts of the individual perspectives, Appendix 9.4 provides a set of individual vignettes to accompany the analysis. Drawing on Alasuutari's (1997, p16) notions of personality as "an accounting strategy" or a "construction we live by", the vignettes do not claim to represent the students' real-life personalities or life stories. Rather they aim to reconstruct each participant's position as presented by the interview narrative, bringing out some of the ways in which the framing of the experience may be underpinned by specific strategies, or circumstances. The chapter concludes with a summary synthesis of the participants' engagement with the task, leading into the final substantive theory in Part V.

Chapter 8. Motivation, task value and learner agency

8.1. Theoretical approaches to motivation

Motivation refers to the process of instigating and sustaining goal-directed activities, or "an energized internal state" that results in a goal-directed behaviour (Schunk et al 2012), so the motivation research investigates the reasons and purposes that move people to behave in certain ways. The educational strand of motivation literature focuses on the factors that motivate students to engage and persist with academic activities (Wigfield et al 2014). Motivation research evolved through several paradigms, with the early approaches focusing on the individuals' volition and physiological needs, followed by the behaviourist views of motivation as a socially acquired response to conditioning and reinforcement. Cognitivist theorists shifted the emphasis to the impact of thoughts, beliefs and emotions, whereas social-constructivist models saw these cognitive processes as "constructed by individuals as a function of their experiences", within social interactions and the reciprocal influences between individuals, their actions and social environment (Schunk 2012, p 231). Motivation cannot be directly observed but only inferred from other actions or verbalisations (Schunk et al 2008), which makes it problematic to claim causal links between any specific activity and the students' increased motivation. Despite vast literature, the key writers in the field are still pointing out the need for better research and clearer conceptualisations.

A detailed discussion of various schools of thoughts would go beyond the parameters of my thesis, so here I will focus only on those concepts which are epistemologically compatible with my own position, and directly contribute to the interview analysis. The first idea central to my research is that motivation is an ongoing process, influenced by a combination of multiple factors within a situation, rather than a product of a specific technology or assessment task. Secondly, we need to distinguish between the initial motivation which refers to the initial commitment to action, and the motivation to persevere. As we shall see in Chapter 10, specific task features,

modes or technologies may spark off the initial interest, but this is not enough to sustain the activity in the face of difficulties or competing activities:

> "Much of what we know about motivation comes from determining how people respond to the difficulties, problems, failures, and setbacks they encounter as they pursue long-term goals. The motivational processes that people bring to bear in these situations, such as their strategies, beliefs, and emotions, help them surmount difficulties and sustain motivation" (Schunk et al 2012, p 5).

Because learning is a social process, student motivation to engage and persevere is also informed by social interactions and relationships, as well as the overall organization of learning contexts and environments. Wimpenny and Savin-Baden's (2013) qualitative review synthesis identified the recurring concepts and concerns, organised in four overarching themes: inter-relational engagement within a wide network of relationships, autonomy, emotional engagement and connection / disjunction feelings within given situations (Wimpenny and Savin-Baden 2013, p316). Inter-relational engagement is important because students share experiences and influence each other's interpretations of the learning situation and the task at hand. Other groups can also be influential. For example, family, friends, professionals in the desired career field, and members of online social networks, can inform the individual's view of their situation, the perceived task relevance or their own efficacy.

Wimpenny and Savin-Baden (2013) explain that the sociocultural nature of education involves not only benefits but also challenges. The university experience places huge demands on the students, who must develop resilience and overcome a possible alienation, before they can take advantage of the numerous connection opportunities. Their reviewed evidence indicates that alienation often goes "beyond operational matters", incorporating the feelings of tutor injustice, disaffection with peers, disconnection from family and disjunctions between their world view and new material" (Wimpenny and Savin-Baden 2013, p324). The possible impact of these feelings on motivation and sustained engagement needs to be explored and factored into pedagogies, as they are just as important as the ability to effectively employ tools

and technologies. Therefore, underpinning the current theoretical literature, and my own study, is the understanding that motivation is a complex social process combining a number of inter-related factors and facets. Some of these factors depend on the nature of the task, and others on individual agency and competence, which corresponds to the dual nature of affordances (as discussed in Chapter 4).

8.2. Subjective task value (STV)

The value-expectancy theory, originally formulated by Eccles and Parsons in the 1980s, builds on the idea that the learners' expectation of the value of the task is a pre-condition for sustained motivation and engagement. These expectations are informed by the learners' goals, self-concepts, emotions and previous educational experiences, which in their turn are influenced "by individuals' perceptions of other peoples' attitudes and expectations for them", within "the cultural milieu in which they live" (Wigfield et al 2017, p 116). This can be seen in Eccles's (2005) diagram, constructed from the perspective of child development, but broad enough to be applicable as a more general framework (see Appendix 8.1).

Here, students' choices and commitments students are partly an outcome of rational decisions, and partly of the psychological and cultural factors they may not be consciously aware of. These commitments are made in the context of other competing choices, within limited personal time and resources. The level of commitment is influenced by the individual's enjoyment of subject matter, their perception of the activity as instrumental for their short-term or long-term goals, encouragement or discouragement by others, anxieties about the material covered in the study and other similar matters. Within these influences, two sets of beliefs are the most important. One is the expectation of success, based on the "individuals' sense of competence and agency to achieve different outcomes" (Wigfield et al 2017, p 464). Expectations of success are related both to past experiences and to the individual's concept of self-efficacy, which will be discussed in the next section. The other is the relative value attached to "the various options perceived as available", which depend on the individuals' personal goals, their "culturally-based role schemas",

"core personal and social identity and basic psychological needs", and the "potential cost of investing time in one activity rather than another" (Eccles, 2005, p 105-108). This forms the concept of Subjective Task Value (STV), with four broad components: utility value, attainment value, intrinsic value and perceived costs. As we shall see in the interview analysis, all of these were evoked in the participants' accounts.

The utility value of the task refers to its usefulness to the individual's future or current goals. For example, in my own research context, some participants had a very clear vision of the desired professional field and the skills that would be seen valuable by employers. The boundaries between the concepts 'utility value' and 'attainment value' are not clear-cut, as both involve relevance to future plans, but 'utility' generally refers to more concrete needs, rather than identity issues or self-worth. Attainment value, on the other hand, refers to "the importance of doing well on a given task" (Wigfield et al 2017, p 116). Eccles (2005) argues that attainment value represents the task's affordances which allow us to fulfil individual needs and goals relating to "our images of ideal or hoped-for selves" (p 110). Tasks differ in their ability to provide such opportunities, so the individuals' choices about allocating their time and attention favour the tasks with higher attainment value. As Eccles explains:

> "Participating in particular tasks requires the demonstration of the characteristics associated with this task. Whether this requirement is seen as an opportunity or a burden will depend on the individual's needs, motives and personal values, and on his or her desire to demonstrate these characteristics to him- or herself and the others" (Eccles 2005, p 111).

In my own research context, the creative media production students tended to be less invested in writing and more interested in the practical modules, directly focusing on the skills perceived as relevant to their chosen professional field. This may be partly about the utility value in relation to future employment but may be also about the students' self-identification as creative artists. Attainment value, therefore, goes beyond working for a good grade or simply learning useful skills, as "it incorporates identity issues; tasks are important when individuals view them as central to their own

sense of themselves, or as allowing them to express or confirm important aspects of self" (Wigfield et al 2017, p 116).

Eccles's (2005) third component, intrinsic value, refers to enjoyment associated with the activity, and is comparable to Csikszentmihalyi's (1991) notion of 'flow'. Flow refers to "a special state of absorption", an "immersion for the sake of doing it", with "heightened focus and high levels of enjoyment being key factors" (Jackson, 2012, pp127-128). To be immersive, a task requires a balance of challenge and skill to stretch the learners without frustrating them. This is, by definition, a problem for formal education and assessment, as the learners have different levels of skills, making it difficult for any task to achieve an optimal balance of challenge and mastery. The important point here is that it is the "perception of the defined challenge that is critical", rather than actual demands or ability levels (Jackson, 2012, p127).

Intrinsic value also involves the notion of 'interest'. Interest is a complex concept, consisting of both cognitive and affective dimensions, and influenced by both personal and contextual factors (Wigfield and Cambria 2010). Motivation researchers distinguish between situational and personal interest, the former referring to the possibility that specific content or activities may temporarily trigger attention, and the latter involving a deeper and more long-term relation to subject of activity. These two forms of interest have been traditionally viewed as different states, although more recent work sees it as a dynamic continuum, with the possibility of progressively developing from one to another (Renninger and Su 2012). In this continuum, the weakest form is a 'triggered situational interest', a short-term spark of curiosity and attention which can be provoked in the learning situation, for example by using humour or novelty. The triggered interest can quickly disappear if unsupported, but under favourable conditions, it can evolve into a stronger version, that is 'maintained situational interest', with more focused attention and a possible re-engagement over time. It is at this stage that the learner is beginning to develop both the knowledge of the content, and "the sense of its value" (Renninger and Su 2012, p 170). Maintained situational interest, in its turn, can lead to the emergence and development of personal interest, characterised by the appearance of own questions and an independent re-engagement with content. This has important implications, as it

points out that the sense of value can develop in the process of engagement, rather than residing solely in the topic, object or technology.

Finally, in the Eccles's (2005) model, the task value depends on the perceived costs of participating, for example, other deadlines or family commitments can make the relative time cost of the task much higher than its absolute cost. Eccles (2005) explains this as "what an individual has to give up, to do the task […] as well as the anticipated effort one will need to put into task completion" (Eccles 2005, p113). The interview analysis in Chapter 10 will show that the participants often saw the value of screencast in relative terms, with perceived benefits dependant on perceived costs, as well as the students' different dispositions and approaches to learning. This supports the argument in the literature that individuals can

> "self-generate ways in which to sustain interest in view of a task that they find boring, by finding some reason that the task could be beneficial to them […] This is related to their metacognitive awareness of the situation and their ability to generate strategies to address it" (Renniger and Su 2012, p 171).

It is not surprising, therefore, that the more recent theories shifted the emphasis away from discussing motivational aspects as separate concepts (for example, interest and self-regulation), and began to increasingly examine them together (Hidi and Ainley 2008). The learners' success expectations and their beliefs about competence, which are acquired and reinforced through socialisation, are an important contributing factor to motivation, and will be discussed next.

8.3. 'Mindsets', goals and self-efficacy

One model which has been particularly prominent and popularised in recent years, is Dweck's (2012) notion of 'fixed' vs 'growth' mindset (see App. 8.2). Other theorists referred to this as 'fixed vs malleable' self-concepts, or "entity vs incremental" self-theories, however the essential points are the same. The fixed mindset is "believing that your qualities are carved in stone" and therefore having to constantly prove oneself (Dweck 2012, p6). The growth mindset (or incremental theory), on the contrary, is based on the notion of development and malleability, i.e. that the basic qualities can be cultivated, and despite the initial difference in aptitude, "everyone can change and grow through application and experience" (Dweck 2012, p7). The difference in self-theories leads to different strategies, for example 'learned helplessness' or readiness to take risks, with implications for engagement and perseverance. The fixed mindset, in this model, leads to prioritising validation and performance over learning (known as 'performance vs mastery goals'), as well the avoidance of risks which can undermine the sense of ability. Those with the more malleable self-theories, on the other hand, are more likely to "adopt learning goals, seeing the challenges as being opportunities for learning" (Yorke and Knight 2004, p27). The distinction between 'mastery' and 'performance' learning goals in the literature can be mapped against the distinction between 'approach' and 'avoidance' strategies, which will be discussed later in the chapter.

The 'growth mindset' model has been "viewed either as a magic wand or a fad" (Rustin, 2016 np). It acquired a huge exposure in the corporate world, the media, TED talks and self-help literature, with new research being commissioned into this to inform evidence-based policy. Dweck herself has expressed concerns with the "culture of misuse seeping into the sector", where her concept was appropriated "without making a journey to deeply understand it and to know how to apply it" (Dweck, cited in Dickens 2015). A superficial approach to developing a growth mindset, she warns, tends to turn into "nagging to try harder", especially where it is accompanied by testing. This is echoed by Kohn's (2015) point that the oversimplified notion of growth mindset has become "a cultural meme", "co-opted by conservative ideology" (Kohn 2015, np). Over-focusing on the power of positive attitudes diverts the attention not

only from structural issues, but also from the quality issues in the curriculum. The point about underplaying or even reinforcing the existing inequalities, and potentially blaming the students, is also picked up by O'Brien (2015), who sees the danger in this polarisation of 'growth vs fixed' as a way to categorise learners. As explained earlier in the thesis, from the very outset I was mindful of the possibility of accidentally falling into the trap of judging the participants. O'Brien's article served a reminder that researchers and educators alike should avoid binary theories about the learners, and instead, try and apply "multiple lenses through which to understand individuality and commonality" (O'Brien 2015, p 27).

Having said this, the mindset approach is useful in its consideration of the ways in which previous experiences can encourage unhelpful habits and strategies and disempower the learners for years to come. It shifts the attention away from isolated instructional variables towards "the meaning systems people use to understand and act in competence-relevant situations" which "give rise to behaviours and outcomes we care about" (Dweck and Molden 2017, p 135). Zimmerman and Schunk (2008) consider outcome expectations to be "important precursors of academic achievement" as learners will engage more in activities that they think will bring positive results (Zimmerman and Schunk 2008, p12).

Outcome expectations are related to self-efficacy beliefs, where learners "make judgments about their capability to accomplish tasks and succeed" (Pajares 2008, p. 113). Whilst addressing similar processes, Pajares points out that self-efficacy is not the same as self-concept, as it refers to capability, rather than 'being' or 'feeling like', and so is not necessarily directly linked with self-esteem, unless the ability to succeed in this particular task is given a high personal or social value:

> "Many bright students are able to engage their academic tasks with strong self-efficacy, even while their academic skills are a source of low esteem, having been labelled by their classmates as 'nerds' or 'geeks'. Alternatively, many academically weak students suffer no loss of self-esteem, when such esteem is nourished by achievements on athletic fields or in social arenas" (Pajares 2008, p114).

Turning to my own research context, we shall see how for some interview participants, being 'bad at writing' did not lower self-esteem but was an integral part of 'being an artist'. This points to the social dimension of outcome expectations, whether in terms of a public commitment (or rejection) of the task, or public sharing and viewing of the screencast produced. The expectation of social outcomes is an important aspect, because the increased visibility of the student's actions and outcomes has a perceived impact on credibility (Zimmerman 2008).

Another concept relevant to my study is 'goal orientation', which shifts the focus from "deep-seated trait-like personality characteristics", to "organised systems of beliefs", activated by the learner upon entering a learning situation, and further informed by the learning environment (Pintrich 2000, p 102). Compared to the 'fixed vs growth mindset' binary, there is more emphasis on variation and fluidity. Individuals can simultaneously access multiple systems of beliefs, and employ "different goal orientations in different situations" (Pintrich 2000, p 102).

Pintrich's model is presented as a matrix of orientations, where mastery-performance goals are mapped against approach-avoidance states (See App 8.3). Here 'approach' is formulated as an 'appetitive' motive which involves striving for success, whilst 'avoidance' is an 'aversive' motive which involves striving to avoid failure (Elliot et al 2017, p 25). Both can be applied to physical or psychological aspects of taking or avoiding action, in order to achieve or maintain a 'positively-valenced' goal object, or to keep away from a 'negatively-valenced' object. Whilst "goals are susceptible to momentary fluctuations in personal concerns and environmental influences", goal orientations are similar to motives and "can be described in terms of a deeply ingrained disposition from which competence-relevant behaviour originates" (Fryer and Elliot 2008, p 58).

Elliot (2007) points out some unresolved conceptual and empirical issues in the achievement goal research, for example lack of differentiation between goals and aims. An individual can hold a long-term aim of mastery at the same time as the more immediate goal of performance, especially within the formal education system which

frequently presents performance as a step to future mastery or long-term professional success. Any one aim may be underpinned by multiple reasons, for example to display one's ability, feel satisfaction or avoid shame. This certainly figured in some of my interviews, with the more enthusiastic accounts reporting multiple aims and goals in relation to the assignment. Where these goals pulled in opposite directions, some participants made conscious strategic choices in prioritising one over the other.

Elliott and Fryer (2008) propose an expanded definition of 'goal' as a complex term which does not only include a desired object or experience, but also making a specific commitment, where the "mental image of a future possibility" serving as a guide for present action (Elliot and Fryer 2008, p 245). The goal objects can have positive or negative valences, for example if the goal is to "avoid failing a class", then 'failing' is the object and 'avoiding' is the commitment (Elliot and Fryer 2008, p 245). This idea is important for proper understanding of goal-directed behaviour, and this is what seems to be missing in the pedagogic case studies reviewed in chapter 3. Just because a presumably desirable object (say, 'employability' or 'skill development') is put in front of the student, along with the assumed means to achieve it (in this case, a new task format), this does not automatically make it the student's personal goal. Furthermore, Fryer and Elliot (2008) explain that in an achievement situation, learners do not necessarily activate one goal at a time, but "provide varying levels of commitment to many different achievement goals at the same time" (p 59). The situation may exert contradictory influences, for example the wording of the assignment brief might endorse collaboration and active learning, whereas the classroom layout might enforce passive listening. The learners, therefore, can manifest both approach and avoidance, in varying degrees, in relation to different goals. So rather than a two-dimensional matrix represented in Pintrich's (2000) model, the more recent approaches to motivation examined 'clusters' of achievement goal endorsements, and the ways in which they interacted, added to or competed with each other in a given real-life situation.

The ideas discussed in this section are relevant to my study. The interview participants did not so much possess specific 'mindsets' or 'states', as presented a variety of strategies used in different situations, endorsing specific 'clustered goals' and relating

them to specific achievement emotions. The same participant could use a strategy of approach in one case and avoidance in another or displayed a fixed view of one ability and a malleable view of another (rather than being characterised by a stable state or mindset). Similarly, a participant could acknowledge the benefits of the assignment, whilst at the same time withdrawing from it. Initially, I interpreted this contradiction as part of the "researcher effect" but looking at this through the lens of the literature discussed above, it made sense as part of general human behaviour. We can acknowledge a task as beneficial without committing to it, for example due to lack of resources or more pressing concerns. Or conversely, we can make a commitment due to some other, personally important goal, which is not necessarily relevant to the intended benefits of the activity.

8.4. Identities, social contexts and future 'selves'

Self-efficacy beliefs, goals and motivation in general are often linked to the question of identity. Identity-based motivation theory posits that individuals' behaviour is consistent with their identities, but the direct link is impossible to establish because identities are not single or stable, but complex and situated:

> "Situations influence which identity comes to mind, what a salient identity means in the moment, whether strategies to work toward salient identities feel identity congruent, and how difficulty engaging in these strategies is interpreted. […] One's self-concept consists of an array of disjointed identities rather than as an integrated unit, [… therefore] it is not possible to act consistently with all the identities included in one's sense of self" (Smith and Oyserman 2015, p 86).

Previous research into academic identities has suggested that interpretations of experiences impact on future engagement. Smith and Oyserman (2015) explain that, as individuals experience difficulties, they make decisions about investing further effort, for example to spend more resources to overcome the difficulty, or to withdraw and spend them elsewhere with a better return. These decisions are based on

whether the task itself is 'identity-congruent', and whether effort is seen as a natural part of learning, as opposed to task impossibility. The interpretation is often based on past experiences and habits, but some of the clues for how the task experiences should be interpreted can also be found in the social context, for example rewarding outcomes or processes. As will be shown in Chapter 10, identity and social context figured in the interview accounts and related to the participants' evaluation of screencast assignments, as well as the reported engagement strategies.

Further, students acquire different kinds of cultural capital from different groups they belong or aspire to, each involving their own values, with an impact "on a student's sense of competence and personal identity, as well as on the behaviours that ought to be regulated" (Paris et al 2008, p 242). Self-regulation applies not only to learning, but all kinds of behaviour, and is partly driven by "identity confirmation as an underlying motive", that is the desire to be "regarded or represented in certain ways", projecting "certain possible selves and aspired identities" (Paris et al 2008, p 260). The concept of "possible selves" refers to the way individuals imagine themselves in future, including the aspirational "hoped-for possible selves" and the "feared selves" representing a "bleak future" which needs to be avoided (Alderman 2008, p 139).

8.5. Learner agency and self-regulated learning

The literature on self-regulated learning (SRL) covers some of the similar ground but shifts the emphasis to learners' agency in controlling their own learning, within the personal and environmental constraints. Zimmerman and Schunk (2008a) define SRL as "processes that learners use to activate and sustain not only their behavioural conduct but also their cognitive and affective functioning" (p1). They cite extensive previous research showing that self-regulated learners tend to set clearer and more productive goals, but also actively monitor their own progress towards these goals, adapting their strategies when the new challenges arise. As a result of this research, as well as the changing HE climate and policy which put an increasing value on autonomy and self-direction (as discussed in chapter 2 as part of the global HE 'macro-context'), the SRL literature more recently began to adapt concepts from motivation theory, such

as “goal orientations, attributions, self-efficacy beliefs, outcome expectations, values, and interests” as crucial aspects of self-regulation (p 2).

In their recursive model of SRL, Winne and Hadwin (2008) explain that students “exercise agency by consciously controlling and intervening in their learning […] within limits established by their current capabilities, and the constraints and affordances in their environment” (p 297). During task-perception, students actively “scan their environment” and develop the sense of the task based on environmental affordances and their self-knowledge. This helps to frame the context of the task for subsequent goal setting and “choosing methods that reflect goals in all of the cognitive, behavioural, and motivational arenas simultaneously” (Winne and Hadwin 2008, p 299). The final stage, adaptation, involves reflecting on the chosen methods and adjusting them, if the results seem to fall short of the desired goals. In recent years, there has also been an increased interest in the learners’ regulation of the academic emotions that arise in the process of engagement, such as enjoyment (Ainley and Hidi 2014), anxiety (Zeidner 2014) or boredom (Goetz and Hall 2014).

One of the motivation concepts central for SRL, is the attribution of success and failure. Attribution is the expression of “beliefs concerning the causes of outcomes” (Schunk 2008, p 246). There can be numerous factors affecting the outcome, but only a few tend to be used in attribution. Based on the individual’s perception of the most likely explanation, factors can be discounted or augmented, and have a positive or negative valence. Attributions are divided by several axes, external-internal, controllable-uncontrollable and stable-unstable (see Appendix 8.4). These dimensions are open to interpretation, with an impact on motivation and learning:

> “Research typically found that students view ability and task difficulty as relatively stable […] As teachers, we want students to think of ability as a skill or knowledge that is learnable— an unstable quality. For example, a student with poor writing skills who believes that writing is a stable ability, perhaps even innate, is not likely to revise drafts of papers or seek help, such as going to a writing lab” (Alderman 2008, p 31).

Attribution can be based on critical deliberation, as well as the habits acquired in previous settings. Self-regulated learners are better able to reflect on their own strategies and attribute success and failure to them, rather than to ability or external factors. Because strategies are internal, controllable and unstable, the learners can adapt them to increase the likelihood of success. Outcome attribution is therefore crucial for the formation of productive working habits, agency and confidence building, and we shall see some indication of this in the interview analysis chapter.

The final point to mention in this section, is that self-regulated learning is not simply the matter of individual acquisition of helpful learning strategies, which can be simply taught. Paris et al (2008) examine SRL from the social-constructivist and situated perspective, arguing that the development of self-regulating strategies in learners "is an adaptive response to the environmental demands" (p 241). It is part of the process of enculturation into practices, tools and values of specific communities or learning ecologies. Unequal access to effective practices during childhood and school education, leads to unequal ability to develop and use them later in different contexts (Paris et al 2008, p 242). Or looking at this through the lens of affordance theory, these learners are less likely to recognise and enact the situational and institutional affordances for autonomy and self-regulation that HE provides.

Chapter 9. Interview methods and procedures

As shown in App 9.1, I conducted 12 semi-structured qualitative interviews with 16 students from four undergraduate courses within the Media Arts programme. Four of these were group interviews and eight were individual. Eight participants were interviewed in their first year of study, whilst completing their first screencast. Six further participants were interviewed in their second year and one student in his third year. Three participants were interviewed twice, in their first and third years of study, having produced several screencasts in different theory modules. The interviews were based on a combination of purposive, convenience and snowball sampling, recruiting the participants via a standard invitation letter (see Appendix 9.3), followed up by personal visits to class. Participation was open to all students on four courses within the programme, which used screencasts for assessment on theory modules. The full list of participants can be found in Appendix 9.1, and their interview vignettes are presented in Appendix 9.4.

As discussed in the previous chapter, students' perceptions have important consequences for their motivation and choice of strategies. Lizzio and Wilson (2013) call this one of the most important factors framing student engagement, "more influential than any intended design elements" (p 390). They argue that we cannot expect that students will orient themselves towards deeper and higher-order learning simply because of our own good intentions, but we must understand and appreciate students' perception of these tasks (Lizzio and Wilson 2013). Therefore, the interviews focused on the ways in which the participants made sense of their experiences with this new assignment format. I wanted to find out which aspects (if any) were considered valuable, how the participants' narratives framed the perceived drawbacks and benefits of the assignment, whether there were some common threads and divergences which could throw more light on the students' engagement patterns.

This was the main impetus for RQ2, and the underlying logic of the interview schedule. Due to the access limitations and ethical constraints, I did not intend to examine the overall learning environment or students' dispositions. The conversations mostly revolved around the screencast itself and its potential value as an academic task and a

subject learning resource. The initial interview schedule (see App 9.2), used with all participants was based on the following conversation prompts:

- Views on using student-produced screencasts in teaching and learning, in the context of theory modules (rather than media production modules)
- Thoughts and feelings about their own recent experience of producing a screencast for assessment on theory modules
- Comparison to the more traditional assignments (essays and presentations) and their respective pros and cons from the students' perspective
- Views and intentions regarding online sharing or other subsequent uses[15]
- If they could change some aspects of the assignment, what would this be?
- With all said and done, would they say this is a worthwhile assignment / should it continue for future cohorts?

Whilst trying to keep to the schedule and cover the above questions, I aimed to allow the participants to speak freely and pursue the directions they felt like talking about. The exception was the interviews where participants were not talkative and required more prompting. This resulted in lower consistency between the interviews but gave me a clearer understanding of the participants' different priorities as well as more clues about their own dispositions and approaches to study. Whilst personal dispositions or self-regulating habits were not part of the initial agenda (which was limited to descriptions and evaluations of experience), this aspect gradually came to the fore during analysis, due to its salience within the empirical material. However, at the time of the interview, no participant was asked or encouraged to evaluate their personal dispositions. The participants volunteered on the understanding that they would be asked for views on the screencast assignment, rather than being scrutinized about their own engagement, so it was important for me to avoid anything that could be considered intrusive or over-stepping the boundaries set out in the invitation letter.

[15] This was not part of the initial schedule, but introduced after the first two interviewees mentioned it as an important aspect

9.1. Generating empirical material

Charmaz (2014) describes intensive interviews as a "gently-guided, one-sided conversation that explores a person's substantial experience with the research topic" (p 56), whilst Kvale and Brinkman (2009) explain that interviews create an understanding of the "world from the subjects' point of view" and an unfolding of the "meaning of their experience" (p1). This makes an interview an invaluable tool for gaining insights into students' perceptions and actions involved in the production of screencasts. As part of study design, I had to make a choice between unstructured and semi-structured interview. Most sources on grounded theory advise that unstructured intensive interviews are more beneficial, as they provide the richest data. This is because participants have more control over the agenda, they can talk about what is important to them and decide "at what pace, in what order, and to what depth" (Corbin and Strauss 2014, p37). Rather than being preoccupied with getting through the schedule, the researcher can listen with an open mind, and let issues and concepts emerge. However, this is only productive when the researcher is confident that he or she can follow up with subsequent interviews, to elaborate and pursue emerging avenues. In my case there was no guarantee that I could secure subsequent interviews, as the response rate to invitation was already very low.

Corbin and Strauss admit that unstructured interviews can make it difficult to maintain "an open agenda and not let nervousness or embarrassment on the part of researchers inhibit the free flow of information from participants" (2014, p38). It is also more difficult for the inexperienced interviewer to make a quick on-the-spot judgment about topic changes by the participants: "what a researcher initially thinks is unrelated may, with further analysis, prove to be relevant to the discussion" (Corbin and Strauss 2014, p38). For this reason, semi-structured interviews are more manageable for a new researcher, but they have their own limitations. A pre-determined interview schedule (typically used in semi-structured interviews) makes it more difficult for the participants to introduce topics they have not been asked about, and it is difficult to judge afterwards whether the concepts and issues discussed are the most pertinent ones for the participants. Therefore, whilst opting for a semi-

structured interview, I tried to keep the interview schedule as loose as possible, more of a series of open-ended prompts.

The setting of the interviews can affect the conduct and outcomes (Charmaz 2014, Kvale and Brinkman 2009). Room availability differed and I had to use different settings, from meeting rooms in the library, to empty labs or even cafeteria, but the common feature remained that all of the interviews were conducted inside the university, in the centrally placed rooms familiar to the students, which were easily exited or observed from the outside. I was usually first in the room and positioned myself in a way that avoided blocking the exits. Interviews lasted between 30 and 60 minutes, depending on the interviewees' schedule and their willingness to talk more. As advised by Kvale and Brinkman (2009), I started from a brief reminder of the purpose of the interview and the right to withdraw, followed by signing the consent form. The interviews were recorded on Olympus mp3 recorder, and the participants were made aware of this before the start of each interview.

Because coding results in fragmented and re-constituted data, there is a danger of losing the authenticity and coherence of each interview account. To provide a clearer sense of each interview, I created a set of descriptive vignettes, introducing the participants and the respective interview contexts (see Appendix 9.4). No personal information was collected, and the vignettes are largely based on the interview transcripts, supplemented by my notes and post-interview memos. Unless stated otherwise, the participants are assumed to be British, coming to the University straight from school or college. The level of detail varies depending on the information disclosed in the interview, but each vignette contains: course, year of study, how many screencasts were produced and on which modules, general evaluation of the screencast assignment, key details that stood out to me during the interview and a few illustrative quotes. The participants and relevant modules are represented under pseudonyms.

As shown in the interview schedule (Appendix 9.2), I usually started from asking the participants what they thought about the screencast examples that were shown in class. This intended to ease us into the discussion, rather than starting directly from

their own work. This part was omitted in repeat interviews or where I knew the participants were short of time. Whilst intended as a warm-up, this part generated useful material, and a starting point for discussing visuality, engagement, relevance and what is 'academic'. After this, the main part of the interview typically started from simple questions (for example, "How many have you made so far?" or "You are working on your screencast, what is it about?"), and then asking to elaborate on feelings and experiences. Within their accounts, the participants often drew comparisons with other assessment formats, either themselves or on my prompting. At the end of the interview, I asked them to sum up whether, on balance, this was a useful assignment, and if there was anything that they would change about it. All other questions and conversation prompts differed from interview to interview, picking up on what the participants were saying and the nature of their most recent experience[16].

Looking back at the transcripts, I can see that my first interviews were still quite rigid, as I was anxious to keep the interview 'on track' and sometimes rushed too quickly to the next point. Also, my early interviews were still influenced by a rather technocratic vision, for example I still interpreted the 'process' of making a screencast as a series of editorial and technical steps, rather than the broader socio-material process involving social, psychological and technological elements. For example, in Fig. 76 below, the participant Max mentions his hopes and aspirations, but instead of exploring this, I got back to the more technical aspects of screencast-making. That particular interview was very challenging, due to both of us being non-native speakers. I frequently had to reword my questions and was very conscious of the time. However, this was also partly because of my inexperience in simultaneously listening, evaluating and making notes. At the time I did not realize that Max touched on something important that will later become one of my key analytical concepts.

[16] For example, some participants spend a proportion of interview comparing their screencast with similar assignments on other modules, which they have recently completed, even though these modules were not the focus of my study. Whilst this took the time away from the interview, I allowed the participants to continue, as there were valuable insights arising from those comparisons, not least about the participants' judgment of relevance.

045	*GP: Did you choose your own case-study?*		
046	M: Yes, it is a very good film. Also Waltz with Bashir, you seen?	Choosing Persepolis because "it is a very good film" - also liking Waltz with Bashir	Personal background
047	*GP: Yes, many times, I really like both of them.*	*Answering question / agreeing*	*Establishing rapport*
048	M: I did not see before, only first time in this course. This is why I came here, to make things like this; I could not make things like this at home.	Seeing Persepolis for the first time Unable to make "things like this" at home	Welcoming new opportunities Alluding to political / creative choice Perceiving personal / social relevance
049	*GP: So you started from images?*	*Going back to the making process (too quickly, should have explored aspirations)*	*As an interviewer - too cautious / concerned about time / schedule*
050	M: Yes. I just put them in, extract films, a little, like 3 seconds 4 seconds of each part, which one is more connected to what I wanted, which one has more composition in it, and I used them for my screencast. For example framing, golden ratio, I show them on the extracts, how they did golden	Looking at selected film extracts 3-4 sec Deciding which ones have more interesting composition / connecting to the topic Looking for examples of technique application in the film extracts	Illustrating affordances of screencast in the account of the process Enabling procedural and problem solving knowledge in addition to declarative

Fig. 76 - Extract from a coded transcript from Max's interview

At the time of the interview, Max's comments on 046-048 seemed like an interesting deviation, or social chat. Much later, when I started developing categories such as 'perceiving relevance' or 'expressing identity', I wished I had encouraged Max to talk more about his aspirations and personal history. This is an illustration of the trade-offs between efficiency and richness encountered in the process. Noting and recording such problems helped me to maintain a reflexive approach and keep alert about my own impact on the outcomes.

As part of the interpretivist orientation of qualitative research, Denzin and Lincoln (2012) argue that researchers do not simply leave the field "with mountains of qualitative research to write up" (p 29). To ensure a systematic approach, the empirical material needs to be structured and processed before it can be analyzed. In this, I followed the grounded theory procedures of full transcription and iterative coding, from line-by-line coding of empirical detail, to progressively more focused and theoretical categories. Each transcription was made as early and as accurately as possible, indicating inaudible sections, long pauses or laughter. The initial transcripts were 'cleaned', removing stuttering and repetitions, however the emphases made by the participants, as well as any idiosyncrasies of speech were retained. Partly inaudible but easy-to-guess words were placed in square brackets. During this process, all names of people, places and modules were replaced by generic words in square brackets, such as [Tutor], [Module] or [Student] and the transcripts saved under suitable aliases. The audio-recordings were replayed several times after the transcription, to aid immersion and to correct possible errors which I made as a non-native speaker. The cleaned transcripts were then forwarded for checking, although not all participants responded.

Shortly after each interview, I wrote brief notes on the factors that may have impacted on the quality of the interview, for example, the details of the setting, group dynamics, and anything I noticed about my own conduct or the participants' behaviour. When working with the group interview scripts, I had to bear in mind the additional interactive aspects that may not be obvious from just reading the transcript. I made notes on any observed group effects and dynamics, such as dominance, censoring and conformity (Carey and Smith 1994, p 125), as well as possible constructions of "collective voice" (Smithson 2000, p 109).

9.2. Coding the transcripts

I followed the grounded theory principle of remaining open to "what is happening in the empirical world" (Charmaz 2008, p 163). Whilst qualitative coding often tends to focus on themes and topics, the procedure of line-by-line coding on gerunds is "an excellent heuristic device" focusing the researcher's mind on 'what is going on' in each specific description (Charmaz 2008, p 164). I closely studied each transcript, and to avoid premature closure, coded even those lines that at first seemed obvious or irrelevant. This included coding my own questions, in order to remain vigilant about inadvertently imposing a particular agenda. It was important to allow for the possibility that any phrase or line may produce something of value, so that I could "develop an analysis from conceptualising the data" rather than imposing a pre-existing framework or "taken-for-granted assumptions" (Charmaz 2008, p 163).

Initial / Open Coding. I started from the initial open coding, going through the transcripts and summarizing each line in a detailed and descriptive manner. At this stage, I wanted to capture the themes and issues appearing in the transcripts, as close as possible to the participants' words. Urquhart points out that "the open coding phase acts as a foundation for larger codes, as analysts decide what is important and move from initial descriptions to analytical priorities" (Urquhart 2013:45). Looking at the extracts in Fig. 77 and Fig. 78, the initial codes in the right-hand column can be read through to create a vivid and detailed picture of the interviewee's actions and

feelings. Had I adopted thematic analysis, this would only involve a small handful of headings, for example the extract 047 might have been summarised as a generic label 'benefits: software skills'. Charmaz (2008) explains that this difference has very important implications:

> "The general qualitative coding identifies topics about which the researcher can write; the researcher may use such topics as areas to sort and synthesize the material. The line-by-line grounded theory coding goes deeper into the phenomenon and attempts to explicate it […]. The codes also indicate conditions under which each process occurs; readers gain a sense of what is happening in this statement and how it happens" (p 164).

L047	L: I used Adobe Premiere. I still had not got the hang of using the software, but… now I use it often. The screencast was actually helpful for helping me learn the software. I was looking through my old screencast files, I have them on my old USB stick and PC, and it is interesting to see the file size [laughter] When I first did them, they were like one gig, now they are like a couple of hundred megabytes. And that's because I've understood how to export videos, the appropriate codex and things, whereas before I did not know and they were just massive file sizes. But that is useful for now, especially when I have done all the client things, because if I had given them a couple of gigabyte files, it would not have been useful for them. So that was useful, learning to use the software… I mean, I could probably have used something simpler, but I knew at the time that I	Using Premiere Using scr. to learn software Finding scr. helpful Looking back and seeing how he has improved Having a greater understanding of software Learning to export videos Understanding file size implications Finding it useful to have learned the software Choosing to use specific software he knew would be useful later

Fig. 77 - Extract from interview with Larry, coded on gerunds

The line-by-line coding technique resulted in repeated and prolonged interactions with the empirical material, before reducing the codes. For example, I kept the participant's phrasing *'really needing the mark'* (L061) as an 'in vivo' code, rather than rewording it as 'concerned about the marks' or 'working for grades'. This is a small but telling detail which might have disappeared in thematic coding. Charmaz (2008) argues that identifying 'in vivo' codes allow the researcher "gain emergent leads" and help with "explaining the emergent actions" (p 164), whereas Urquhart (2013)

considers in vivo codes to be “the source of important analytic insights about the world of the participant” (p 102).

The open-coded scripts were compared with each other, to establish which initial codes seemed to be recurring or significant, before proceeding to the next stage, focused coding. For example, comparing the previous extract from Larry’s interview with the below extract from Peter and Fred (Fig. 78), both talk about technology, but from a very different perspective. Larry uses the screencast task as an ‘excuse’ to get extra practice with specific software, whilst Peter and Fred define technology as a potential accessibility problem. Other scripts also mention technology, making it a salient issue, regardless of perspective. This illustrates the way in which the initial line-by-line coding is not a mechanical process, but the beginning of analytical and comparative thinking, generating insights and categories for subsequent coding stages.

P&F 071	GP: You told me about all the good sides of screencast, but was there something that you did not like about it?	
P&F 072	F: It is not as accessible as making a presentation, you got to have different ways of getting the video to go with it. P: Yeah, and the same with the audio F: Yeah, if you are recording gameplay from computer you need special software, like Fraps or… and it costs money so it is not as accessible making screencasts sometimes. P: Yea, when recording gameplay from PC, you need good knowledge of all the settings you need to use to get, like, the right frame rates, the quality of the video as well. And once you record it all, there is a popular programme called Fraps which records it all but makes the video into quite high memory intensive, like, files, so you got to figure out how to condense it, beyond beginning to piece it all together. Then obviously compress it. The videos I did was up to 50 gig in size, then had to piece it together in Sony Vegas, and render it all out in lower quality, which kind of defeats the point of recording it in higher quality […]sending 50 gig files over the internet, I was waiting for hours and hours	Finding scr. less accessible than presentation Having to incorporate video Having to incorporate audio Needing special software for gameplay capture Finding it an expense Needing to know settings Needing to know frame rates and file sizes Having to figure out how to convert and compress file Rendering in low quality defeats the point of HD Piecing videos together in Sony Vegas Sending 50 gig files over the internet Waiting for hours

Fig. 78 - Extract from interview with Peter and Fred, coded on gerunds

Due to the close timing of the first six interviews, I only managed to transcribe and partially code between them, but not develop concepts and categories. This was one of the main deviations from the GTM protocols, which I tried to mitigate as much as

possible. Urquhart (2013) notes that the shortage of time available for field work may prevent a "fully theoretical sampling" but advises that at least some theoretical sampling is still incorporated (p 179). In line with this, I continued to listen to the audio between interviews, to remain immersed in the empirical material and to follow up on issues in subsequent interviews.

The topic of online sharing was not initially in my interview schedule, but in the first interview with Chris, he brought up, without prompting, his intention to upload the screencast on YouTube. Later another participant (Tom) mentioned "people on the internet" as an intended audience, also without prompting. Therefore, I included a question about online sharing intentions into my interview schedule, and the subsequent interviews brought in additional insights, from peer learning to identity risks. This demonstrates the ways in which grounded theory allows to capture the issues that emerge in the process of field-work and incorporate them into the subsequent collection of further empirical material.

9.3. Analytical tools: clustering, diagramming and the 'sensitizing' questions

Whilst continuing to transcribe and code, I engaged into an early analysis of the first three partially coded interviews, using clustering and diagramming techniques as analytical tools. Using Urquhart's (2013) terms, the early diagrams were "operational", basically throwing things together to see what sticks. At this stage, I kept creating rough versions, moving quotes and codes from cluster to cluster. Each subsequent diagram zoomed in on a particular 'corner' of the previous one or reshuffled the clusters under different headings. During initial clustering, my early diagrams still mixed gerund-based codes from the transcripts with summative noun-based labels, but I changed to gerunds as much as possible (see Appendix 9.8). The actions and micro-processes identified during initial coding were then combined to become stages within larger and more general processes. Corbin and Strauss (2014) explain that sub-processes are "concepts" which "explain in more detail how the larger process is expressed" (p 177).

One such early operational diagram is shown in Fig. 79. Its crude thematic headings were later discarded, but it helped me to interrogate the possible connections rather than following the first and most obvious interpretation. Repeated examination of how the "data are constituted" moves the researcher from initial to more focused codes and categories which can "explicate how people enact or respond to events, what meanings they hold, and how and why these actions and meanings evolved" (Charmaz 2014, p 113).

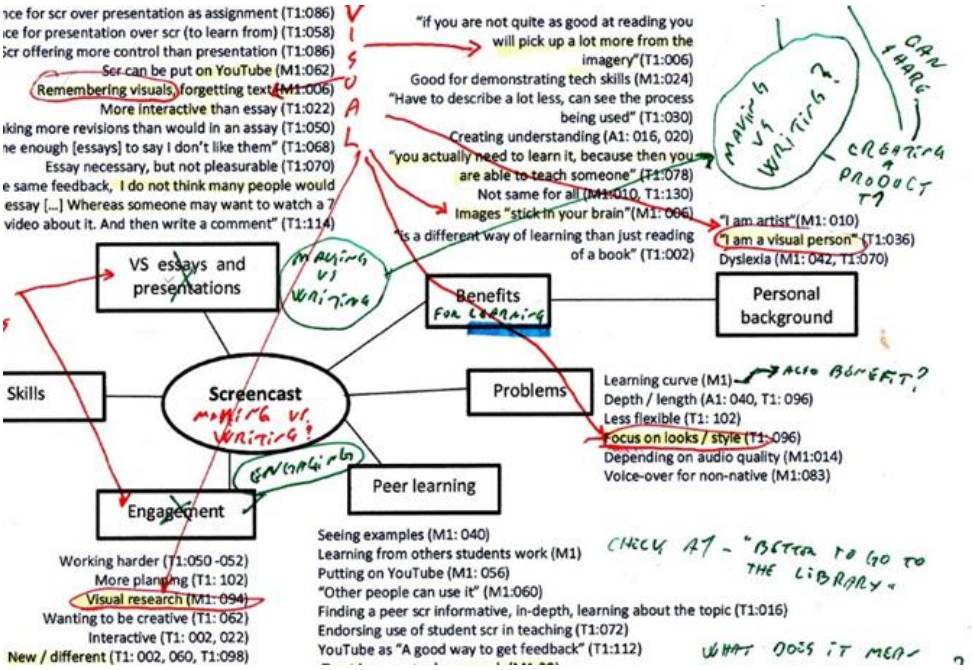


Fig. 79 - Initial clustering diagram (see Appendix 9.8. for the full cleaned-up version)

Integrative diagrams, on the other hand, did not come into picture until later stages, when I started developing analytical categories through selective or focused coding. These diagrams specify and clarify relationships between concepts, bringing together "in a larger (albeit provisional) form a lot of otherwise scattered materials" from various operational diagrams and memos (Urquhart 2013, p 116). An example of an integrative diagram, developed in the final stages of theoretical coding, can be seen in Appendices 9.8 and 9.9, and example memos in Appendices 9.10 and 9.11.

Coding on gerunds sometimes felt forced, but it allowed me to maintain the focus on action and to identify processes and sub-processes within the participants' accounts. Corbin and Strauss (2014) argue that processes are important because they represent the overall "rhythm" of action-interaction which help to examine conditions:

> "Conditions are not static events [… but] subject to time and place. In order to reach desired goals or outcomes, actors must match interactions to changes in conditions. This responsive and dynamic form of interaction I refer to is process. As process, interaction has both changing and repetitive forms, pauses, interruptions, and varying movements" (Corbin and Strauss 2014:172).

Because much of the interview content involved mundane technical aspects, or seemingly obvious and common-sense statements, I found it a challenge to raise to a more theoretical level without abandoning the participants' expression and meanings. Corbin and Strauss explain that it is sometimes "difficult to put a conceptual name" on the data whose meaning is not very clear, and so the early concepts tend to be low level and tentative anyway (2014, p87). Urquhart (2013) also admits that abstraction can become a "major issue with grounded theory" due to its insistence on detailed bottom-up coding (p 89). To keep my perception fresh, I alternated between immediate line-by-line coding, and "stepping back" to reflect on the bigger picture, before returning again to the "detailed line-by-line analysis to verify initial interpretations" (Corbin and Strauss 2014, p 87). One of the analytical techniques advised by Corbin and Strauss, was using sensitizing questions to attune to the possible meanings:

> "What is going on here— that is, what are the issues, problems, concerns? Who are the actors involved? How do they define the situation? […] How are the actions the same or different for various actors and in other situations?" Corbin and Strauss 2014, p 92)

Fig. 80 illustrates one of my attempts to apply one of these sensitising questions, '*How do they define the situation?*' The table interprets each interview as one general process, 'framing the experience', treating individual utterances as 'micro-processes'

(actions-interactions described), and grouping them into larger sub-processes (evoking, articulating or alluding to more general aspects). This exercise helped me isolate specific instances that warranted further thinking and interrogation, and eventually move to theoretical coding.

FRAMING THE EXPEREINCE	
"Images stick in your brain"	Evoking specific barriers / advantages
"I am dyslexic, so writing is difficult"	
"Software kept crashing on me"	
"it was dead time consuming" / "took ridiculously long"	
"I am an artist" / "I am a visual person"	Referring to personal background / identity
"Good for creative subjects" / "We are creative people"	
"I have always been told I am not good at constructing an argument"	
"I knew I need to get to grips with the software anyway"	Alluding to goals / relevance
"If this is what helps you get that job"	
"It helped that I chose the topic that seemed relevant"	
"I could not see how it related to anything"	
"I am cack at writing" / " good at editing"	Revealing self-concept
"I hate my own voice"	
"it was more fun" / "I enjoyed it" / "we had a blast"	Expressing affect
"Essays are tedious"	
"I hate writing"	

Fig. 80 - Extract from 'Framing the Experience' table

From open to analytical codes. The process described above, is the start of selective coding, which moves from open codes (closely based on the participants' words) to a more conceptual analytical level. Urquhart's typology of the key coding stages is in Appendix 9.5, but I will briefly outline it here. Whilst all major schools of GT agree on the first stage of open coding, from this point onwards things become more confusing, as the 'selective coding' stage in Glaserian and Straussian schools "sharply diverge" (Urquhart 2013, p24). At this stage, the Glaserian approach involves coding only those categories that relate to the final core category, whilst the Straussian version includes specifying the theoretical relationships between them, including conditions, strategies and consequences (Urquhart 2013, p 25). The Straussian approach ends coding here, whereas the Glaserian proceeds to the final stage 'theoretical coding', where the relationships are developed and accounted for. Finally, Charmaz (2006 and 2014) presents a coding sequence which combines elements of both schools, but uses slightly different terminology (for example 'focused coding' to denote what was 'selective coding' in Glaser).

Urquhart (2013) argues that there is more commonality between these approaches than may seem at the first glance. All versions of GT research involve the move from empirical to a conceptual level, gradually developing one or two core categories to which all other categories will eventually relate. They all involve a midway stage where some of the open codes are 'elevated' or combined with others to form the emerging categories, and at some later stage the relations between these categories has to be clarified (with some categories becoming conditions, attributes, dimensions, stages or consequences of other categories). The final coding stage integrates the key constructs with relevant extant literature as part of substantive theory-building, although some researchers stop at this point, whereas others go further and develop a formal theory. Like all other elements of grounded theory methodology, these coding stages are not entirely discrete but iterative and overlapping.

Throughout the research, I repeatedly looked across the range of open-coded transcripts, trying to identify focused codes, and to establish what they "imply as well as what they reveal", and how they might help to account for the participants' different approaches to screencasts (Charmaz 2014, p141). I took on board Charmaz's insistence that we must "evaluate which [codes] best explain or interpret the empirical phenomenon", as these will then "become tentative theoretical categories" (Charmaz 2008, p164). To interrogate the categories, I used some of the tools developed by researchers in the Strauss and Corbin's 'school', for example Scott's Conditional Relationship Guide (see Appendix 9.6). These were not applied as a formula, but simply as a way to clarify my own thinking and map the relationship between concepts and categories.

9.4. Selective coding and integration of theory

Before explaining the final stage of interview coding, it is worth revisiting the difference between 'formal' and 'substantive' theory-building. Substantive theory is grounded in a specific empirical area of enquiry and aims to illuminate the "substance of the numerous case instances in a parsimonious relational structure" (Adelman 2012, p 2). Formal theory on the other hand "is considered explanatory and causal" (Adelman 2012, p 3), and is developed for a "conceptual area of sociological enquiry" (Glaser and Strauss, 1967/2012, p 32). Formal theories often build on the previous substantive theories, "using, as widely as possible, other data and studies in the same substantive area and in other substantive areas" (Glaser 2007, p 99). Glaser and Strauss consider both types as "middle-range theories [which] fall between the minor working hypotheses of everyday life and the all-inclusive grand theories" (Glaser and Strauss, 1967/2012, p 33). The present study does not intend to build a formal theory, but a substantive theory. Located within a specific empirical context (Media Arts programme at one University), it aims to create a more detailed understanding of a specific phenomenon (audio-visual assessment) through explicating the patterns, similarities and differences across and within relevant case examples (students and student-created artefacts).

Substantive theory building involves examining patterns, differences and similarities between and within different cases within the empirical area, as well as explicating relationships between emerging codes and categories. Therefore, at some stage the codes needed to be grouped hierarchically, to form each other's attributes, properties and dimensions. For example, some interview participants valued the assignment because it was highly relevant to their personal interests, whilst others deemed it to be 'just another assignment' to get through and forget about. Some considered the practical skills involved as relevant to their future careers, but others saw the task as a distraction from much more important skills they wanted to focus on. During focused coding, these various instances of 'relevance perceptions' were grouped hierarchically, some subsuming the others. Eventually, they became attributes and dimensions of a larger category 'Evoking Relevance', which in its turn became a property of an emerging major category 'Articulating Cost-Benefit Balance'. Similarly, the

participants' references to their own expectations, dispositions, beliefs and strategies in relation to assessment, were coded as 'Anticipating success or failure', 'Articulating risk and challenge beliefs', 'Setting goals and priorities' and other agency aspects, representing the attributes and dimensions of the major sub-category 'Evoking self-regulation'.

Upon reviewing the existing theoretical literature on motivation, the top category 'Articulating Cost-Benefit Balance' was renamed into 'Assessing Subjective Task Value', which captured the nature of the empirical material more precisely and inclusively[17], and helped me to move my analysis from a descriptive to a conceptual level. The properties and dimensions of the new top category were thoroughly revised and reordered, incorporating the new insights from the literature. This formed the basis for the emerging substantive theory of the perception and enactment of multiple affordances in the process of screencast production (presented in Chapter 11). The revised codes were used as the basis of the final selective coding scheme and entered into NVivo 11 software (see Appendix 9.12 for the codebook). All interview transcripts were read through and recoded in NVivo focusing attention on the extracts directly relevant to the new model. The lists of relevant quotes for each code can be found in Appendices 10.6 - 10.9.

[17] For example, some of the interview extracts did not fit in with cost-benefit balance but were still relevant to the participant's overall assessment of the subjective task value, applying to a different aspect covered in the literature. The new category label and the extra insights from literature allowed me to include those extracts.

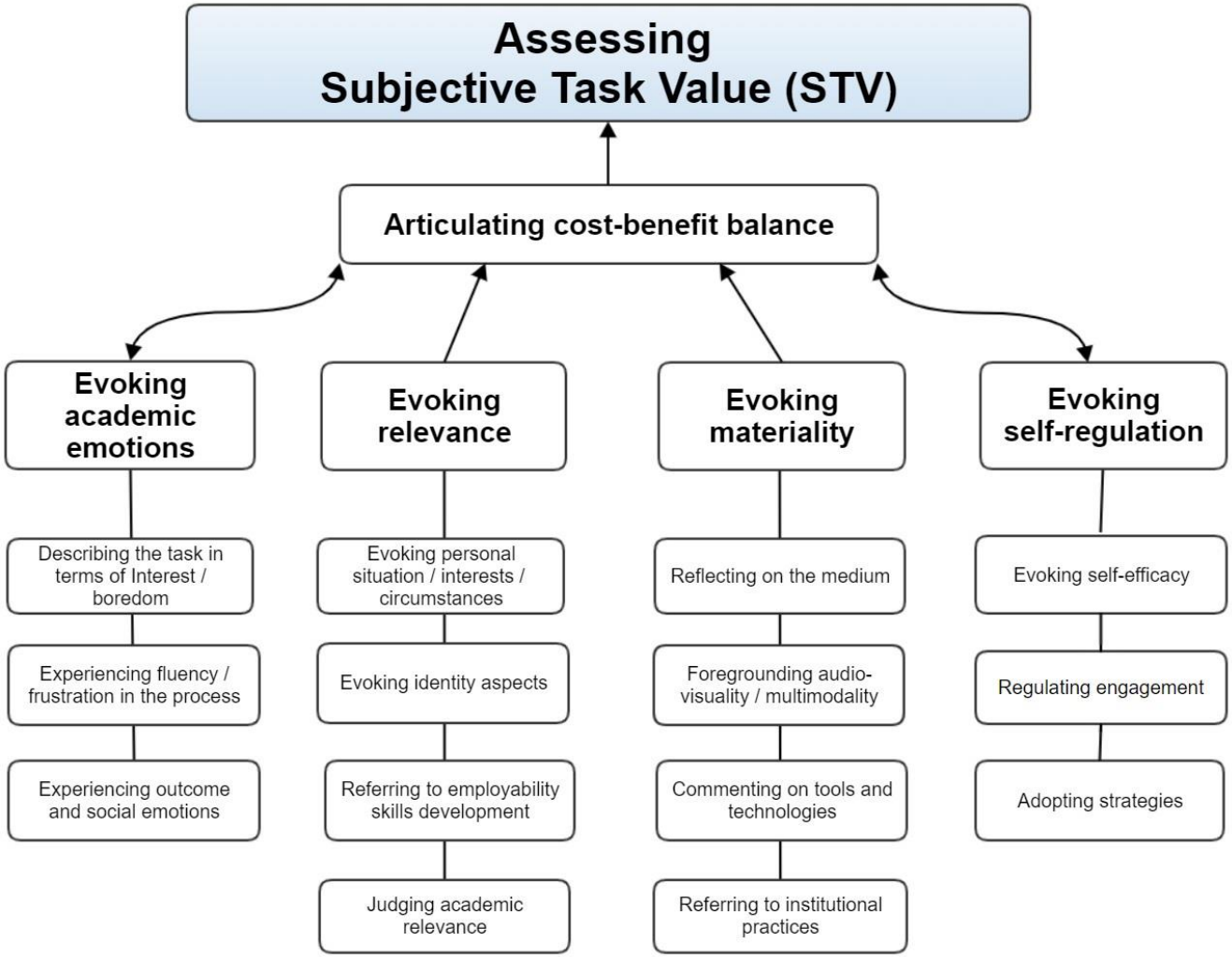


Fig. 81 - Top category Assessing Subjective Task Value (STV), with its properties and sub-categories

Chapter 10. Interview Analysis: Assessing Subjective Task Value

Assessing Subjective Task Value (STV) is a top category based on the participants' perceptions of the value of the screencast task, compared to other types of academic assignments. The responses ranged from basic statements along the lines of 'anything but an essay', to complex reflections, carefully weighing up the pros and cons of various types of assignments and qualifying them in relation to module context and purpose. Whilst articulating the value of the screencast, the participants evoked multiple issues which can be summarised as four overlapping themes: the perceived relevance of the task, its material qualities, their own emotions associated with the task, and the strategies employed. Recasting this into grounded theory terminology, 'Assessing Subjective Task Value' describes the basic social process of interest, which contains the properties of relevance, materiality, emotions and agency. Each property involves several dimensions, as represented in Fig. 81 overleaf.

This covers a broadly similar ground to Eccles's (2005) model of STV, but with certain omissions and differences in focus, as my study is grounded in the empirical material at hand from one specific context. Some concepts may be missing simply because they did not come through the interviews, and other categories may be central to my research, but not applicable to other contexts, and therefore inappropriate for general theoretical models. Whilst 'higher-level' motivation theories aim to encompass psychological constructs, phenomena or processes, my own analytical categories refer to the participant's discourses, from which general processes may be inferred. So, the central category discussed in this chapter is not about subjective task value as a general construct, but about the participants' reasoning about the experienced assessment tasks and their perceived value.

For example, the perceptions of relevance and affective aspects are applicable to any activity, so it is not surprising that my sub-categories 'evoking emotions' and 'evoking relevance' overlap with Eccles's 'utility', 'attainment' and 'intrinsic value'. However, 'materiality', one of the central sub-categories in my analysis, does not correspond to any of Eccles's categories, although it may be implicated in any of them. It has

emerged in my study due to, firstly, a very specific task, characterised by a multimodal digitally mediated nature, and produced within an institutional context with its own material practices and constraints. Secondly, 'materiality' reflects the participants' common perception of the screencast as a more tangible than other assignments, and their numerous comments about the material properties of the task.

Another important difference is the approach to 'costs'. Based on Eccles's model, STV is sometimes presented in motivation research as a formula, comprising of "the sum of the components of attainment value, the utility value, and the intrinsic value, minus the cost value component" (Toprac 2011, p 285, also Schunk et al 2007). Whilst being alert to the importance of cost-benefit balance, my model does not include 'costs' as a separate category. Rather, it conceptualises 'costs' and 'benefits' as a continuum of possibilities within each category. So, in terms of relevance judgments, the screencast can be perceived as highly relevant, or a waste of time, or relevant in some ways at certain times but not others. Similarly, its materiality can present both opportunities and obstacles, giving rise to mixed and even contradictory emotions. The main reason why my categories are what they are, is that they do not so much describe any phenomena or theoretical constructs, but rather the ways in which the participants have evoked them during the interview. Their judgments are not always clear-cut, nor suggest a neat system of 'checks and balances'. Rather, they had feelings and reactions, which were then reflected upon and rationalised post-factum during the interview, sometimes a long time after the actual engagement. Let us now take a closer look at each property and its dimensions.

10.1. Assessing STV – Evoking Academic Emotions

Emotions are part and parcel of the academic process, "instrumental for academic achievement and personal growth" (Pekrun and Linnenbrink-Garcia 2014, p 1). They provide "both fuel and guidance for students' behaviours" and indicate the quality of their motivation and coping (Skinner et al 2014, p 332). Academic engagement and disaffection include both behavioural and affective aspects as part of their core definitions, whereby affective engagement involves "enthusiasm, interest, fun, and satisfaction", whilst "anxiety, boredom, frustration, or apathy" lead to disaffection, burnout and ultimately withdrawal (Skinner et al 2014, p 336). Whether rooted in the previous life and educational contexts or directly resulting from the screencast experience, emotions had a deep impact on the participants' evaluation of the assignment, and therefore emerged as an important property of the main category, Assessing STV. The participants' references have been grouped into three dimensions, that is interest, fluency and outcome emotions, each representing a continuum between negatively and positively valenced attitudes (see Fig. 82 below). The full list of quotes relating to emotions is in Appendix 10.6.

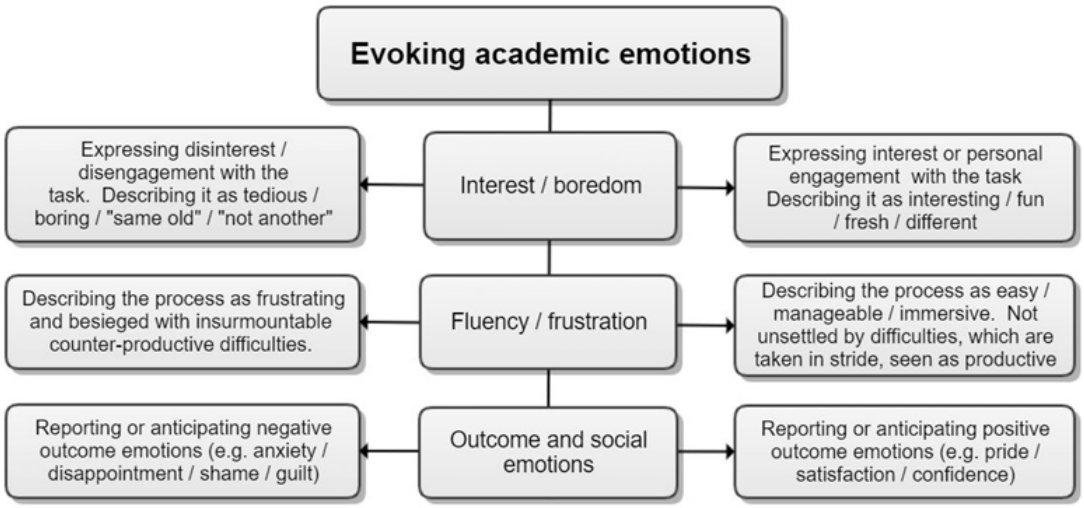


Fig. 82 - Properties and dimensions of Assessing Subjective Task Value: 'Evoking academic emotions'

10.1.1. Interest and boredom: "It's a little bit of everything with a screencast. I enjoyed that, I thought it was a good crack" (TDE:076)

Those participants who endorsed the screencast task, frequently described it as 'more enjoyable' and 'more fun' than other coursework. When asked about his first reaction to the assignment brief, Larry replied: "I remember thinking it would be fun to make, and I really enjoyed making [it]" (L2:016). Both Peter and Fred made multiple references to the screencast being "more fun", "more appealing" or "more engaging" than other assignments (PF:016, 075,126,217-219). David "definitely preferred doing a screencast over a presentation or a written assignment" because it was "a lot more fun" (TDE:056), and the same sentiment is evident in David's description of the task as "a good crack", "more enjoyable and fun than just sitting and doing essays" (RF:042). Jerry and Max described the screencast process as enjoyable, and Karl found it "more enjoyable than writing an essay", adding that there weren't "really any fun aspects about writing an essay" (K:078). Tom appreciated the educational value and time-efficiency of the essay, but echoed the same 'fun-boredom' opposition:

> "The time that I spent on the screencast, if I had done a very boring piece of writing that would have got me really annoyed, I could have got more information across… But I would have less fun on the project, so … [laughs]" (T2:016).

Ainley and Hidi (2014) see 'fun' as a complex phenomenon, which combines the feelings of enjoyment and interest, which act in complementary and reciprocal manner, influencing each other. The 'basic emotion' of interest involves curiosity, prompting the initial desire to investigate and engage into an activity. Enjoyment on the other hand relates to a more general feeling of contentment, or "the sense of satisfaction and reward generated both from the activity and/or the outcome of the activity" (Ainley and Hidi 2014, p 206). Enjoyment supports the development of the short-term situational interest into a deeper and more sustained personal interest (as discussed in chapter 8.2). Existing research suggests that repeated exposure to topics and activities high on situational interest leads to enjoyment and positive assessment

of task value, as well as the development of personal interest, and that affective aspects are particularly important at the beginner stages, before the learners accumulate enough knowledge and self-regulatory skills to sustain the interest themselves.

Situational interest of a task increases through novelty, vividness and personal relevance (Wigfield and Cambria 2010b, also see chapter 8). Novelty was expressed as a "different format that I found more enjoyable to do" (PF:078), "not something I have done before" (T1:160), "doing something completely new" (PF:088) or "a different way of doing an assignment, so it is not writing an essay [but] doing something a little more interactive" (T1:022). For Andrea the novelty wore off after the first screencast, making all the subsequent ones "less enjoyable" (A2:060). Elsewhere she admitted that her second-year screencast was more interesting, due to the freedom to approach it as a creative animated documentary on a topic of personal interest, rather than a utilitarian learning resource (A2:076), however on the whole "the first screencast was enough" (A2:060). Vividness was alluded to when the participants listed the audio-visual nature of the screencast among its benefits for teaching and learning, both in terms of expressing their knowledge in an assignment and taking in the new information in class. Max referred to this as "images stick in your brain" (M1:006), and Ryan needed "a visual aid [so] it keeps me interested" (RF:067). Peter and Fred evoked vividness when they referred to the screencast as a "more enthusiastic" delivery, and "more engaging, as you've got something to look at, to keep your attention visually [whilst] taking in the audio", as opposed to "sifting through lines and lines of text" (PF:008,111 and 040). Personal relevance will be covered in more detail in the next sub-section, but in short, the participants found the assignment more interesting, if they were free to focus on the topics, issues and case studies of personal significance, and where they perceived the skills and technologies involved as relevant to their aspirations.

However, it is important to consider not only fun and interest but also their opposite, 'boredom', which is shown by multiple research studies as "one of the most commonly experienced emotions in educational settings" (Goetz and Hall 2014, p 317).

Described as “lack of stimulation in combination with low arousal”, it has been associated with attention impairment, lower motivation and effort and poorer performance (Fiedler and Beier 2014, p 46). Most participants presented traditional academic activities as boring: “it is just so mind-numbingly dull, all the topics that you do with theory are quite tedious” (TDE:072). The perceived value of the screencast increased in comparison, as a welcome relief from academic boredom, monotony and tedium. Its benefits were described as “spicing up the learning a bit” (T1:010), or as a “spoonful of sugar” making theoretical content more palatable for creative learners (TDE:060). These points were made not only in relation to assignments, but also lectures, textbooks, research and learning in general. When talking about screencasts and videos as a learning resource, Tom summed it up as follows: “you are watching something mundane, as in "learning", but you are looking at a medium that is not mundane” (T1:004). Andrea was the only participant who expressed positive emotions towards the theoretical aspects of the course. She found theory “difficult … interesting … exciting” and wished she had “more of it during the first year” (A2:028). She described feeling “very excited by new concepts” and wanting to “discuss them immediately”. She did not need “any extra additions to make [theory] more interesting”, which decreased the intrinsic value of the screencast (A2:084).

Existing models of academic boredom propose several critical reasons, including the monotony of learning activities, the perceived lack of task value, being under- or over-challenged and a low self-efficacy (Robinson 1975, Pekrun 2010, Goetz and Hall 2014). Boredom can be moderated by personal factors (such as extroversion, attention span and self-regulating skills), as well as the characteristics of the learning situation and the task itself. The monotony can be reduced by openness of the task to additional stimulation, alternative activity routes, or other opportunities to adapt the task to the individual needs (Daschmann et al 2011, Goetz and Hall 2014).

From this we can see how a screencast can provide more possibilities to ameliorate boredom than an essay. Because the assignment format is so new, it has not yet acquired a rigid formula, but offers more freedom in the selection of creative and rhetorical approaches, the types of visuals, overall tone and production technologies, as summed up by Tony:

> "With a screencast you are given the skeleton of what you've got to do, and then you're free to do whatever you want with it, and it's more relaxed … whereas with an essay you have to stick to a strict format" (TDE:062).

Self-efficacy was mainly evoked in relation to the essay, so if the participants found writing difficult, or perceived themselves as poor writers, they tended to be more positive about the screencast. This brings us to the next dimension of the property 'Evoking academic emotions', that is fluency and frustration.

10.1.2. Fluency and frustration: "Well for me it's the stress, it's just the fact that I'm disheartened by it, I don't like doing it and I just don't put 100% into it" (RF:079).

Whilst interest and 'fun' were the most common emotions evoked in the participants' accounts, 'frustration' also reoccurred throughout the interviews. It was related, firstly, to the technical difficulties involved in the production of the screencast, and secondly to struggles with writing. Binder et al (2002) define fluency as an objective measure of mastery, whereby the task is performed quickly and accurately, almost automatically and without hesitation. Academic study requires fluency in the foundation skills, because it "frees attention for application, creativity, and problem-solving - the higher-order activities that make education valuable and fun" (Binder et al 2002, p 5). The lack of foundation skills on the other hand "overloads attention with the mechanics of performance", making it painfully slow, difficult, and full of errors" (Binder et al 2002, p 4). Students enter the university with varying levels of foundation skills, different prior experiences and different aspirations which prioritise some skills over others, and lead to very different experiences of the same assignment. Even those initially motivated by the task, can be later deterred by difficulties, as suggested in Tom's recollection of his cohort's first reaction to the assignment brief:

> "In the beginning it was kind of – 'Oh yeah, cool, this is a theory module, but this is some practical work' - and it was kind of great. And in the beginning everyone was kind of excited, but when we got down to actually working on it, I think a lot of people realised it was harder than they thought it was going to be *[laughs]*" (T2:100).

For the purposes of the present discussion, the term 'fluency' is used in the sense of the participants' perceptions rather than an objective measure of their ability. The perception of fluency is a "cognitive feeling that signals flow and the absence of obstacles" (Fiedler and Beier 2014, p 37). Current research suggests that the subjective feeling of fluency is "a powerful source in the formation of evaluations and preferences", more so than objective fluency (Forster et al 2013, p 280). Judgments of the screencast task value were informed, among other things, by the experience of the production process as either easy and immersive or fraught with difficulties.

Most participants experienced some level of difficulty and described some aspects of screencast production as tedious. Even those with well-developed technical skills could still experience the process as uneasy and frustrating due to incompatible software, crashing PCs, or busy IT labs. However, the interpretation of difficulties seemed to depend on the participants' overall orientation to learning, and whether they felt the difficulties were outweighed by the perceived benefits and positive emotions. For example, Jerry enjoyed the process despite the high volume of work, and "did not mind" having to re-record his soundtrack "over and over again" (J:022). Andrea found her first screencast hard to begin with, but once she found her way around the software, her next screencast was "done very quickly and without struggling" (A2:090).

Other participants presented technical issues as off-putting, but still less frustrating than writing and less anxious than live presenting. Tony "would find an essay frustrating", so he felt "more relaxed doing a screencast" (TDE:055). This view was particularly strongly expressed by Ryan, for whom the screencast involved several difficulties, but it was still by far a 'lesser evil', compared to the frustrations of essay-writing:

> "To be honest, I'm cack, or however you want to say it, at written modules, and this really brings my grades down […] You know it's just depressing really as every time we get an essay I get 40 or 50% because I can't get my words across when I write it, and I lose track and go all over the place and it doesn't flow […] I'd rather be making something than writing, and it wasn't as boring as an essay, which is just like a block of text and it's just like… urgghh… it gives me a headache" (RF:067-069).

Ryan's quote illustrates all three dimensions of the property 'Evoking academic emotions'. The interest/boredom dimension is expressed by describing essays as 'boring' and a 'block of text', whereas the fluency/frustration dimension is expressed as inability to 'get the words across' and 'losing track'. Finally, 'outcome emotions' are described as 'depressing', based on his previous essay experiences.

Fiona and Evan on the contrary, cited numerous technical difficulties as an explanation of their dislike for the screencast assignment. Neither attached much relevance to the task itself or the skills and technologies involved, and both generally preferred writing. In addition to technical issues, Fiona's dislike of the task was also partly explained by disliking her voice, which made the voice-recording "a bit frustrating, and I had to re-record it again and again" (RF:049). The unease at hearing own voice was a common drawback expressed across the interviews. Evan was "more comfortable at writing in length than speaking into a microphone" (TDE:075) and Chris "found it more daunting than other ways of handing in work" due to not being a confident speaker (C:015). Whilst Fiona and Chris acknowledged some benefits of the screencast, for Evan there were no redeeming features at all. He saw essay redrafting as beneficial because it "clarifies your thinking", whereas screencast was "busy-work" with multiple takes being largely due to "annoying technical issues" (TDE:078). His frustration related to all parts of the process, including visual research enjoyed by other participants:

> "For me it was just annoying, having to spend time searching for all these photos to give it a variety. It just got to the point where I really didn't see it as applicable… it is not something that I would use it in the future" (TDE:091).

This supports the literature on academic emotions, notably the control-value theory (see chapter 9.1), which proposes that enjoyment of learning is based on a combination of positive competence appraisals and the intrinsic value of the action. Negative feelings of frustration and anger "are aroused when the intrinsic value of the activity is negative, for example when working on a difficult project is perceived as taking too much effort that is experienced as aversive, thus taking on negative intrinsic value" (Pekrun and Perry 2014, p 127). Evan's screencast experience was filled with frustration, which could not be explained by technical difficulties alone, as he was an experienced video-blogger routinely using similar technologies. His frustration resulted from a combination of low intrinsic value and high time and effort costs. Andrea was critical of the screencast's low intrinsic value, but this was offset by her well-developed self-regulatory strategies (more on this in chapter 10.4.2). Tom's and Larry's high self-efficacy combined with high intrinsic value made the assignment enjoyable.

Task value is not only subjective but also situated, so emotions associated with an assignment can depend on the timing of the interview. Even the most enthusiastic participants admitted that the screencast was very time-consuming, due to its multimodal nature and its dependence on technology. If things went wrong, a student could still produce a passable written piece at the last minute, but this would not be possible with a screencast (L1, K:072).

The significant time investment was also evaluated differently at different times, depending on how stressed the participants felt due to the overall workload or 'life load'. This was summed up the clearest by Cassie: "Now I am not at that stressful point … I feel we did a lot of work and that was a good thing […] But when you are at that point it is just stress" (CJ:062-064). Cassie's point was echoed by Chris: "whilst I am making them, I really dislike them, it stresses me out, but by the time I have finished it, if I got something I am pleased with, then I do not mind them, I quite like it then" (C:035).

10.1.4. Outcome / social emotions: "When you write, you think "no one cares", but if you do a drawing and everyone else is going to see it, you go "ah, I am not going to show crap, I need to show them that I can draw" (JR, exploratory interview).

Although theoretical literature on motivation separates outcome emotions from social emotions, here they are grouped together, because the participants often evoked them in relation to potential audiences. Integral to various achievement-related contexts and situations, outcome emotions are related to success or failure on the task. This includes prospective outcome emotions "such as hope and anxiety linked to possible success and failure", and retrospective outcome emotions "like pride and shame linked to prior success and failure, respectively" (Pekrun et al 2011, p 37). Social emotions, on the other hand, refer to the fact that educational contexts are inherently social, and "the goals, contents, and outcomes of learning are socially constructed" (Pekrun and Linnenbrink-Garcia 2014, p 5). At the most basic level, social emotions include "admiration, envy, contempt or empathy related to the success and failure of others" (Pekrun and Linnenbrink-Garcia 2014, p 3), but also the "affective reactions that follow public exposure and disapproval", for example shame or embarrassment (Tangney et al 1996, p 1256).

Students' academic emotions can vary significantly, due to the diversity of academic skills, past histories and available strategies to deal with them productively. We have already seen how Ryan's frustrating essay experiences impacted on his outcome expectations and subsequent disengagement. Generally, the participants did not express strong positive outcome emotions, except Jerry, for whom the screencast represented a successful overcoming of specific challenges:

> "One of the proudest bits is the music, as I wanted some instrumental in the background that would help convey the emotions within the animatic. And I am not very good with mixing audio, but I had two different songs that I managed to synch in with each other quite well […] I imagine most DJ's could have done that in five seconds anyway, but I am happy with that bit. And because I am not the greatest of drawers, I am happy with quite a few of the pictures, although there are a few that I think are quite awkward" (J:098).

Larry reported not feeling "that proud of [his screencasts] at the time" and never feeling happy with his work, but simply "hoping it meets the criteria" (L2:102). Andrea hoped to create a useful resource for other students, but generally saw it as a first-year assignment to get done and move on: "If my screencast is good, that will be great, but if I fail with this work it will not influence my final degree that I will get after third year" (A1:054). Reflecting on the issue in the third-year follow-up interview, Andrea reported being "neither proud nor disappointed" with any of her assignments, but rather perceiving them "as a stage that I needed to go through to become better" (A2:067-68). She was not embarrassed by the shortcomings, explaining that "there were many reasons why it was done the way it was done", and whilst the screencasts "were not good enough" for what she hoped to do in future, they were "good enough for the task" (A2:064).

Social emotions were typically expressed as the need to avoid potential embarrassment. Chris was anxious about making errors because "people are going to see it", not only during class presentation but also on his YouTube channel, so he "checked it a lot more" and "did a lot more research" (C:012). Max made a semi-joking comment about trying "not to do something wrong so they do not laugh at me" (M1:117). Larry decided against distributing his screencasts as he found the sound of his voice "embarrassing" (L2:189), although he was willing to distribute his group screencasts with voice-over done by another student (L1). Fiona, who was critical of the screencast task, still preferred it to live presentation because she was "really nervous speaking in front of other people" (RF:047). Whilst embarrassment was one anticipated emotion, public viewings were also described as potentially rewarding, or "competitive" with a positive slant. Tom, for example, referred to client presentations as "nicely competitive", adding that he would have felt "a little bit put out" if his screencast wasn't shown in public, after having devoted so much effort (T2:142).

The strongest example of negative social emotions impacting on the subjective task value was Cassie, who had initially enjoyed her 2A screencast but ended up thoroughly disliking it after the client critique in front of the class (see Cassie and Josh's interview vignette in Appendix 9.4). Whilst her partner Josh felt proud of the outcome and

wanted to improve it and distribute online, Cassie could not bring herself to revisiting it. During the presentation the screencast was praised by the tutors and fellow students for its visual appeal and creativity, and the client critique referred to just one aspect of the screencast. The presentation aimed to elicit precisely this kind of critique from outside professionals, which could be then reflected upon in the written report. While Josh commented on this as a valuable experience, Cassie found it too intimidating and disappointing, and this completely undermined her initial appreciation of the task.

10.2. Assessing STV – Evoking Relevance

Relevance was identified as a salient property of 'Assessing Subjective Task Value', with several inter-related dimensions: personal situation, identity, skills and academic relevance. For the purposes of this study, 'relevance' is used in a broad sense as "the degree to which something is related or useful to what is happening", appropriate "or suitable for a particular purpose" (Cambridge Dictionary). All participants except Evan perceived at least some relevance in the screencast assignment, and most judged it more relevant than an essay, although with different degrees of strength. Max's highly enthusiastic endorsement "I wish all assignments were screencasts" (M:060) was very different from Andrea's careful "it was useful, it was interesting […] but I can't say it was necessary" (A2:076) or Fiona's reluctant admission that it was useful for some of her peers, although not for her. The range of relevance-related responses is represented in Fig. 83 below.

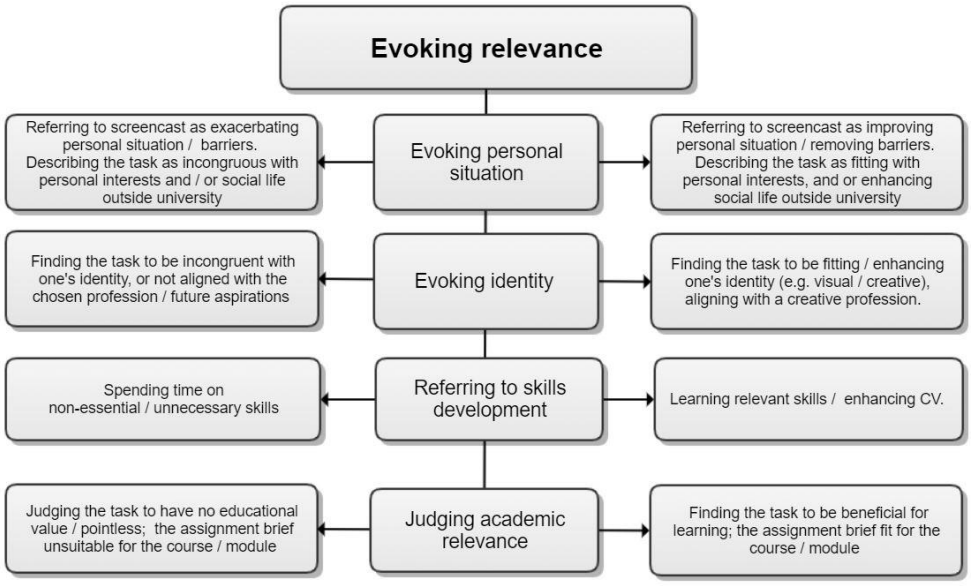


Fig. 83 - Properties and dimensions of Assessing Subjective Task Value: 'Evoking Relevance'

10.2.1. Evoking personal situation. "It's not the case of what is better or worse, it's that every student is different" (TDE:094).

This dimension summarises the participants' judgments of the task value in terms of its appropriateness to their specific personal circumstances. At the most general level, the task could be described as enhancing one's personal situation, removing a specific barrier or on the contrary, exacerbating the barriers and adversely affecting the overall 'life-load'. As noted by Fiona, "if you have childcare, you can't spend 24/7 in a lab polishing your screencast, but you can write an essay anywhere" (RF:070). For non-native speakers, the screencast removed the emphasis on academic writing and involved more visual research, but on the other hand, the voice-over narration presented additional difficulties. Due to his heavy accent, Max used textual slides instead of voice, but this reduced the already limited screen-time, so he was unable to deliver as much information as he had planned. For Andrea, accent was not an obstacle, but her problem as a non-native speaker was the perceived need for a faster, livelier, more colloquial delivery. She explained her formal delivery by "I am not a native speaker, so for me it is difficult to joke" (A1:024). Although she might have chosen the same formal style anyway, her comment still brings up a specific circumstance as a potentially limiting factor for non-native speakers.

Age and previous educational experiences were also brought up when reflecting on the value of the task. As a mature student and a professional sculptor with some years of practice, Max had more advanced spatial perception and visualization skills but lacked experience with digital media. This impacted on the quality of his screencast, compared to his younger fellow students who had "used the software for donkey's years" (T2:064). However, the same factors increased his appreciation of the screencast and the course in general: "it is very enjoyable, actually […] in my country, we did not have these kinds of things, it is something new to me" (M:036). Along with his aspiration to produce animated documentaries that "he could not make at home" (M:048), this is an example of how personal circumstances can impact on the perception of relevance, and as a result on the subjective task value.

As documented in literature, students can increase the personal relevance of the task through choice of topic, case studies or creative approach. This was particularly strongly highlighted in relation to module 2A screencasts, which incorporated the production of an animatic about a student issue, as a vehicle for application and explanation of theoretical concepts and film-making principles. Whilst critical of the high volume of extra work required, the advantage was that they could "make it into something you can relate to yourself" (J:028), for example Cassie's choice of topic was informed by growing up "around people who suffered from depression for years" (CJ:016), and Jerry's by witnessing his friends "getting themselves into max overdraft" and "spiralling out of control" (J:030-032). To illustrate her argument about the use of realist strategies in the genre of animated documentary, Andrea interviewed her friend, another foreign student, and created an animated 'voice-piece' about the integration difficulties she experienced at the University. It was largely due to personal relevance that the participants found the embedded animatic more memorable, meaningful and fulfilling than the rest of the 2A screencast. On other modules, personal relevance was increased by using favourite games as case studies or choosing a personally meaningful topic. For example, "fans and player communities, and how the game industry uses them" was judged as relevant to the participants' desired career in game industry, and their cultural experiences as avid gamers (TDE:016).

For other participants, personal relevance increased if the perceived benefits were transferable to other social contexts. For Evan, the most vocal critic of the screencast, the assignment was not only irrelevant to his social life and online presence, but even potentially "compromising", and therefore something to distance himself from (see Interview vignettes, Appendix 9.4). David, on the other hand, thought it presented an opportunity to improve his online presence. He enjoyed watching game reviews on YouTube, and "always wondered how they do it – now I could give it a go" (TDE:117). Max too used the assignment to enrich his affiliations and social interactions outside the university:

> "When I told other friends, they are not students […] each friend has got something to say. But it is not just – 'take a camera and film it'. They all use techniques and composition, lighting, shadow, and… my friends did not know, it was something new for them *[pause]*. Was interesting for them, yeah" (M:064).

One common 'personal circumstance' was dislike for academic writing, whether due to dyslexia, previous educational experiences, being a non-native speaker, or identifying as a visual learner. Jerry was "relieved it was not another essay", because his writing "was not as good back then" (J:012), and David summed it up simply as "writing is not my thing" (TDE:056). In all these cases, the screencast was perceived as an enabler, mitigating the barriers presented by written tasks, and opening extra opportunities for creativity and self-expression. The value of being 'not an essay' reoccurred throughout the interviews. On the contrary, the three participants who valued the screencast the least, enjoyed writing. Fiona explained her preference for essay by being used to this format at school and finding writing easier and faster. Andrea referred to essays as "more my thing" than screencasts because they allowed more room for explanation and debate (A2:042), and Evan defined himself as 'a writing person', bringing us to the next dimension, 'evoking identity'.

10.2.2. Evoking identity: "After slaving away with all that research, we would finally be able to start drawing, and creating, and being exactly who we want to be" (JR).

Whilst identity is a major theoretical concept, it was not clearly articulated in the interviews. Rather it was implied through similar points as in 'personal situation', but with a more pronounced sense of being a particular kind of person. The higher value attached to the screencast compared to essay was linked to being "an artist" (M:010, C:109, A2:064), "not a writer" (CJ:045), "a visual person" (T1:036) or "visual people" (L1:19). Collective identity was expressed when referring to "people on arty courses" who are "generally worse at written things" (C:105), "visual" or "creative people" who "like doing things more than researching them" (J:090), or simply "people like myself" who "work a lot better visually" (K:072).

Although Chris was lukewarm towards the screencast task and frustrated by technology, he still argued that it "fits the course better, doing something creative" (C:109). The juxtaposition with writing was particularly strongly expressed by Ryan, connecting his dislike of essays to his vision of 'future self': "I don't want to be a writer, I am an animator […] if I wanted to be a writer, I'd do journalism" (RF:073). Evan referred to himself as "more inclined to be a writing person than a speaking person" (TDE:065). For Andrea, screencasts were "good enough as a task", but "not good enough" for what she was going to do in future: "I am an artist and it's completely not the thing I would like to do" (A2:064).

Most participants positioned 'visual' identity in opposition with 'writing' identity, and we shall see more of this in a moment when I will turn to academic relevance. The only exception was Andrea, whose artistic identity harmonically co-existed with her academic identity, and she referenced a number of possible futures, including animated filmmaking, postgraduate study in a different area, or a research career. Her drawing and animation classes were relevant to her vision of self as an artist and animator, whereas her theory classes and essays were relevant to her possible future as a postgraduate student or researcher. Whilst she appreciated some elements of the task, she did not see it as relevant to either path, beyond developing basic skills that the practical production modules offered anyway.

Identity-based motivation theories argue that "the effect of identity can be difficult to see because context shapes what an identity means, which strategies feel congruent with it, and how difficulties along the way are interpreted" (Oyserman et al 2015, p 176). Andrea's identity (both academic and artistic) was shaped among other things by her previous experience of successfully combining school and art school, and the habit of working long hours. By comparison, Ryan's expressed identity as an 'animator' and 'not a writer' was related to his intense dislike for writing. He valued his screencast despite it being neither animated nor focusing on an art or animation topic, simply because "anything is better than writing" (RF).

10.2.3. Referring to skills development: "the goal is to show that you can work to industry standards" (L2:147).

One of the important relevance criteria evoked in the interviews was the development of technical and creative skills. This was less prominent in the interviews with game design students, probably because their chosen professional field involves quite different technologies. For digital media students, video production skills were very applicable, however most of them had already advanced those skills prior to University. The technical skill development was most frequently brought up by animation students, who tend to come from an art background with little experience of video production. The skill transferability between the screencast assignment and animated filmmaking was mentioned even by those ambivalent about the screencast. Chris has learned video editing techniques, admitting that he would not have learned them otherwise (C:015). In her first-year interview, Andrea explained that "making a screencast is like making a film", and the task was useful for storyboarding, timing and editing software skills (A1:016). Interviewed again two years later, by which time she had completed several screencasts for different modules, she came back to the same point:

> "I was… completely inexperienced in such things. And it did force me to learn new skills with the software […] it was more of the excitement in the process of exploring and learning new skills" (A2:017-020)

Some participants used the openness of the assignment brief to make the task more relevant to their own skill-related goals. Whilst the assignment guidelines for 1A suggested using a free video-editor pre-installed on any Windows PC, Larry decided to invest considerable time into teaching himself a sophisticated industry-standard software package, because he knew he would need it in future. Reflecting on his learning experience during his third-year interview, Larry also referred to the broader technical understanding, for example how the seemingly mundane file size issues can impact on professional dealings with future clients (L2:047).

The ability to not only develop but also display skills and expertise was linked directly to motivation. If the participants perceived that the task could potentially add to their portfolio, they were going to work harder, but "if you don't feel it is relevant to your portfolio, then you are just going to do enough to get a first, a pass, or whatever" (L1). Even though his specialism was in 3D CG modelling, Jerry planned to use some extracts of his screencast in his show reel to demonstrate additional pre-production skills (J:060). Larry managed to get more utility of what he described as a "pointless" screencast for 2P module, by fully animating it, even though this resulted in a hugely increased workload, and a reduced grade for not adhering to the assignment brief. Whilst he was disappointed with the grade, he saw advantages in getting more practice, and adding value to the portfolio (L2:091). Some participants created their own artwork for 1A screencast, although the assignment brief did not require this. Once again, comparisons were drawn between essay and screencast, evoking not only their assumed professional relevance, but also the immediacy of the visual (more on this in materiality):

> "You couldn't just … send your essay to people, like 'here is a good word I used, give me a writing job', but you could send … I don't know … two seconds of animation, and they will know if you can animate or not" (RF:075)

Beyond technical skills, the screencast helped some participants to gain more of a 'real-world experience' of producing artefacts for a given purpose, rather than simply following their own creative intentions. This applied particularly to 1GDMA and 2A screencasts which involved real or hypothetical clients but was also brought up in relation to 1A screencasts' function as a visual learning resource for others. Larry and Tom learned useful negotiating skills creating a resource for the University's educational development unit, whilst several others mentioned adding client experience to the CV, or using it as a networking opportunity:

> "It gives you links to other people, maybe working for somebody […] because they can say 'this guy did a bit of work for me', and then you can get a bit more work from that" (J:071).

Evan, on the other hand, did not consider screencast a useful experience, describing the work as "not applicable" and "not something that I would use it in the future" (TDE:091:093). He anticipated using very different technologies in the videogame industry where he aspired to work, and he already possessed advanced video-editing skills prior to entering university. For Andrea, the usefulness was limited to the basic software skills, although she also enjoyed the animatic element of 2A where she pursued her own story. She did not feel that the screencast assignment provided enough of creative or intellectual challenge. Although accepting that producing a 'learning resource' or working for a client involved creativity, this wasn't "the type of creativity of personal interest" to her (A2:040). Client work was "not her thing" (A2:020), and the audience-oriented and utilitarian nature of the learning resource was a limitation on her own artistic vision. This was consistent with her general expectations of University studies, which did not prioritise employability:

> "Of course, I am thinking about employment, but it isn't my aim. I am not doing my degree just because I want to get a good job. It is not connected that much in my mind. The main reason […] is that I enjoy the process of getting new knowledge and new experience. And it's very much for the personal self-development" (A2:106).

So far this has been a fairly obvious argument, in that screencast involves practical production, so naturally it develops some practical skills. However, in creative media courses most other modules focus on the development of practical skills, with assignments more closely aligned to specialist industry applications. Some participants saw the combination of theory and practice, or 'knowing' and 'making', as the key benefit of the screencast assignment:

> "It is nice to be able to have something that proves, something that is not an essay, that proves you know stuff. Because a lot of the time you come out of Uni with a portfolio of stuff, but it is all creative and technical kind of thing. Whereas it is nice to show someone something which is creative, but also shows that you know your stuff" (T2:096).

The division between 'knowing' and 'doing' is interesting, because one needs to have knowledge in order to 'do' things well, and the employment-relevant procedural 'knowledge' should be clearly seen through the creative and technical portfolio. As noted previously, a two-second clip will "show if you can animate or not" (RF:075). But what Tom is referring to here, is the ability to articulate the principles underpinning production, or to display theoretical or contextual knowledge. This provides a convenient point to move on from employability skills to the perceptions of academic relevance, the final dimension of the sub-category 'Evoking Relevance'.

10.2.4. Judging academic relevance: "it was a chance to apply theoretical knowledge in practice and see if it works" (A2:086).

The final dimension of relevance combines the open codes relating to the task's fitness for the course or module, excluding references to employability. Following from the points made in the 'identity' subsection, the participants often judged the task to be particularly appropriate for "creative, visual" disciplines. In doing so, they made judgments about other disciplines, deeming the assignment to be inappropriate outside creative arts and media. For example, Larry wondered whether it would work for "people studying maths" as they "would not get anything extra in terms of video-editing […] unless they want to learn it just out of interest" (L2:204). Andrea argued that screencasts could be useful in film and media courses, as well as "art, interior design, architecture", but not for the courses "which involve more abstract things, like sciences or maths or languages" (A2:070). Peter and Fred doubted it would be useful for "biology or accounting" (PF:272-273), and Tom thought it would be less appropriate for "more academic subjects" such as English or History, where "the students and lecturers know how to read through a textbook, that's their way of learning and how their subject is" (T1:010).

Karl, on the contrary, thought that usefulness depended on the topic: "you can always have something on screen and keep referring to that, even if it is just a diagram" (K:091). Max too thought that the assignment was applicable throughout, and drew on a scrap of paper two ideas for hypothetical screencasts, one for chemistry and one for engineering:

> "If you expand the water formula, *[draws on a scrap of paper],* now H_2O, the student can understand better. And again, you can expand it *[draws]* O+H+H, and then put together *[draws],* becoming this formula, and that is water. You can open the subject if the students can see more visuals. Or design for a car. First show all the parts of the car separate *[draws],* and then put together *[draws]…* when they are together, you can't see all the parts, and the engine and other things in the car, but you can show all the parts separate again, and

> then put all together *[draws].* But in written work you cannot do these things. In a screencast you can show them" (M:129)

The educational benefits cited most often related to 'visual learning' which will be addressed later in the 'materiality' sub-section. The prolonged engagement with the material (as a flip side of the time-consuming nature) was also cited as a reason for "learning more about the subject" (L1). The screencasts for modules 1A and 1G, which required to produce a resource for a hypothetical learner, aided their own understanding. In order to explain a concept or a principle, "you had to make sure you definitely understood it, what you were talking about … and it helps you understand it better" (L2:077). Peter and Fred admitted that when they started to work on the screencast, they "didn't understand it as much", but they still had to try and explain it "so by doing that, it helps you a little bit" (PF:143).

What is important here is not so much the objective benefits of a specific format, but the students' subjective perceptions, because the affordances which are not perceived do not materialise. However, in some cases, the distinction between essay and screencast was very material, for example when developing and demonstrating procedural understanding. Larry brought this up in relation to 1A Screencast which focused on three specific principles of animation. When questioned if the same benefit could not be achieved in an essay, he argued:

> "For something like the twelve principles of animation I'd say probably not. Because you have to do a lot of video-based research if you are creating a screencast. You might be less inclined to do that if it is written work, so you might not fully understand the principles" (L2:083).

Procedural understanding involves not only the ability to recognise what has been done in the existing artefact, and how, but also being able to apply the technique in practice. A hybrid theory-practice assignment was seen as educationally valuable, and a "chance to apply your theoretical knowledge to practice and see if it works" (A2:086). Other participants made similar comments in relation to the internal course coherence, where the screencast task connected theoretical and practical modules:

> "It is good to learn about the theory, but unless you use that theory in some practical work, then, you know, there is not much point, is there? […] You are learning these things, and then you are implementing them, and it kind of strengthens what you have been learning" (CJ:022-031)

> "When you think about someone doing animation, you don't think 'oh look at all the theory behind that'. But understanding composition and things, without the theory modules I would not understand them half as well as I do now […] If you look at anything I made before Uni, you would see I did not comprehend screen composition, or what it might help express. I suppose written tasks do help you understand. The screencasts definitely do"(L2:214).

We have already seen in the screencast analysis chapter how some students reused the visual work they had created in practical modules, instead of relying solely on examples from existing films. Such recontextualising demonstrated their agency in creating personal relevance and maintaining cohesive links across the course. Cassie, Josh and Jerry found it useful to deconstruct their own work in Screencast 2A, and Andrea valued this too and saw it as a "try for the final year project" (A1:020), where she would produce her own graduation film and talk about it in presentations and reports. However, she also noted that the screencast makes it "very easy to cheat", not in the sense of academic misconduct, but in the sense of 'retro-fitting' theory, instead of applying it:

> "When you first do something and then post hoc try to find some theoretical background to it, and then make it look like you first did the theory and then based your practical work on it. And I know that in 90 percent of cases it happens. People first do something, and they try to explain [why they've done it], but they can't because they don't know" (A2:088).

Whilst some participants discussed screencast in opposition to essay, others felt it eased their way into writing. Larry saw his screencast as an "extension of the report" (L2:214), whilst both Jerry and Karl explained their unexpected good essay grades by

having produced the screencast first. Although the topics and the case studies were different, both tasks involved analysing an artefact (a film and a game respectively) in terms of specific design principles, so they were able to reuse the general structure and some of the background research. Peter and Fred benefitted from close engagement with visual examples, trying to "figure out how you are going to show the information, what examples you are going to use, and how appropriate they are to what you are saying" (PF:152). This helped them clarify the structure and practice visual analysis before approaching their essays. For David, the screencast provided an opportunity to practice writing prior to essay, and to exchange ideas during communal viewings in class:

> "By doing screencasts you actually build up the skills that will lead up to writing a report or an essay, because although you don't really think you are writing, you are writing a script and so you are writing... It did end up in a report format as well, because we'd built upon the ideas […] You learn more from doing it and seeing other people's videos gives you more ideas for your own" (TDE:095).

One important theme was the way in which the screencast contributed to the overall diversity of assessment. These comments were sometimes made in the context of specific personal needs (such as dyslexia), but at other times simply expressing the need for variety. The participants referred to this as 'having a mixture', 'a change', 'a good mix' or a 'more rounded experience'. Whilst admitting some difficulties and drawbacks, they endorsed the continuation of the screencast as a way of offsetting "too much emphasis on essays" (TDE:098), but at the same time warned about 'overdoing' the screencasts. Josh conveyed an anecdote shared by his friend on a different course, where "every other task was a blog" so the initial appreciation was soon replaced by boredom. Larry summed this up as follows:

> "If every assignment for theory modules had been just to make a screencast every single time, it would be like 'oh no, not another screencast, can't we just write something instead?'. But I think it's been a good balance, with the screencasts and the written reports" (L2:201).

A common reservation brought up by seven participants, was that screencasts limited the depth and detail in the exposition of the topic. Even those who struggled with writing, felt that an essay could have demonstrated his academic knowledge more clearly. Ryan felt that he would "have to research more for an essay" (RF:040), Cassie would "fit in a lot more content" (CJ:070), and for Chris having to "condense" all his research into a "few sentences" made his screencast "less in-depth" than the essay (C:045). Fiona would have preferred a written report "because you can go into more detail on certain aspects" and questioned the need for a screencast except as a visual aid to support the essay (RF:021). In his first interview Tom was very enthusiastic about the screencast, saying he had "done enough essays to know I don't like them", but at the same time he wondered if he showed "slightly less understanding" than he would in an essay (T1:096). Interviewed again in his third year, he explained:

> "If I had written a short essay about it, I could have set it out better in my mind. Which does not make sense to me, because I really do not like writing […] The points you could be making would be less fleshed out, I think, in a screencast […] The time that I spent on the screencast, if I had done a very boring piece of writing that would have got me really annoyed, I could have got more information across" (T2:010-020).

Whilst for most participants the learning benefits of the screencast outweighed the drawbacks, two explicitly questioned its academic value. Andrea felt that the screencast over-simplified the subject matter and lacked theoretical challenge: "simplification means that it tries to get rid of contradictions, and it doesn't give a full picture" (A2:012). For her, a screencast was "equivalent to a Wikipedia article", appropriate for getting a general idea but not "a reliable source of knowledge" (A2:008), and she was looking forward to the essay, as a more useful and fulfilling academic activity:

> "With essay, I feel that it is more 'my thing'. I can spend hours and hours on research, thinking through different concepts, which I can sometimes hardly explain to myself, and it is the joy of going through tons of different

information and… as an outcome of an essay I get more knowledge than from making a screencast“ (A2:042).

For Evan too, the screencast turned into “just a summary of my topic” as he struggled “to fit in so many points in such a short space of time” (TDE:061:065). He felt that the invested amount of work was disproportionate, and not justified by either “applicability” or “educational basis” (TDE:091-093).

10.3. Assessing STV – Evoking Materiality

Materiality was identified as a salient property of ‘Assessing the Subjective Task Value’ based on the multiple references to material properties of the task across the interviews. Learning and assessment are influenced by the material elements, such as space, tools and devices or software capabilities, as well as existing educational practices, all of them “mutually constitutive” (Fenwick 2015). Knowledge is not simply ‘acquired’ or ‘transferred’ but produced, mediated and embodied in material artefacts and concrete representations, governed by social relations and cultural conventions. Although digital artefacts do not have physical qualities, many researchers argue that the they possess “materiality in the senses of practical instantiation and significance”, as well as their impact on human action, both in terms of constraints and affordances (Leonardi 2010, p 11). In relation to students’ screencasts, materiality can be seen, firstly, in their potential for “instantiating” knowledge by visualising processes and giving concrete form to abstract concepts. Secondly, the hardware and software deployed by students in the process of screencast production, can be seen as artefacts with enabling and constraining effects on student action, along with the institutional teaching and assessment practices manifested in the assignment brief. As we have seen so far, the tools or artefacts did not have a uniform value but were interpreted according to the participants’ own goals and dispositions. This links back to Orlikowski’s (2000) concept of ‘technology-in-action’, as well as Gibson’s take on affordance ‘duality’ which comprises both the object and the actor (see Chapter 4). The diagram in Fig. 84 below shows how materiality was evoked in the participants’ assessment of subjective task value. References to the materiality and associated

benefits or constraints are grouped into four categories, that is the medium, 'audiovisuality', technologies and institutional practices.

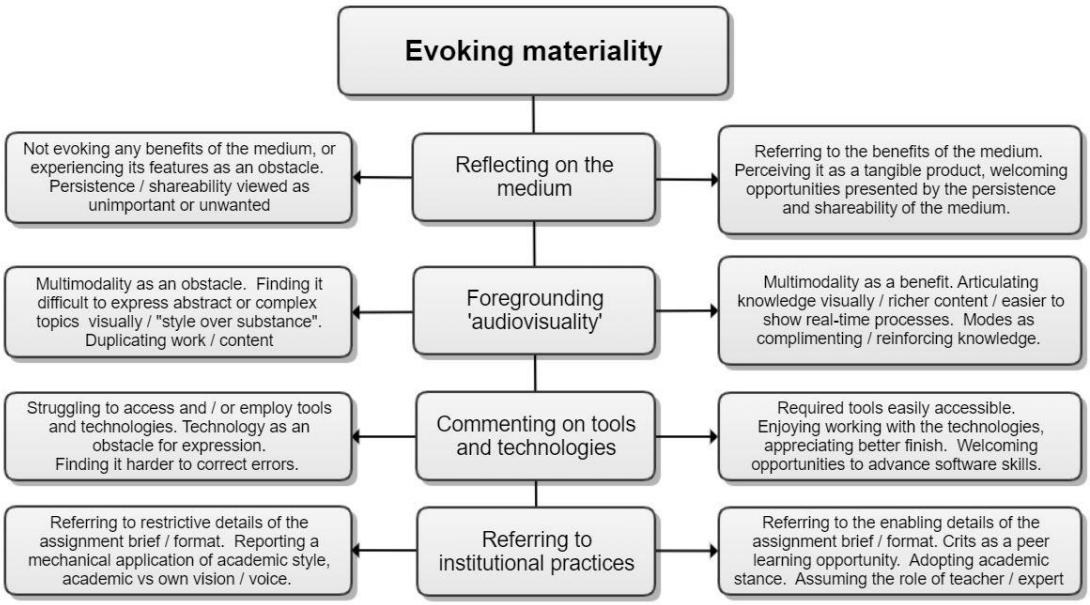


Fig. 84 - Properties and dimensions of Assessing Subjective Task Value: 'Evoking Materiality'

Once again, the categories are not conceptually perfect or exclusive, for example, the nature of the medium is both multimodal and technologically mediated. Some important material aspects such as space, are missing because they were not mentioned in the interviews. The few passing comments about busy IT labs or noisy accommodation, were grouped under 'tools and technologies', because they were made in the context of technical difficulties, such as noise interfering with audio-recording. Let us now take a closer look at each dimension.

10.3.1. Reflecting on the medium: "It's good to see the end result, we were really excited about seeing ours on a big screen" (T2:102).

In general terms, medium is a material means of expression, or "the form which carries the sign" (Burn 2015), but in relation to mass communication media it is also defined as a "channel" of transmission or "a technologically-supported process of human communication" (McMullan 2015, p 21). As discussed earlier in this thesis, screencast is a hybrid form, inheriting its audio-visual and time-based nature from film and video, and its "reconfiguring" and distribution capabilities from the newer media such as personal computer and the Internet. In their assessment of subjective task value, the participants highlighted the differences between the screencast and other forms of assessment, in terms of the key medium-related features: time-based nature, reconfiguration and shareability.

The participants perceived screencast as a more tangible and lasting medium than either essay or presentation. Images made the content appear more concrete and voice-over increased the sense of presence: "It is like being there with the person explaining it to you, without having to be there with them" (PF:019). Secondly, the tangibility and longevity were linked to the existence of YouTube, a potential distribution platform open to amateur productions and already hosting content of similar format. Whilst admitting that an essay can also be distributed online, the participants assumed that nobody 'out there' would be interested in it. Essays were something that only the tutor would read, you "cannot put them on YouTube" (M:060), people would not "have enough time to sit and read" them (M:064). A short video, on the other hand, would be more likely to be watched and made use of, "it is not for the tutor, it is for showing to next year's students, showing to people who would like to know about it on the internet" (T1:080).

The shareability of the medium also came into play in client-based assignments, where the work was eventually distributed via clients' social media channels, played on large screens around the university, and presented as student posters at learning and teaching conferences. Because of this real or potential exposure, most participants cared more about the quality of the outcome than they would with an essay. Chris

reported that he went to great lengths to ensure the final quality, more than he would have done for essay or presentation: "You want to show yourself off because people are going to see it, so you want it to look good and do a better job" (C:020). For Max, it was important "not to do something wrong, so they do not laugh at me" (M:117). As already mentioned in previous sections, there was a sense that the participants worked harder on their screencasts. It seemed to matter more, there was more at stake, both in terms of increased anxiety about errors, and higher personal rewards for effort and flair. Max expressed a strong intention to share his screencast, despite its creative limitations: "Yes, of course, when I finish it, I will put it on YouTube" (M:060). Sharing his screencast online would be only fair, as he had used other people's videos for inspiration: "This is the idea, to show each other, and learn more… To have more experience" (M:119). Even those who did not intend to make any public use of their screencasts, saw sociability as an inherent feature of the medium.

Another important feature of the medium is its reconfiguring function. Reconfiguring refers to the ability of the computer-based media to alter, combine and re-encode previously created content, so that it becomes a new expressive component or even a new form of expression (such as Internet meme). Unlike live-action film or video, screencast can combine into a single flow a vast array of different types of visual material, such as drawing, animation, photographs, diagrams, hand-written or printed text, PowerPoint slides, screenshots of websites and computer interfaces.

Reconfiguring was alluded to when the participants described how combining different forms of media within the screencast enabled the student "to engage with the audience in different ways" and "get the points across" (PF:003). Some referenced the time-based nature of the screencast, which allowed them to show processes as they unfolded in time, and to match the speed to the voice-over by manipulating video-editing software. The screen-capture function available on any personal computer enabled a quick and easy sourcing of diverse material from the Internet or DVDs. For example, to show how visual effects were applied in his case study, Tom used a split screen technique to combine screen-captured sequences from two different sources, which he imagined would be more difficult to achieve in an essay. A scene from the

finished film was positioned next to "another one from 'behind the scenes' with the green screen", enabling a clearer comparison (T1:034).

Max, whilst unable to implement such techniques due to his insufficient software skills, commented on another student's screencast, where drawings of different stages of the walk cycle had been scanned, imported, put together in a video-editor and speeded up to resemble an animated walk:

> "His screencast was about walking techniques in animation, he started to draw images, how it goes up down, up down, on the paper […] and he just pulled it together and they became one. It was a nice technique he used […] You cannot see the process of animation, but he planned it, he is showing the process, you have to actually draw ten images to show a figure walking" (M1:125).

Conversely, a ready-made extract of moving image or recorded gameplay could be imported from an outside source, and then broken down into a series of stills. The resulting visual materials could then be variously combined and time-matched with the voice-over narrative, to create a more precise demonstration of a given process. This ability to enhance explanation through deployment and reconfiguration of different expressive materials was consistently brought up in the interviews, bringing us to the next theme, audiovisuality.

10.3.2. Foregrounding audiovisuality: "It is easier to show an example, a moving image, rather than a paragraph explaining what you mean by what you can't show" (L2:045).

We have already seen how visuality was evoked in the arguments about the relevance of the assignment for creative courses, personal circumstances or identity, often juxtaposing it with writing and 'more academic' ways of teaching and learning. The participants argued that the screencast is useful for learning because "people learn better with visuals" (L2:175) and "take in the information a lot better visually" (K:071). "Images stick in your brain" and are easier to remember (M1:006). Without visual illustrations, techniques can be misunderstood or "imagined wrongly" whereas "in the

screencast you can hear, and you can see" (M1:083). Some referred to their own experiences of "picking up information a lot quicker" from video (K:072), "picking up a lot more from the imagery than the commentary" (T1:006), being more engaged: "if there is a visual aid it keeps me interested" (RF:066), or learning better if more than one sense was involved: "I can't just listen and learn, I've got to read it as well, and see it" (TDE:061).

Images helped the participants to convey knowledge, "getting your point across" (RF:067, K:074, C:041), "reinforce the ideas you put across" (TDE:095) or provide more depth to "all the stuff from books" (C:045). Although the participants emphasised 'visuals', what they were really talking about was audiovisuality. In the screencast images do not speak for themselves but relate to the voice-over commentary: "You can express a lot more than in an essay, with actually showing it on a video and talking over with it" (K:008). The audio-visual nature of the screencast made it easier to "get the feeling of what you're talking about, as you can look and listen to it, whereas in an essay you just make a statement" (TDE:056). Whilst Andrea and Evan criticised screencast as an over-simplified "summary of a topic", David saw essay as something where "you tend to waffle on", whereas with a screencast "you really have to think about what you want to include … you really have to be concise" (TDE:056). Karl too saw brevity as a benefit, and directly linked it to audiovisuality and technology:

> "You can write a lot about it and you can probably get into the habit of writing too much, whereas in a screencast, you can afford to chop out bits of irrelevant information, because you've got that edited visual side of it to help you explain" (K:050).

The economy of expression provided by the screencast was particularly welcomed if the task required to demonstrate procedural knowledge or analyse interactive media. The screencast analysis in Chapter 7 has already demonstrated how student-authors orchestrated different modes and semiotic resources to explain and illustrate real-time processes. I have also touched on this earlier in this chapter, using Max's description of a fellow student's 'Walk cycle' screencast. Six other participants brought this up as a specific advantage of the screencast assignment. Tom and Max emphasised

developing procedural knowledge: “You can just show here, on this film, you can see the process being used” (T1:030) and “You can see the technique and how they use it in animation, and you can understand it easier” (M:024). Ryan appreciated being able to “show people how to use the functionalities of a social networking site” instead of simply describing it (RF:032). Karl captured his own gameplay and manipulated the speed to illustrate his explanation: “You pull the left trigger and the camera moves closer towards him, and you can slow it down afterwards and express it then and there” (K:048). Peter and Fred also captured their own gameplay to discuss game challenges and actions, and Tony summed up the benefits as follows:

> “It was really useful for the game design people, as with an essay you can’t really get the games’ idea across, unless a gamer is reading it. It’s really hard to describe a game, you’re going to waste unnecessary words, whereas in a screencast you can say and show that in 10 seconds” (TDE:099)

Tony’s point about ‘unnecessary words’ is echoed by Tom’s “you have to describe a lot less” (T1:030). Capturing in linear text what is going on in moving image is difficult, as I have experienced myself whilst working on this thesis. This becomes even harder with interactive media such as video games. To illustrate a complex movement in still images on a printed page, would require multiple frames, which would be difficult to cross-reference in the main body of the essay. As explained by Karl:

> “Explaining how the camera moves behind the character, and the ways in which it moves, you would have to describe the specific movements of the camera on screen, as the character moves and sort of follows through with it, I think that would be really, you know … it would take a lot of text to describe that” (K:082)

However, audiovisuality also brought some problems. Ryan had no difficulties with the parts of the screencast which directly demonstrated website functions, but “couldn’t find pictures to match” the more general points about usability (RF:020), and Chris struggled to illustrate his explanation of the term ‘narrative’ (C:019). Larry noted that “you can’t really put a picture” to theories and concepts (L1), and whilst Tony did

not have such difficulties himself, he recalled an incident where he tried to help a fellow student to find suitable images:

> "For some people it may take five minutes to find, for others it may take five hours [..] When [student X] talked about symbolism, and he had a quote about signs, we honestly didn't know what to put there so we just found some funny pictures of signposts to be like a play on words, and that was literally all we could think of" (TDE:092)"

For Evan, this was one of the most off-putting aspects:

> "I had to keep searching for hours to get relevant photos … I discussed Jenkins a fair bit, but it is all quite abstract and it reached a point where I could no longer just use his photo […] For me, it was just annoying having to spend time searching for all these photos to give it a variety […] There is no educational basis in that, as you're finding photos to fill a gap, whereas in a presentation or essay you don't have to do that" (TDE:091 and 093).

Despite enjoying their screencasts and finding the task more engaging than writing, both Larry and Tom wondered if the emphasis on visuality detracted from content. Tom thought that he may have shown "slightly less understanding" in his screencast than he would in an essay, because he "spent more time thinking about how it could look" than on the points he was going to make (T2:012-016). Larry admitted being "distracted by the superficial values" of perfecting the look of the product, at the risk of neglecting the content. When starting the screencast, his first thought was "what can I do to make it nice", rather than "what should I say?" (L2:061). With written work, on the other hand, "you are spending more of your time focusing on what's written, instead of everything surrounding it" (L2:201). Self-consciousness about hearing own voice was another prominent feature, although the responses differed. For Fiona, this was a real anxiety, whilst Larry and Chris accepted that this is something that everyone experiences, and simply needs getting used to.

10.3.3. Commenting on technologies: "I suppose it is down to equipment" (K:084)

The screencast heavily depended on students' engagement with multiple tools and technologies, and this was mentioned throughout the interviews, both as a benefit and an obstacle. Screencast was often experienced as "being thrown in at the deep end" (L1), particularly in relation to the technical skills it required. Some interpreted this as a useful challenge, others felt this was counter-productive, but all commented on its time-consuming nature. To begin with, there was simply much more to do, in addition to researching and writing the script:

> "you have to make the video, you have to record yourself, you have to collect all the material, you have to edit it all together, you have less time to do the research […] Either you spend more time on the screencast than what you would on a written report, or you will have less time on the actual content" (L2:085)

Not only were there extra things to do, but there was also much more that could potentially go wrong, with any errors much more time-consuming to correct than rewriting a paragraph in an essay. Tom commented that "once it is finalised it is not so easy to change around" (T1:106), and Chris related this to less editorial flexibility: "If you want the structure to be slightly different, most of the times you have to re-record yourself" (C:095). Similarly, Larry would make multiple corrections in his written work, "whereas with a screencast I am less likely to re-edit it … it takes a lot more effort" (L2:193). This is partly due to the time-based and multimodal nature of the screencast, requiring careful synchronisation of images and audio, and partly due to potential technical problems that can arise at any time with each extra step. Re-recording audio, for example, came up multiple times across the interviews. David struggled to find a quiet place to record his narrative, as both the university labs and his student accommodation were too noisy (TDE:049). Fiona experienced several software crashes, which she explained by "being out of depth with technology" (RF:045-049). For Ryan, "it was hard to do the audio" (RF:020), and Jerry had to "record the audio over and over again", and although he "didn't mind that" this would

have involved significant time costs (J:022). Evan had difficulties with a new microphone which made the process very frustrating:

> "It kept distorting my voice randomly while I was talking. Constantly recording the same three or four lines, and then you trip over a word in the last sentence, and you get frustrated with yourself, and then on the next one you go over the word before, so you constantly go back and re-read it" (TDE:053).

However, compared to live presentation, multiple re-recording was also seen as a benefit, summed up by Tony as "it takes ages but you're controlling everything" (TDE:085). Karl appreciated the ability to "take your time with it", removing "the stress of delivering a presentation" (K:010). Evan, who generally disliked the assignment, admitted that it had the advantage of a more polished look, and whilst he had been besieged with technical difficulties, he preferred to experience them at earlier stages rather than risking "forgetting points or having technical difficulties on the day" (TDE:063). When presenting his work in progress in front of the class, Peter felt less "nervous standing up there" than he would be in an oral presentation, "as you have already worked out everything you said in it" (PF:132). David saw live presentation as "one chance to get everything across", whereas the screencast allowed him to achieve superior finish and the plenty of practice in formulating his points, by recording and "listening to it over and over again so you can get it right" (TDE:056). For most participants, it was a trade-off between a better-quality product and the high time costs, both dependant on individual situations, existing proficiency with technology and access to various kinds of resources.

Access to resources was an unexpected issue, considering that the university provides a good infrastructure, from hardware and software to technical support and skills workshops. Some of the differences could be due to the two-year time span between my first and last interviews, as the more advanced tools, software and freeware became available inside and outside the institution. Other differences could be due to the participants' individual preferences, for example Peter and Fred worked at home despite admitting that there was superior software installed on the university PCs.

> F: “We were told Camtasia is on the Uni computers, but obviously we had to work outside of Uni […] so everyone ended up using different programs”
> P: “And I think that by using different programs you lose some of the overall quality […] as it does not look like high enough professional standard. Windows Movie Maker does not seem to give as good a screencast as Camtasia does, or some other video software, it’s got quite a few limitations on what you can actually do with it” (PF:283-284)

David had to borrow his friend’s laptop, because he had an Apple Mac, so there were compatibility issues with university PCs, and the recommended free video-editor was not available. Tony had a PC at home, but his version of Windows was newer than the one at the university, with poor reverse compatibility for the pre-installed video editor. He spent considerable time editing his screencast at home, but when he brought it on campus for the final edit before submission, the files did not open on the university PCs. Because this was too close to deadline, he had to remove most of the videos and re-edit the screencast with still images only, wasting the time and effort he had put into it on previous days. Andrea, who worked on all her assignments on campus to separate ‘work’ from ‘life’, did not experience any technical problems except the initial learning curve.

The decision to work at home was not always due to individual preference. Often the labs were too busy, or their availability clashed with the participants’ classes or part-time jobs. For Game Design students who needed to import their own gameplay footage, the problem was the university IT policies which prohibit the instalment of own games on the university PCs. Those focusing on console games rather than PC games had no easy way to capture footage on campus, and those focusing on MMORPG could not access their chosen game due to the institutional firewall. Therefore, some participants felt that the screencast assignment was less accessible than essays or presentations. Evan argued that it was “not really fair that the content of the screencast depended on the type of equipment you had at home, so someone may just have a laptop and somebody else may have a high-end game PC with all the software” (TDE:100). Peter and Fred, whilst enjoying the screencast, picked up on a similar issue:

> "If you are recording gameplay from a computer you need special software, like Fraps … and it costs money, so it is not as accessible making screencasts sometimes. I bought a capture card for Xbox so I could record footage off me Xbox, because I prefer console gaming over PC gaming […] so I bought a capture card, and some others did the same, I spent about 100 pound or something, where they spent about 50, so mine was of a better quality, some of them faced issues like picture quality was all black and white. So obviously we were not told any information on capture cards, or things like that […] We did a lesson on Camtasia, to show us how to use it and all that, but to actually use Camtasia you've got to go to Uni anyway" (PF:154-162)

It is important to note here that the assignment brief does not require using any specific platform or software, the module handbook advises to use the basic free software available and allows to reuse footage from existing gameplay videos on YouTube. However, this does not work for everyone, for example Karl's screencast on game camera relied on his ability to manipulate the controls himself, in the succession that his argument required. It would be counter-productive for him to try and 'retro-fit' his narrative to someone else's gameplay, which may or may not use all the required camera angles. Unlike the fixed look of a film scene, determined by the director and executed by the camera crew, the look of the game can significantly differ depending on what the actual player is doing. YouTube gameplay videos tend to be about progressing through the game in the most efficient fashion, whereas 'analytical gameplay' for academic purposes is about slowing down and noticing the minute details, in order to bring out the points about the design of the game. When recording own gameplay footage for the screencast, the student may need to do what a normal player wouldn't, for example to stop in a place that most players would quickly run past, or zoom in on an object that most players might never look at. Therefore, using YouTube videos as a 'safety net' does not work for all, but depends on the discussed topic or artefact. Allowing students to use their own games and software is beneficial, but the time and resource costs can be a luck of a draw.

So far, the discussion has largely revolved around technical constraints, because this is the context in which the references to tools and technologies were commonly made. However, some comments made a direct connection between knowledge representation and technical expertise. Max, who admired his fellow students' technically superior screencasts, reflected on the ways in which his own lack of software skills restricted his visual communication of knowledge:

> "If you know, for example, Photoshop, it is very good. You can make better screencasts […]. If you want to show a specific place on your image, you can zoom into that … or draw a line on that image… I could do it on the still image, but I could not do it on the film. When the film was moving, I could not draw a line around something. The software I have to use is… if somebody knows how to do these things, the screencast will be more… ehm… better to understand" (M1:095).

Digital communication technologies allow working in a "less time-critical and location-specific" fashion, as well as enhancing collaboration and feedback opportunities (Timmis et al 2015, pp 6-7), and this was picked up by those who chose to work in groups. Peter and Fred sent each other draft sections they completed individually in their own time, initially using e-mail but then moving to Dropbox when the files became too large. Larry also used remote collaboration tools when working with his partner on their screencast for the university-based client (L1). Some shared their screencast on YouTube to receive feedback, whilst others used it as a back-up against potential playback issues or file corruption. Whilst all the participants were accustomed to email prior to university, they were not used to compressing files, or converting from one format to another to enhance compatibility. Tony captured some film footage from TV which "took six hours to convert" (TDE:018), whereas Fred did not want to lower the resolution, and spent hours trying to upload the files:

> "The videos [were] up to 50 gig in size, then I had to piece it together in Sony Vegas and render it all out in lower quality, which kind of defeats the point of recording it in higher quality […] sending 50 gig files over the internet, I was waiting for hours and hours" (PF:161).

Larry, who was interviewed in his third year, reflected on the same issue, but viewed it less as a frustrating obstacle than a necessary learning curve:

> "I was looking through my old screencast files, I have them on my old USB stick and it is interesting to see the file sizes [laughs]. When I first did them, they were like one gig, now they are like a couple of hundred megabytes. And that's because I have understood how to export videos, the appropriate codex and things, whereas before I did not know, and they were just massive file sizes" (L2:047).

10.3.4. Referring to institutional practices: "It felt like I was doing something quite journalistic and not academic enough" (RF:057).

The next dimension of 'Evoking Materiality' captures the participants' references to the institutional practices which informed or constrained their work on the screencast projects. Institutional context ranges from university-wide policies, time schedules and infrastructure, to course-specific culture, to module-specific guidelines and assignment formats. All of these can impact on the outcome of the assignment, and the way the students feel about the process. Whilst the interviews contain few direct references to institutional parameters, it is possible to infer instances of academic enculturation and emulation from some of the described experiences. This can be partly explained by the requirements of the assignment brief and the marking criteria (see Appendices 1.3 and 1.4), and partly by replicating social roles and practices within the institutional environment. This section will deal with the salient themes relating to the impact of institutional practices (except the aspects already discussed in the previous section under 'tools and technologies').

Assignment design. As demonstrated in Chapter 7, student-produced screencasts are composite products, incorporating elements from different domains, modes and genres. With two exceptions, most of the sample have utilized the conventions of

instructional video genre and PowerPoint-supported lecture, as well as incorporating more generic features of academic assignments, such as referencing. This can be partly explained by the essential requirements formulated within the assignment brief and the marking criteria (see Appendix 1.4). It would be therefore useful to pause and compare the assignment briefs from different modules referred to in the interviews, to better contextualise the participants' different attitudes to screencasts from different modules.

First-year assignment briefs define the screencast as a learning resource, explaining one theoretical concept or principle relevant to the module. As such, the screencast needs to be accurate, informative, well-structured, engaging, and supported by research and appropriate referencing. Similar requirements are reiterated in the marking rubric, under the headings 'communication clarity', 'explanation of concept' and 'illustrative material' (see Appendices 2.3 and 2.4). Further guidelines specify several permitted file formats and the length of 5-7 minutes, but the choice of software, style, tone and visual material is left to the students.

Second-year assignment briefs vary and contain additional elements. Modules 2A and 2E build on first-year assignment briefs, but 2E requires a more advanced theoretical discussion, and 2A incorporates the development of an original animatic to illustrate the theoretical concepts discussed. Second-year core module 2P, hosted by a different programme, has a slightly different audio-visual assignment, specified in the module descriptor as a 'vodcast'. Module 2E was hardly mentioned and will not be discussed here. The assignments from Modules 2A and 2P, on the other hand, were discussed at length by the participants from Animation degree course. Both attracted critical comments for their excessive workload, where a 'nested' screencast task comprised of several mandatory elements, as well as a long report. However, the participants were much more forgiving towards Screencast 2A, partly due to perceived relevance, and partly due to the difference in assessment design. I will provide more detail on their respective assignment briefs shortly, at appropriate points.

Generally speaking, there were only a few passing references to any assignment briefs in the interviews. Despite its importance in framing the parameters for assessed work, some alluded to reading the brief inattentively and misunderstanding some of the essential requirements. For example, despite an explicit requirement to reference the key module readings, Karl was surprised by my question about it: "I was under impression that the brief was solely for … I do not think we were supposed to reference anything but the games in it" (K:032). Peter and Fred too neglected key readings until the screencast was almost ready, and Larry spent too much time on the non-essential features of 2P vodcast because he "misunderstood the brief" (L2:061).

The initial briefing session was mostly associated with the sense of relief ("not an essay"), situational interest and anticipation of 'fun'. Openness in relation to the choice of style, technique or technologies was a benefit, allowing the students to prioritise their learning. Openness in relation to the topic interpretation and the choice of focus was initially daunting for some participants, but this was overcome by choosing an aspect of personal interest, or identifying suitable focus through further research (CJ:043-047, J:026-028, A1:014). The difficulties tended to come later and were usually associated with the production process or overall workload, rather than the assignment itself.

One exception was Module 2P, which was brought up by four participants, in an unanimously critical fashion. The strength of feeling was reflected in the descriptions such as 'nightmare', 'pointless', 'useless', 'waste of time' and 'hated it'. It was perceived as too prescriptive in the choice of form and technique (L2) and requiring too much content for its very short duration (C:069). These criticisms need to be approached with caution as I was unable to triangulate this information due to the absence of the assignment brief or any other documentation beyond the standard module descriptor (see App 2.2b)[18]. However, the participants' comments bring out important issues for assessment innovation, from the design of the assignment itself to the consistency of expectations and the module placement within the programme.

[18] 2P was originally excluded from the study because of the nature of the assignment (live-action 'talking head'-style podcast with no theoretical content), so initially the tutor was not approached for orientation or additional insights. The module was discontinued shortly after the interviews took place.

One of the criticisms of Vodcast 2P was its restrictive maximum length of 4 minutes, compared to the margin of 5-7 minutes stipulated in all other modules. For tutors experimenting with multimodal assignments it can be difficult to gauge the appropriate length and workload. Essays and presentations have established parameters formulated in the institutional Quality and LTA guidelines, and comparable with other HE providers. Similarly, media production on practical modules is guided by its own established guidelines and the tutors' industry expertise allowing for a realistic estimation of the time costs involved. But when media production is adopted on theoretical or contextual modules, this becomes more difficult due to the experimental nature of the assignment, with no established practices or guidelines, and lack of comparability with other providers. The process more complex because it involves a translation of linguistic and often abstract material from printed sources into moving image. The production values or aesthetic appeal are not assessed or supported on these modules, but some level of quality is still expected to make the screencast legible and engaging. As explained by Tom, "You don't want to submit something that looks crap. You can make points that you think are 100% right, but if the look is only halfway there, that's not something you give the lecturers" (T2:078). Production quality can therefore become a hidden and uncredited workload on theoretical and contextual modules if it is not factored into the assessment design. In the participants' experience this is precisely what happened on Modules 2A and 2P, impacting on their assessment of the subjective task value.

Screencast 2A required developing a 2-minute animatic for a future animated short about a student problem of choice, and then using this animatic within a longer 7-minute screencast, explaining and illustrating relevant theoretical concepts and how they have been applied in the production of the animatic[19]. Whilst this involved a heavy workload and a significant overlap with the second task, a long report, the participants were more forgiving towards 2A. The additional workload in developing

[19] See the DVD attached to the Appendices, or in the case of e-submission, the link to online storage. Only first-year screencasts have been included in the sample for analysis, but the two representative examples from 2A module are still useful to view, both to understand the nature of the task and the progression of the assignment from the first-year basics to more advanced work.

an animatic on a student issue of their choice was seen as both professionally relevant and personally fulfilling, and the maximum length of 7 minutes was sufficient to include both the animatic and the explanation of concepts and techniques used.

The assignment brief for Vodcast 2P was just as complex, but within much more restrictive parameters. In the first half, the students were required to film themselves talking about their career aspirations and incorporate some research into the chosen area. For the second half, they had to contact professionals in the relevant field, secure a live interview, video-record it, and then use extracts from the interview for the last two minutes of the vodcast. Compared to the animatic in Screencast 2A, the required content for Vodcast 2P was less well aligned with animation specialism, as well as presenting psychological challenges for less sociable or confident students (filming oneself, contacting busy professionals, facing rejections). Some struggled to secure interviews with professionals and resorted to interview their own tutors or even family members, diminishing the proposed benefit of the assignment, that is professional networking. The logistics of arranging, preparing and conducting the interview presented a hidden unassessed workload, considering that only a very small proportion of the interview ended up in the vodcast. The total maximum length of 4 minutes was too tight to include all the required content, as explained by Chris:

> "It was a 15-minute long interview and I had to condense that down, as well as my own parts speaking, down to 4 minutes, it was just ridiculous. I had to edit out gaps just to save like, half a second […] It made it ridiculously time consuming as well. And at the end of that, when I got my feedback, he was mentioning things that I had not included. Which I actually had researched and got mentioned in the interview. So that's annoying, because I got worse marks because I didn't include things, but I didn't include them because I didn't have enough time or space in the video to include them" (C:069).

It is also possible that the participants' strong reaction was partly due to the lack of consistency with the first-year screencast parameters. As a new assignment type, they were likely to rely on first-year experience in interpreting the subsequent briefs. Module 2A built on 1A requirements, offering a similar length margin and a flexible

approach to focus, style and technique. First-year core modules (1A, 1D, 1G and 1GDMA) also gave extra marks for 'creativity and flair' without making it an explicit requirement. By comparison, 2P was more rigid and credited only the required content, as illustrated in the following example.

Larry connected with two American animators, both of whom declined a video-interview but agreed to provide written answers to his questions. In the absence of live footage, Larry decided to create an animated interview, using the provided answers as dialogue. He lost marks because the interview wasn't live, although he felt "the things they said were just as valuable" (L2:181), and received no extra credit for animating the interview:

> "I spent hours and hours working on it, but it did not really matter whether it was animated or not, obviously it was the content. I was like 'I really need the mark', so I worked really hard, and I still got… an OK mark, but not for the amount of work I had put in *[laughs].* I obviously misunderstood what the objective of that screencast was" (L2:061).

Although Larry explains this as a misunderstanding, it is possible to interpret his approach as a creative attempt to increase the subjective task value, rather than simply firefighting. The module is contextual in nature and its learning outcomes do not involve specific practical skills. Larry's 'misreading' of the assignment brief may have been due to reading it through the lens of his first-year screencast experiences where students were able to use their own creative skills and draw on the representational approaches from their chosen fields of practice. We have already seen how some participants increased the relevance of screencast assignments by using them as an opportunity to learn practical skills or to add to their portfolio. In Larry's case, any value that Vodcast 2P may have offered, was achieved contrary to the assignment brief, rather than being enabled by it:

> "I suppose the only thing I got out of making that screencast, was that in the end I had some animation to put in my show reel, that was literally it, there was no other sort of benefit for it" (L2:181).

The final problem was the lack of 'joined-up thinking' between 2P and other modules. Because 2P was hosted by another subject group, where screencasts had not been widely adopted, there was an unassessed but mandatory 'practice screencast'. However, Animation students would have produced at least one screencast in their first year, and some produced two. They saw no value in the practice screencast, but only unnecessary time costs (L2:043). To make it worse, Module 2P ran simultaneously with 2A, both involving complex audio-visual assignments. Chris admitted not having read the 2A assignment brief, even though he was interviewed in late November, as he was struggling to meet his 2P deadline. Larry too found himself preoccupied with one module at the expense of the other: "If I had not spent the time animating the 2P screencast, I would have had more time to work on 2A" (ref). In the context of the institutional academic calendar and the timing of assessment boards, the standard semester-long modules create 'bottle-necks' in specific weeks, with increased demand for specialist labs or other equipment. Having to produce two 'theoretical-contextual' screencasts in one semester can cause considerable stress and diminish the subjective task value of the assignment (CJ:062-064).

Peer learning. One of the institutional factors is the extent to which it encourages peer learning opportunities. Peer learning is emphasised in the university's learning and teaching strategy and is also inherent in the established practices in art education, such as 'crits'.[20] On most of the modules in this study, communal viewing and critique were employed in two ways. Firstly, the initial briefing sessions often included viewing and critique of past examples, and secondly, 'crits' were used for providing formative feedback on work in progress. Crits are unusual for theory modules, relating to the previous points about the 'solitary' nature of the essay. As a relatively short, engaging and 'screenable' artefact, screencast lends itself more easily to communal viewing and critique, reintroducing the 'crit' tradition into a theory classroom and reducing the disconnect between theory and practice modules.

[20] Collective viewing and critique of artwork, which can be used in formative or summative assessment.

The participants saw the crit sessions as an opportunity for formal emulation, troubleshooting and general inspiration. Max watched his peers' screencasts with great attention and noted several creative solutions that he could emulate later, once his software skills improve (M1:125). Viewing her peers' presentations had an encouraging effect on Fiona, who preferred essays and felt out of her comfort zone with the screencast assignment: "When I watched people showing their screencast it made me want to do it" (RF:049). David appreciated the "draft presentations of rough work", both in terms of reassurance that he was on the right track, and "pulling ideas from what [the others] have done" (TDE:023). Like other kinds of public display, crits also provoked social emotions (see Chapter 10.1.4), both in terms of anxiety about losing face and an opportunity to display skills. Chris referred to this as "showing yourself off" (C:012), whilst Peter and Fred explained that "it can get a bit competitive" (PF:091). This provided an incentive to do better, "trying to get yours to a better standard, to see what mistakes they have made, how you can improve on it" (PF:090).

Even though the basic requirements were explicitly stated in the assignment brief and the marking scheme, it was often during a crit session that these criteria were 'discovered'. For example, Peter and Fred's viewing of peer work in progress made them realise that they had neglected research. Whilst they found other students' work too text-heavy, they thought they could

> "learn from what they did […] Working in actual references to the authors that we used […] We saw that we could have text slides like [student X] and actually give definitions on what we said in relation to the gameplay we were using" (PF:101-106)

Ryan's screencast on website usability was modelled on software testing practices and think-aloud protocols. Rather than writing a script, he immersed himself into using the website "like a newbie" and recording his immediate observations for audio-commentary. During the crit session he felt that his screencast was not as "academic" as his peers' and that he "needed to include more research" as well as changing the delivery from what he described as "too journalistic" to a "more academic" style (RF:057).

Whilst the participants' comments on the formative 'crits' were sparse and largely instrumental in nature, examples of past student work attracted detailed discussion and often a debate. This was possibly because past examples were completed and more polished than rough work in progress, and for most this was the first encounter with the screencast assignment. Once again, the comparisons were drawn with the essay. Although tutors often provide access to past essay examples, the reading tends to be solitary, lacking input from others(L1). Viewing past screencasts, on the other hand, made the dry briefing sessions more interesting, and encouraging lively discussions (L1).

The participants saw the communal critique of past examples as an important opportunity to clarify what is meant by 'screencast', to see the diversity of possible approaches and to reflect on the strengths and drawbacks of various styles. For Max, screencast was an unfamiliar concept and Larry had "no idea what a screencast was" until both saw past examples (M1:022 and L2:043). For Andrea, communal viewing and critique helped to clarify the requirements (A2:066), and Tom noted that "when we read the brief it was a little bit like – 'what is this?' - but when we were shown examples, people understood what was required of them" (T2:042). Peter and Fred used their critical reflections on past work to feed into planning of their own screencast:

> "Because we have seen [past examples], we know what not to do, what to aim for, that kind of thing… if the speech is too fast, or not very good quality, we have seen both positives and negatives and seen the effect of the speech, same with having text on the screen all the time, or a constant gameplay" (PF:043).

Viewing and critiquing past examples also helped the students to gauge their own preferred tone and style. Some spent considerable time discussing this in the interview, as the viewed selection ranged from very formal screencasts to an extremely fast and irreverent one referred to by Evan as "a Zero Punctuation rip-off"[21].

[21] Zero Punctuation is a series of online video game reviews by comedy writer and video game journalist Ben Croshaw, highly popular at the time within the gaming culture. Its signature style includes a rapid-

Whilst the participants found the latter very engaging, they felt that this style was not appropriate for a learning resource. Andrea found it funny but "way too informal" and distracting from the points, and therefore "not very useful". The more formal screencast, on the other hand, was "a good teaching resource", because the author spoke clearly, was easy to understand and provided many relevant examples (A1:002). Tom made a similar appraisal of the same examples, describing one as "a little bit over the top" which "just didn't work", and the other as "more informative", allowing him to learn about the topic "even though that was not what we were supposed to be watching it about" (T1:015-016). Later in the interview, he referred again to this example, when describing the intentions for his own screencast:

> "I am looking for a style similar to the one that [Tutor 1] showed. Formal, not very fast or slow. Kind of clean, documented sections […] not quite a cartoon - or less of that, much more documentary, professional" (T1:120).

Tony, David and Evan engaged in a detailed discussion of past examples, which is provided in full in Appendix 10.10. It is worth briefly summarising it here, as it opens some pertinent points. All three enjoyed the "Zero punctuation rip-off" but disagreed about the impact of humour on its educational value. Evan considered it "the least educational, because you are too wrapped up in all the jokes" (TDE:025), whilst Tony and David argued that humour made the information more memorable (TDE:028-29). Evan's other objection was that closely mimicking the style of a YouTube celebrity made it even more distracting for the viewer, and emulating his rapid-fire delivery made the information difficult to process (TDE:027-031). Their take on the other example was similar to Andrea's and Tom's, in acknowledging its clear and well-paced delivery and informative content, but more critical of its overuse of textual frames. For David and Tony, this meant not fully utilizing the capabilities of the medium, "it felt like she could have done it as a PowerPoint in front of the class and played the videos separately (TDE:035-036), whereas for Evan it was about the viewer's cognitive overload resulting from simultaneously listening and reading (TDE:040). Tony connected this discussion to his own screencast, by commenting "which is why we had

fire delivery, irreverent 'angry' humour and minimalistic visual design, typically cut-outs and crude drawings against a bright-yellow background.

hardly any text on ours" (TDE:039) and offered several suggestions on how the screencast could be improved.

The situations described here are the product of specific institutional practices and environment. From the "socio-materiality" perspective, learning is a product of the "interplay and mutual shaping of technological tools, human action, and social/cultural formations", where "artefacts are made, implemented, and remade according to people's purposes and actions, as well as the social structures and institutional sanctions that enable or constrain them" (Lievrouw 2014, p 47). These peer learning opportunities were not spontaneous, they had to be factored into the module design by the tutors. The tutors, in their turn, were enabled by the institutional approach to teaching and learning, and the specific academic and disciplinary cultures within the department. The infrastructure also enables this type of activity, with standard classrooms equipped with large screens and projection facilities linked to the lecturer's PC.

Materiality is also relevant because institutional practices (assessment design, briefing sessions and peer crits) have a material effect on the kind of screencasts that the students produce, as well as their engagement. Both the screencast analysis and the interview material contradict the assumption that 'digital natives' will unleash creativity and do things differently as soon as the multimodal assignments or digital technologies are introduced. It depends on how the activity is framed in the assessment documents and reinforced in formative feedback and peer interactions. In addition to the assignment briefs privileging and foregrounding certain requirements, there are also deep-seated cultural assumptions, for example the tension between 'enjoyable' and 'academic'. It helps to expose the students to a wider range of possibilities within assessment, for example if the 'Zero punctuation rip-off' wasn't shown in class as an acceptable example, we might not have had the 'cat comic' example (discussed in Chapter 7.4). Finally, the interaction between modules and their combined workload can cause stress, with material impact on student well-being and engagement, undermining their appetite for innovative assignments.

10.4. Assessing STV – Evoking Self-Regulation

The interviews initially focused on the participants' perceptions of the value of the screencast task, but during the analysis it became increasingly clear that the value was often in the eye of the beholder rather than in the objective features of the assignment. Participants' approaches to the assignment differed in the ways they perceived their own self-efficacy, prioritised specific elements, set goals, deployed available skills, strategies and resources or managed their own emotions. 'Exercising Self-regulation' has therefore emerged as an important property of 'Assessing Subjective Task Value'. The empirical material presented here is less detailed than in previous sections, because the participants were not asked about their behaviour or dispositions. As a result, such reflections strongly figured in some of the accounts, whilst remaining absent or weekly alluded to in others. The discussion is structured along the dimensions of self-efficacy, regulation and strategies, each represented as a continuum (Fig. 85 below).

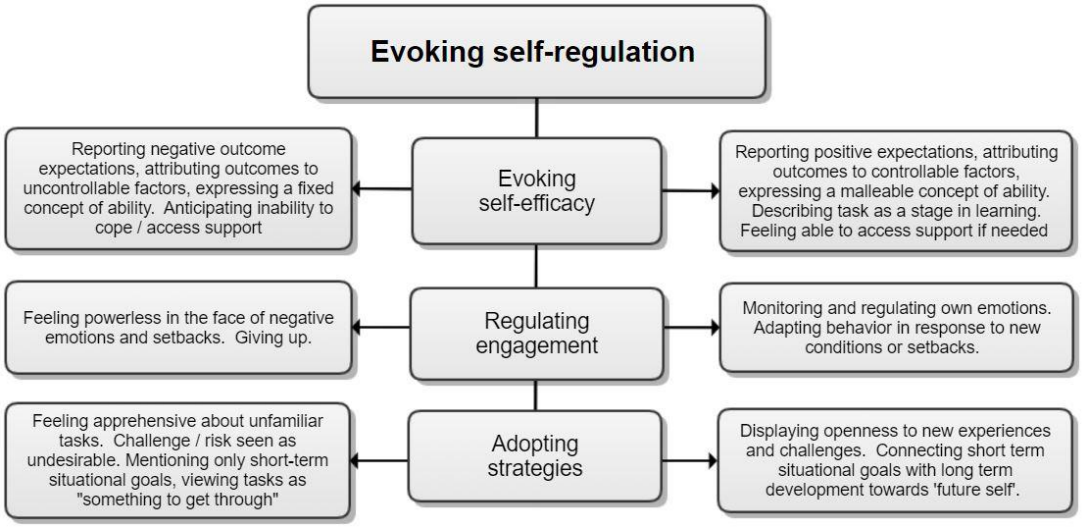


Fig. 85 - Properties and dimensions of Assessing Subjective Task Value: 'Evoking Self-Regulation'

10.4.1. Evoking self-efficacy: "I knew that I could do well regardless … if I had previous experience in editing or not" (A2:028)

As discussed in Chapter 8.3, self-efficacy beliefs involve the students' judgments about their own "capability to accomplish tasks and succeed" (Pajares 2008, p. 113). The expectations of the task outcomes are typically rooted in the past educational experiences, as well as self-concept and the various material constraints within the present situation. We have already seen some allusions to low self-efficacy earlier in this chapter, mainly in relation to writing or public speaking, but in the quote below Karl directly links it to the previous educational contexts:

> "Back when I was in school, I never really was good at essays […] still to this day I do not think I can structure essays as well as I would like […] Whenever I write, I tend to…. I always get told I have structured it wrong" (K:044-046)

At first sight, writing difficulties do not seem extraordinary, considering Karl's dyslexia. However, he does not describe writing as ultimately impossible, or himself as a poor writer, but rather reports on what he has been told in the past. His expectations of himself are higher than his current skills, but not unachievable. Elsewhere in the interview he mentions receiving a good grade for his 1G essay, wanting to write "a proper article" about his screencast topic, and generally wishing for more theory on his degree course. Similarly, Tom's dyslexia does not seem to result in low self-efficacy: he did not enjoy his past essay experiences, but this is referred to as a matter of fact[22]:

> "I have done enough [essays] to say that I don't like them. I am dyslexic. I have never got good marks for it, I never enjoyed writing […] It is something I will do if I have to, but it is not a pleasurable thing" (T1:068-070).

However, self-efficacy is not just about a specific ability. There are more than one ways to succeed, for example by accessing support. Educational providers offer various support systems, so self-efficacy also includes the level of confidence in

[22] Compare, for example with Ryan's disheartened quote from Chapter 10.1.2, where he refers to himself as "cack at written modules", and his essay experiences as "depressing", being unable to "get the words across", "losing track", "going all over the place", and getting a headache.

developing the necessary skills and accessing the resources. Andrea knew that she would succeed in the screencast task despite not having any previous experience in video-editing, nor specialist technical support, "because it is a theory module, [and] I had more than enough of theory help and advice from staff" (A2:036). Whilst Larry did not need any technical support, he was sure that "there would have been if I had asked" (L2:063). For Tom, it was about drawing on the technical skills from other modules:

> "By that point in the year, we had already done some stuff on other modules. So we should have got the software skills, the majority of us did, but there might be one or two who kept asking classmates" (T2:068).

Whilst low self-efficacy beliefs are often accompanied by a fixed view of ability, high self-efficacy goes hand in hand with malleable view of ability, attributing success or failure to controllable factors, including own strategies. Larry remembers being "really stressed" by one of his screencasts, but explains that this was due to "leaving it to the last minute" (L2:069). His interview contains several critical reflections, revealing a good degree of self-awareness:

> "When I do something, I can't do bits of things […] I want to finish it. Otherwise I worry that I will never finish it. Which is perhaps why I end up leaving things to last minute [laughs]" (L2:036)

> "I always seem to be distracted by the superficial values of things, so I would much rather make something look nice than actually be useful [laughs] … which I suppose is the wrong approach to take." (L2:061)

In their turn, self-awareness, critical reflection and realistic appraisal of own skills and strategies make it easier for the learner to regulate their academic emotions and behaviour, bringing me to the next dimension, 'regulating engagement'.

10.4.2. Regulating engagement: "You've got to learn how to deal with pressure" (C-CJ:073)

This dimensions refers to the ways in which some participants monitored and regulated their task-related emotions and attitudes. As discussed in Chapter 10.1, emotions powerfully affect the learning experiences, impacting on the subjective task value. Andrea made a direct connection between her deliberate strategy of keeping positive to "enjoy everything", and the way her university experience has turned out. In its turn, the quality of her overall university experience helped her work productively through the aspects of study which were "not her thing", including the screencast:

> "Feelings about my first screencast… Well I enjoyed the process, because in the first year I enjoyed pretty much everything […] Since the very beginning I tried to programme myself to enjoy everything, and that approach helped […] I was excited about everything I was doing […] And because my whole experience turned out well, I think it helped me enjoy many things that I would not normally enjoy" (A2:016-018, 036).

The importance of maintaining enjoyment throughout the process was also highlighted by Tony, when he shared his techniques of coping with the stressful audio-recording:

> "You have to put yourself into a relaxed, chilled out state, but then speak informative and professional at the same time. The second it started going bad, I just left it and gave myself half an hour break, because otherwise it would be a downward spiral and you've just got to kind of enjoy it … and then I found it was better" (T-TDE:067).

Other interviews show the different ways in which the participants managed the stress of live presenting. Fiona and Cassie found live presentations intimidating, whether due to public speaking or receiving critique, and saw avoidance as the best strategy to deal with this. Jerry "didn't mind doing presentations" although he acknowledged that "people can get very shy doing them". He summed up his coping technique for

client presentations as “you might not ever see these people again, so you might just go for it, and if it goes wrong it goes wrong” (J:052). As we shall see in the next sub-section, this attitude is part and parcel of his overall learning strategy of ‘approach’, or facing rather than avoiding challenges. Larry coped with the negative emotions from the client’s critique on his screencast, by drawing inspiration from the professional practices in his chosen field:

> “You spend a lot of time doing something, like storyboards, to the best of your ability. And then [Client] would come in and go, “oh, I don’t like that” [laughs]. And we would go “Why? We’ve spent ages on it!”. And she would be like “no, start again” [laughs]. It was a bit disheartening […] But then I read in a book that storyboard artists always have to throw their work away, and it said to never get too precious with your work… and embrace change, and stuff like that, so yeah, I didn’t mind doing that, after that. I think that was … something we had to overcome. And in the end [Client] became more open to our ideas and trusting us as well ” (L2: 126-130).

Larry’s account above is very similar to Andrea’s view:

> “I read somewhere that to become a good artist you need to draw a hundred thousand pictures, drawings. It’s a lot. And I believe everything is like that. The more you do something, the more experience you get in doing that, and the better you become” (A2:068).

This shows how the ability to manage their own emotions was often connected to the participants’ goals of mastery achievement (Elliott and Fryer 2008, also see Chapter 8.3). Overcoming the initial negative emotions resulted in the improved skills, and the understanding that mastery comes with practice helped to cope with setbacks. As discussed in Chapter 1, these participants did not report strong outcome emotions, but understood the task as a developmental stage in their ongoing learning. Andrea was “neither proud nor disappointed” by her screencasts, she perceived them “as a stage that I needed to go through to become better” (A2:068). She was not fully satisfied with the quality, but explained that “there were many reasons why it had to

be done in that way" (A2:064). Max's lack of software skills impacted on the quality of his screencast, but rather than seeing it as a personal deficiency, he expresses confidence in learning those skills in due course. There are frequent references to time in these accounts, for example the skills not being as good 'back then' (as opposed to the accounts of simply 'not being good at it', reflecting a fixed view of ability). For example, Andrea is not fully satisfied with her first screencast because her technical skills were not as good "at that point in time" (A2:016). Jerry's surprise at achieving a good grade for his first-year essay is explained as "my writing was not as good back then" (ref), and Tony notes his skill improvement between his first and second screencasts (TDE:018). Looking back at his first-year screencast two years later, Tom reflects:

> "If I had the time, I would probably do it again […] Because now I know how to structure things better and how to pace myself better as well. I think it is a good reflection of the first year me, rather than me today" (T2:094)

Going back to one of the previous examples (see the full quote in Chapter 10.1.4), Jerry expresses pride and satisfaction with the result, despite being "not very good with mixing audio" and "not the greatest of drawers". He acknowledges that his strengths lie in a different area, and that others "could have done it in 5 seconds" (J:098). But rather than comparing himself to professional DJs or hand-drawing artists, he is able to celebrate his own incremental improvement, based on high self-efficacy and malleable concept of ability, whereby personal 'mastery goals' can be achieved by investing time and effort (Pintrich 2000, Dweck 2012).

10.4.3. Adopting strategies: "Easier is not always the best" (T2:112).

As discussed in Chapter 8, the differences in self-efficacy beliefs and in the approaches to ability and learning can result in different attitudes to risk and challenge, and the overall strategy of 'approach' or 'avoidance'. Those with malleable self-theories and developmental views of learning are more likely to "adopt learning goals, seeing the challenges as being opportunities for learning" (Yorke and Knight 2004, p 27). This is evidenced by the different ways in which the participants spoke about challenge. The strategy of avoidance is clearly illustrated in Ryan's account, based on his painful essay experiences in the past and his view of the difficulties as innate and out of his control. Disheartened by writing, he wouldn't "put 100% into it" (RF:079). This represents a potential vicious circle, where lack of practice prevents the development of relevant skills, and lack of skills leads to avoiding practice. Comparing essay to screencast, Ryan comments:

> "You just put it off and put it off, and when it gets to it you just can't focus on it, but with the screencast it was a lot easier to get started, and if it had been an essay I bet a lot of people would put it off a lot longer" (RF:077).

Fiona acknowledged that students have different skills, and argued that assignments should allow students to play to their strengths: "if you're playing to what you're strongest in, you've got more passion and you'll put your best into it" (RF:078). Tom, on the other hand, actively sought more challenges because "easier is not always the best" (T2:112). Andrea used the word 'challenging' rather than 'frustrating' to describe her difficulties with software (A2:090), and explained her attitude with references to both her personality and the HE purposes:

> "I just generally think that as a person I enjoy a challenge… and universities are institutions to get new knowledge, which suggests challenge. Because if you only do what you know how to do, you don't learn anything new." (A2:020)

When asked if he would change anything about the screencast assignment, Larry explained that the difficulties were "something that we just needed to overcome" and hoped that there will be new challenges in future:

> "Because then it's something else to learn, something else to overcome… something else to get used to… no, I wouldn't change anything. It just has to be how it is" (L2:220).

As discussed in Chapter 8.3, people can hold several goals at the same time, underpinned by multiple reasons, and sometimes pulling in different directions. In the context of assessment, a student can work for a grade as well as long-term development (Elliot 2007, also see 'performance vs mastery orientation' in Chapter 8.3). Whilst Andrea was open to all her experiences and appreciated her first-year screencast for developing useful foundation skills, it was less of a priority than essays or practical animation. Even less of a priority was Vodcast 2P, although she still worked hard for a grade:

> "With essays, I can see future aspirations, I mean Masters in theoretical subjects. With screencasts it's … even if I could go further, I wouldn't want to. Just because there are so many more interesting things to do […] [Vodcast 2P] was a task, and I wanted a good mark, so I needed to put effort into that. But couldn't see the benefits and outcomes of all that" (A2:068 – 070, 096)

Some motivation theories emphasise the contradiction between the goals of mastery and performance/validation. We have also seen some examples where a student prioritised mastery at the expense of performance, for example by putting effort into less essential aspects of personal relevance or interest. However, for Peter and Fred the goals of performance went hand in hand with mastery. For them, working for a grade meant continuous improvement:

> "We showed it to [Tutor 2] and he said it was good enough […] but we still felt there were bits we could improve on, just to get higher marks […] You obviously want to get the best grade you possibly can, so you always want to improve on what you have done […] You do not really want to settle for the bare minimum " (PF:182-184, 211-213).

So far, the discussion focused on learning and coping strategies, but some participants also reflected on their strategies of targeting audiences and anticipating further uses of their screencasts. This mostly related to either client-based screencasts, or those specified in the assignment brief as a learning resource. These screencasts targeted a dual audience: the hypothetical user of the learning resource and the tutor. Andrea aimed her screencast at her classmates, and it was important that it would be useful for them. She planned to bring in additional material, which was not part of the module syllabus, but she studied at the art school prior to the university. Whilst noting that they "obviously want to impress [Tutor2]" and "get the grade", Peter and Fred saw their hypothetical user as "the first years", "people in the same situation as us", or "us but a few months earlier" (PF:231-237). This impacted on their choice of content strategies, aimed to keep it interesting for the potential learner:

> "I think that doing it for a teacher, you might take a bit more of a serious note to it, because obviously that's what they are expecting, [whereas] if you were doing it for other people like ourselves, you don't want stuff to be like exactly serious, you still want a serious note, but you want it to be more engaging" (PF:249)

Tom identified his prospective audience as "the students", as well as interested "people on the Internet" who do not have any specialist knowledge but "would like to know about it". He argued that a learning resource should involve an authoritative delivery, expressed as the "need to sound like a teacher", with a "certain amount of expertise" showing the author's creative skills "as well as that you know what you are talking about" (T1:024-026). Whilst aiming it towards novice viewers, it was also important "to keep in mind all the facts that got to be behind it, because that is what the tutors are going to be marking" (T1: 042).

Whilst only a few participants reflected on their strategies and dispositions, this material is important because it shifts the attention from the features of the assignment to the students' own agency. By doing so, it provides the basis for the substantive theory presented in the next chapter, where all the findings discussed so far are reconceptualised as the process of enacting affordances. Before moving on to the final theory, let us pull together the diverse threads discussed in this chapter, and revisit the key analytical categories and their inter-relation.

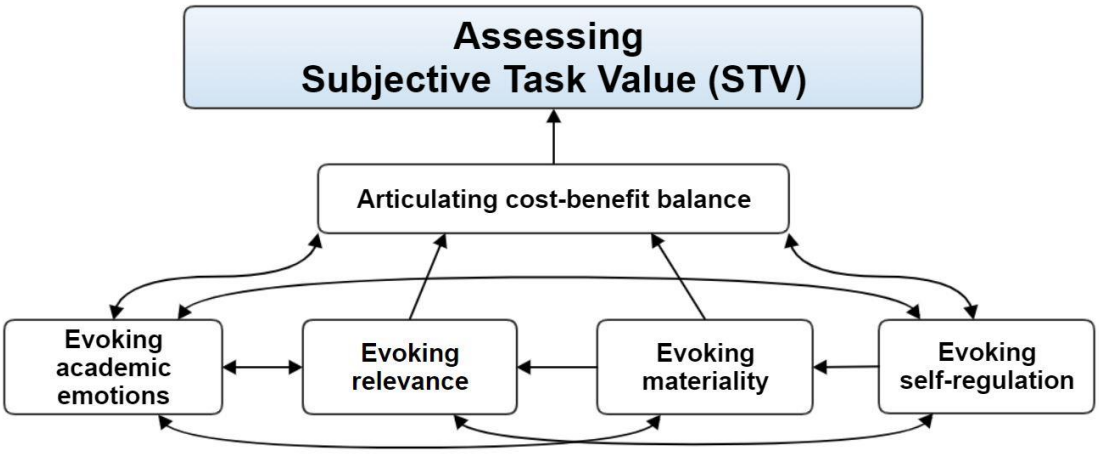


Fig. 86 - Inter-relations between the properties of the top category Assessing Subjective Task Value (STV)

Fig. 86 above shows the four sub-categories derived from the participants' interview accounts, which contributed to the development of the top category, Assessing Subjective Task Value (STV). For the purposes of clearer reporting, these categories were initially presented as more or less discrete. However, all of them impact on each other, and the assessment of subjective task value happens within their intersections. Emotions in particular are involved in all aspects of the assignment, sometimes resulting from other aspects, and at other times informing them. They can result from the perceptions of relevance, as well as impacting on these perceptions. Emotions are often the product of the task materiality, such as encounters with others, with technologies or means of creative expression, but they can also inform the choice of situations and material resources. The strength and duration of emotions, as well as their impact on learning, can be moderated with reflection and self-regulation,

however the development of self-regulatory habits also depends on past emotional experiences within educational or life settings. Similarly, perceptions of relevance can affect the choice of material resources and the quality of further engagement, whilst the material properties of the task can influence the perceptions of its relevance. Therefore, the subjective task value does not simply emerge from a rational judgment about one specific aspect, such as 'relevance' or 'enjoyment', but it emerges from a dynamic combination of the material properties of the task and the students' perceptions, emotions and strategies. Based on this, and in line with Gibson's original concept of 'affordance', we can say that the affordances of multimodal assessment do not reside in the task itself but depend on both the specific features of the task and the students' agency.

PART V: CONCLUDING THE THESIS

Chapter 11. Presenting the final theory

11.1. Theory overview

The theory combines all the research findings, categories and processes discussed in previous chapters, into one general process, 'Enacting Affordances'. The participants' assessment of the subjective task value is reinterpreted as perceiving and evaluating various affordances, or action possibilities open to them within the assignment "either for good or ill" (Gibson, 1986, p134). In their turn, the final screencasts represent the students' "frozen actions" (Norris 2004, also see chapter 5.4), or a material manifestation of the affordances enacted in the process of production. Understanding the affordances of the screencast assignment as a process of enactment, rather than a list of task properties is consistent with Gibson's relational notion of affordance as "equally a fact of the environment and a fact of behaviour" (Gibson 1979/1986, also see chapter 4). Unlike 'neutral' objects of natural environment, assignments prescribe specific actions, either through explicit instructions ('write', 'produce', 'submit'), or indirectly through quality criteria. Students' existing skills and habits result in different interpretation and enactment of these basic instructions. In addition to behavioural actions, enactment here also includes mental and social role enactment, for example visualising actions and situations, or 'sounding like a teacher'.

The centrality of agency does not imply complete freedom. Affordances are "not bestowed upon an object" by the observers' needs or mental states, and their existence does not depend on changing fashions or values (Gibson 1979, p 139, also chapter 4.1). However, needs and values are important because they control the actors' perception through selective attention. Although affordances do not cause behaviour, they constrain and control it through a set of "real, or objective, or physical properties of the affordance-bearer" which are relevant to the observer's specific activities and can be associated both with threats and advantages (Scarantino 2003, p 951). The properties signal themselves to the perceiver, but the threats and

advantages are interpreted through experience. The table below illustrates how concepts from affordance theory correspond to the research context and analysis of empirical material within the present study (Fig. 87).

Affordance theory concepts	*Study context*	*Interview analysis*	*Screencast analysis*
Environment	Assessment	Institutional aspects (Chapter 10.3)	Briefly throughout chapter 7
Object	Assignment, task	Main focus throughout Chapter 10	Briefly throughout chapter 7
Affordance bearers	Assignment brief, peers and tutors, past examples, study resources and infrastructure	Materiality (Chapter 10.3)	Assignment brief Capabilities of technology Semiotic resources (genres, conventions, formats, rhetorical devices, knowledges)
Animal (incl humans), observer, perceiver, actor	Students, participants	Relevance Emotion Self-efficacy Self-regulation (Chapters 10.1, 10.2 and 10.4)	Understanding Skills /competences Editorial decisions 'Voice' / mode of address Interest /creativity Community participation

Fig. 87 - Correspondence between the concepts from affordance theory and the empirical phenomena in the present study context

The first column contains core concepts from affordance theory, and the second column translates them into the empirical context. Here, the term 'environment' applies to the broader context of learning, teaching and assessment. This includes different pedagogic approaches adopted by module tutors, a specific course philosophy, the institutional LTA framework and the overall university infrastructure. The environment is not discussed at length within the thesis, except a few specific features and practices evoked in the interviews (Chapter 10.3.3 and 10.3.4). The 'object' is the assignment itself, in this case the screencast task. There are many objects and micro-environments within the overall learning environment offering specific affordances (for example, the library with its books, DVDs, computers, printers and copiers), however it is the assignment itself that remains the central object of

study. Other objects are only discussed insofar as they are evidenced in the analysed empirical material. 'Nested' within the more general affordances of the assignment brief and contributing to the subjective task value, these various objects and micro-environments represent the 'affordance bearers' of the assignment. The 'perceiver / actor' refers to the study participants and students in general. The last two columns cross-reference these with the relevant chapters of this thesis.

11.2. Affordance bearers

11.2.1 Assignment brief

The assignment brief is the most obvious affordance bearer, within which all other objects and affordances are "nested" (McGrenere and Ho 2000). It defines the parameters of the task, which constrain and control students' interpretation and action choices by allowing, prohibiting, enabling, promoting or downplaying various possibilities. Students' different histories, needs, goals and emotions act as a 'prism' for selective attention, focusing on different action possibilities and interpreting them as threats or advantages. But in order to be perceived, the affordance must be in some way signalled in the assignment brief.

The specific parameters and the degree of choice formulated within the brief can be described as 'scaffolding affordances' and 'freedom affordances' (for want of better words). By 'scaffolding affordances' I mean the requirements how to pass the assignment, and often mirrored within the marking criteria, for example the set length, 'clear structure', evidence of research, correct referencing. These requirements afford a safer interpretation and navigation of the task, but also limit creative choice. The 'freedom affordances' are their opposite, these are the features of the brief which clearly signal freedom of choice, in the case of 1A and 1G this includes the choice of tone and overall aesthetic, the choice of focus within a broad topic and the choice of technologies and other resources. These features afford more creativity and agency but remove the safety net offered by the 'scaffolding affordances'. Both types are evident in the assignment brief for 1A and 1G, which afford significant freedom in the choice of style, tone, format and technology use, but still insist on some of the staple

conventions of academic presentation style, also implied in specifying the aim of the screencast as a 'learning resource'. As demonstrated in chapter 7, this materialised in a wide diversity of creative approaches, but also in the standard formal features shared by most of the sample,

The importance of the assignment brief as an objective affordance-bearer is illustrated by Larry's experience of 2P assignment (discussed in ch 10.3). His misunderstanding of the task purpose can be understood as perceiving the affordances that were not there. His misinterpretation of the instruction 'create a video-podcast' as allowing the possibility of animated video was guided, firstly, by his specific career aspirations and the perceptions of professional relevance of possible actions[23]. Secondly, it was guided by his previous experience with first-year screencast assignments (1A and 1GDMA), which were more flexible and rewarded extra effort and creativity. This illustrates the applicability of Gibson's view that affordances do not depend solely on the actors' needs or tastes and are neither objective nor subjective but both. It did not matter that Larry perceived and enacted beneficial action possibilities, because the assignment brief did not 'bear' these possibilities in the first place. On the other hand, something still needed to be objectively present in the assignment brief (in this case reference to 'video') for the student to interpret.

For an affordance to materialise in action, it needs the actors to perceive it, to judge the action as beneficial, and to judge themselves as capable of performing it. Across the interview sample, there are numerous examples of students' selective attention to the assignment brief, guided by their needs, goals, tastes or relevance perceptions. We have seen how several participants failed to notice the 'research and referencing' requirements within the assignment brief, or even brought up academic conventions as incompatible with their outside social 'standing' (see vignette 8 in Appendix 9.4). Assigning positive or negative valence to the same affordance was also evident

[23] 2P was a professionally focused module, involving research into a 'career of your choice', so the decision to animate his vodcast seemed to be appropriate for someone aspiring to a career in animation. Also the module was hosted by film-making course, where the use of the term 'video' was probably more specific to live action recording

throughout, including video-editing technologies, 'visual research', group work, sharing online, working on a client brief, or any other action possibilities.

11.2.2 Tutors and peers

There are numerous social and disciplinary affordances provided by peers and tutors in a learning situation, but other research will be more useful on this topic, as my study does not focus on interpersonal relations. However even the limited empirical evidence within my study highlights that they can frame and guide the interpretation of the assignment brief, encourage or prevent engagement and can be a source of positive and negative emotions associated with the task. All this has an impact on the perception and enactment of task affordances.

On a few occasions when tutors are mentioned in the interviews, they appear as the 'target audience' for assignments or as facilitators for other affordance-bearers. In reality, tutors are not just the facilitators and interpreters, they write the assignment brief in the first place. Often it is through tutors' desire to experiment and improve practice, that new assignment formats come into being. The assignment brief can be seen as a reflection of the tutor's conceptions of teaching and learning, as well as their particular teaching experience, within the parameters of institutional frameworks. This impacts not only on the range of affordances, but also how they are signalled, clearly specifying some actions and assuming that other actions are 'common sense'. Whilst tutors did not directly figure in the interviews, their role was evident in their "frozen actions" (Norris 2004), for example when the participants talked about the "readings on Blackboard". Tutors write the assignment brief and select the examples of past student work, which indicates what is acceptable and how the assignment brief affordances may be interpreted and materialised. They provide resources, either directly through handouts, or indirectly by pointing them out in lectures and tutorials. Lectures adapt disciplinary knowledge to appropriate level of study, and convey this content in a particular style, which can potentially inform the screencast content, emulating or rejecting certain techniques. The feedback on work in progress 'gatekeeps' the production and impacts on emotions and engagement through the choice of feedback format (for example peer crit sessions and tutorials involve

different affordances). Through all these stages, tutors help the students to perceive and enact specific action possibilities and close down others.

On the most basic level, peer input often materialises as official or informal collaboration[24]. Group work affords spreading the workload, exchanging ideas and playing to strengths, which should increase the choice of possible actions and multiply the benefits. But it also affords coasting, avoiding accountability, carrying others, producing an inferior output and losing marks. The affordance of 'spreading the workload' is essentially the same as 'coasting', the difference is in the fairness of the spread, but can also be due to perception. Which affordances materialise, and whether they take a beneficial form, depends on the agency of all participating individuals, including social values, skills, work habits, situational needs, and the ability to regulate own emotions as well as group dynamics. Informal peer help includes the examples of helping others with software or sourcing visual material, borrowing a laptop from a friend, or using their accommodation to work on assignments (see ch 10.3.3 and 10.3.4). Here again peer input enables the perception and enactment of specific affordances or changes their valence, for example turning technology from a barrier to a useful tool, which in its turn enhances the final output and the grade.

Moving on to more complex processes, peer influence can be described in terms of collective intentionality or joint attention, which impacts on individual realisation of affordances. As outlined in Chapter 4.3, joint attention creates co-awareness of the world between multiple actors, whilst collective intentionality allows them to engage in co-operative action, based on shared beliefs. These processes were visible, firstly, within the group interview scripts, where the participants confirmed, debated or accommodated each other's perspective[25]. We have also seen how viewing the work of other students (either as past examples or draft work during crits) drew the

[24] Most of the assignment briefs, except 2P, left the choice of group or individual work up to the student. For 1A, 1G and 1D this is evidenced by the available assignment briefs, and in the case of 1G by two screencasts from the same cohort, one of which is individual and the other is group. For 1GDMA, 2A and 2E this is evidenced by the interview sample, where participants from the same cohort worked either individually or in pairs, and at times directly referred to open choice.

[25] Because of the thesis length restrictions, there was not enough room to discuss this in much detail within the analysis chapters, however, the interview vignettes and memo examples supplied in the Appendices 9.10 and 9.4 contain several descriptions of interview group dynamics (eg Peter and Fred, Cassie and Josh, Tony David and Evan).

participants' attention to previously unnoticed features of the assignment brief. This facilitated the participants' understanding of the requirements and allowed them to mentally enact their own possible solutions, as well as emulating or rejecting presentational conventions. This illustrates Schweikard and Schmid's (2013) point that shared intentionality, joint attention and commonly held values create "a background against which relevant new information […] becomes salient" (see literature review in Chapter 4.3), facilitating the selective pick-up of affordances.

11.2.3 Tools and technologies

Technology is a very complex affordance-bearer in multimodal digital assignments because virtually everything within the artefact is mediated through technology, including production, submission, playback for marking and further uses. It is commonly experienced and described as 'a blessing and a curse', affording greater engagement and relevance in some cases, and significant frustration in others. The affordances of human-made artefacts are linked both to the actor's capability within the immediate situation, and to the longer-term history and social conventions which are "tacitly brought to present experience" (Heft 2003, p 173, also see chapter 4 of this thesis). As part of this, "technology-in-practice" includes emotional and intellectual "meanings and attachments that users associate with particular technologies and their uses, shaped by their experiences with various technologies", as well as their knowledge and participation in various social, institutional, professional and other communities (Orlikowski 2000, p 410).

In a multimodal digital assignment, the students' engagement is partly informed by the "constituent materiality" of the available hardware and software, represented as a set of "functionalities inscribed by designers" (Orlikowski 2000 p 410). Along with the students' creative and technical skills, these functionalities constrain and control the range of available actions and can be a source of strong emotions. The affordances "furnished" by the technological tools are evident throughout the screencast sample, as summarised in the table in Fig. 88 below. The list is not exhaustive, nor applicable to every context, as it is rooted in the empirical material from very specific courses. Some of the functionalities used for creative embellishment or effect were left out,

only listing the uses relevant for assessment. However, it can be adapted in future, by examining larger samples and direct input from student-authors.

Technology	*Functionalities*	*Academic outcomes*
Image editing software	Colour palettes / Value manipulation Image creation (e.g. graphs or drawing)	Deeper image analysis Illustration of argument
Animation software	Frame-by-frame movement creation Image creation	Representation of processes Illustration of argument
Video editing software	Slow down, speed up, freeze frame Montage and continuity editing	Demonstration of processes Deeper analysis Visual argument
Personal computer and peripherals	Capturing material from diverse sources / reconfiguration / Combining different images withing a screen space	Richer representation of findings Clearer comparisons
	Storage of diverse material in a standard format Exporting to different devices	File transfer for collaboration and feedback

Fig. 88 - Technological tools as affordance-bearers for enhancing explanation and argument

As evidenced in the screencast sample, the functionalities of image-editing software allow creating drawings and other illustrations for the narrative. An easy extraction of colour palettes, as well as manipulating different values (size, saturation or brightness), affords a detailed image analysis and a clearer communication of results to the viewer. The functionalities of animation software enable the creation of movement on a frame-by-frame basis, where individual frames can be created within the software or imported from outside. This affords representation of processes and movements which are too abstract and complex, not available or inappropriate to show in live footage. Still or animated images can be exaggerated or distorted to enhance the argument, for example highlighting the consequences of wrong actions or faulty designs. The functionalities of video-editing software allow the students to slow down or freeze the visual play-through and match it to the speed of the voice-over, which affords a clearer demonstration of processes and their different elements. The functionalities of computer hardware, software and networking allow to capture diverse types of material from different sources, reconfigure its elements into a unified flow, and accommodate them within a single digital environment. Combining different images within the same screen-space affords easier and clearer comparisons, further strengthened by adding text and voice-over. This material can then be saved in a

standardized file format, and stored in various devices or cloud facilities, affording easy sharing for collaboration, feedback and assessment.

It can be difficult to separate technology and mode as affordance-bearers within audio-visual assignments, as the affordances of one can be nested within the other. The historical development of moving image technologies went hand in hand with the establishment of cinematographic conventions, some of which relied on the existing modes from previous arts, and others developed into new representational modes specific to moving image. We have seen how one of the screencasts simulated cinematographic 'zoom' by manipulating still images (see chapter 7.1) to guide the viewer's attention and enhance the argument. Zoom is a cinematographic convention in film and video, which developed on the basis of the previous photographic mode of 'proximity', but also required the existence of "corresponding technological means of articulation" (Bateman 2016, p 40). It also required filmmakers and audiences to use and interpret it as a part of developing 'language of film'. An effective imitation of zoom with still images, within the context of theory assignment, represents a combination of technological, cultural and mode affordances which are difficult to unravel. It also demonstrates that in this context specific technologies are less important than the student's understanding of visual rhetoric from different genre, and how the same effect can be achieved by different means.

To manipulate the functionalities effectively, the students must apply their skills and knowledge, either already existing or acquired in the process. On theoretical-contextual modules, where the intended learning outcomes do not involve technology-related skills, the students can also decide on the tools to use. In the case of first-year Media Arts modules, the assignment brief recommended the use of free novice-level video-editor pre-installed on any Windows computer, but otherwise left the choice to the students. Some used the task as an early opportunity to learn advanced software, which they would need in future. Others settled for the recommended software as 'good enough' for the module, anticipating that they would learn the more advanced packages in due course. Making such decisions involves a realistic appraisal of students' own abilities and life priorities, as well as weighing up positive and negative outcomes of each action. For example, learning the advanced software without any

support, afforded a higher-quality result, but also possible frustration and risk of failure. Settling for the recommended basic software afforded inferior 'finish' but freed up the time for research or other priorities. Further, some were not even aware of the choice, taking the recommendations as an essential requirement ("we had to use MovieMaker"), whether due to selective attention, memory error, or the habits inherited from more prescriptive educational settings. For some courses video-editing was less career-relevant than others, and for the more 'technophobic' participants coping with the basic recommended tools was already enough of a challenge. This illustrates how the technology-related task affordances can be highly visible and actionable for some students and non-existent for others or become a negative affordance if there is a perceived peer pressure to use more advanced tools.

11.2.4 Representational and knowledge sources

The primary knowledge sources mentioned in the interviews were the key readings provided by the tutor, variously referred to as handouts, basic readings, "folders on Blackboard for each topic" (TDE:015) or "some pdfs we had to use" (RF: 008). These were discussed primarily in terms of getting the grade, for example: "He [tutor2] gave all of us a basic set reading from this book. And he said if you use that in your screencast, you'll get a pass" (PF:198-200). The key readings, then, represent the 'scaffolding affordances' within the assignment brief, as outlined earlier, however they are also affordance-bearers in themselves, representing subject knowledge appropriately for the level and as fit for the assignment purpose. First-year readings are likely to be from dedicated textbooks which signal the most important points and concepts, and often provide definitions and take-away summaries. As such, they afford learning about the subject, focusing the broad open-ended topics and sourcing 'approved' material for inclusion into the screencast. Whilst screencasts more easily lend themselves to demonstrating procedural knowledge, points from the key readings allow the students to demonstrate conceptual knowledge, and this was picked up in the interviews by several participants, as discussed in Chapter 10.2. This is particularly important for those using a tongue-in-cheek 'non-academic' tone, where citing set readings signals that the content is legitimate, represents 'knowledge' rather than 'entertainment', and is therefore the required 'learning resource'. As a flip side, the

requirement to cite the key readings can affect the overall tone of the screencast, potentially encouraging a more formal 'voice', or a rudimentary inclusion of literature to maintain the chosen 'non-academic' register.

YouTube was mentioned in several interviews as a 'go to' resource for inspiration and planning, along with the screencast examples from past cohorts. The 'sanctioned' examples and the YouTube content afford both critical reflection and uncritical emulation, but in any case, they encourage visualising creative decisions and mentally enacting possible solutions of their own. As evidenced by detailed discussions of these examples in some of the interviews (see Appendix 10.10, also chapter 10.3.4), these examples position students as 'critical viewers', reflecting on what works and what does not. This informs their own content planning, by demonstrating the diversity of possible approaches, the capabilities of technological tools or the effectiveness of rhetorical and expressive techniques, which the participants might not have considered by themselves. Once again, these affordances are "nested" within the affordances of the assignment brief. For example, the widening or closing down of creative choices depends on the diversity of the 'sanctioned' material and the flexibility of the past and present assignment briefs.

The screencast assignment affords a more diverse range of approaches than an essay, if only because it is still experimental, and not as routinised and standardised. Although this needs to be tested in more research across different settings and pedagogic approaches, it certainly applied to the modules in this study. The diversity is moderated by the specified format requirements, such as 'clear structure' or academic referencing, as well as by the students' assumptions of what constitutes 'academic' or 'informative' (as evidenced in the interview references to 'being too journalistic' or 'needing to sound like a teacher'). Unsurprisingly, most followed the conventions of 'instructional genres', which afforded the incorporation of 'claim-evidence' through references and practical demonstration. However, within the familiar structure based on Powerpoint presentation, and the overall rhetoric of 'instructional video', they incorporated a diverse range of expressive and aesthetic resources, including genre conventions from contemporary popular culture.

Because of its visuality, the assignment allows drawing on modes and genre from other, non-academic domains. We have seen how the students utilised design conventions to place text and images within a balanced composition of the frame, drew on the language of comic art, animation and Internet meme to increase situational interest, or used photographic and cinematographic modes such as proximity to guide the audience. Whilst the established modes and conventions afford the encoding and decoding of specific meanings, these may no longer work within the context of academic assignment. The participants' debate about the pros and cons of irreverent humour and the specific visual style emulated from a notorious YouTube game reviewer, illustrates how elements from popular cultural domains can be experienced as both help and hindrance by different viewers (see Appendix 10.10). We have also seen how the use of comic style as a consistent approach resulted in an engaging screencast but limited the communication of subject knowledge (see Chapter 7.4). The incorporation of humour and popular-cultural conventions within an academic assignment affords a significant increase of situational interest but also distraction from the knowledge-content and the assessment purposes. Seamlessly combining the informative and entertaining aspects is not impossible, considering such examples as Extra Credits videos or RSA Animate animated lectures, but this may require the skills, resources and time-costs inappropriate for undergraduate assessment.

11.3. Affordance enactment

Student agency is evident throughout the empirical material. Perceptions of self-efficacy and aspects of self-regulation, along with their impact on the perception of affordances, have been brought up in the interviews (see Chapter 10.4). The whole of the screencast analysis chapter can be seen as a testament to student agency in enacting various technological, representational, disciplinary and cultural affordances. It was briefly referred to throughout this chapter alongside different affordance-bearers, to reiterate the relational nature of affordances. The table in Fig. 89 summarises various student actions arising from the analysed empirical material, either directly mentioned in the participants' accounts, or inferred from screencast analysis. Despite a very specific assignment and course context, most of these actions

are transferable to any other assignment, with just a few elements (such as 'technology') more relevant to some assessment contexts than others.

Assessing Subjective Task Value	Adopting Strategies	Engaging in production
Scanning the assignment brief	Setting goals	Researching subject content
Seeking clarification / guidance	Prioritising workload	Drafting a script / structure
Identifying relevance / interest	Critically reflecting on examples	Making editorial decisions
Evaluating self-efficacy	Discussing with peers	Drawing on genres / modes
Visualising possible scenarios	Exercising self-regulation	Engaging with technologies
Experiencing emotions	Identifying resources	Engaging with others (e.g.
Discussing with peers	Targeting audiences	collaboration, advice or
Weighing up costs and benefits	Adapting the task to own needs	feedback, in or out of class)

Fig. 89 - Student actions relevant to the perception and enactment of affordances

The three sets of actions roughly correspond to different phases within assignment preparation, although in reality they are not so neatly divided. The process is more cyclical and iterative, with a significant overlap, toing-and-froing and potential attitude changes in the course of engagement. However, most emotions and decisions about the subjective task value do happen during the initial encounter with the assignment brief, whereas engagement with actual production is likely to happen later in the process. I will return to the overlapping and iterative nature of the process later, but for now it will be more convenient to discuss these three areas separately.

11.4.1. Assessing Subjective Task Value.

Agency comes into play as soon as the assignment is introduced. The students actively scan the assignment brief for cues about the required or available actions, and associated benefits, costs and threats. Multimodal assignments on theory modules are very new, and unlikely to carry much 'baggage' (although this may change if they become more widely adopted). But we have seen how for some participants the past history of written coursework and low self-efficacy in writing was directly related to positive evaluation of the screencast task. The process of assessing subjective task value even at this early stage may involve aspects of mental enactment, as students imagine themselves in possible situations, relive past experiences and outcomes, or visualise creative possibilities. It is during this initial encounter that certain

affordances become more visible than others, due to selective attention moderated by needs, interests, relevance perceptions, self-efficacy and personal history.

11.4.2. Adopting strategies.

This is a less clear-cut stage, because there are various strategies relating to different aspects of the assignment. Firstly, there are motivational strategies of 'avoidance and approach' (see Chapters 8.3 and 10.4), governing the choice of decisions and actions within it – for example playing to strengths, avoiding challenge, setting personal mastery goals or simply getting through it as quickly as possible. Avoidance and approach strategies represent a response to the perceived threats and benefits within the assignment brief, the interpretation of which is rooted in past educational experiences and self-efficacy perceptions. In other words, the choice of these motivational strategies is the outcome of perceiving specific affordances and often enacting them mentally and behaviourally in the course of engagement. In its turn, this enactment impacts on further discovery of affordances. The avoidance strategy severely limits new affordances since it involves disengagement, whereas the approach strategy can lead to the discovery of further beneficial affordances, as it involves personal goal setting, adapting the task to own needs and interests, seeking new challenges, managing own emotions and most likely achieving better outcomes.

Other strategies may be nested within the general avoidance/approach strategy, or be simply a personal preference, or a response to circumstances at hand. Making decisions to work individually or with peers, prioritising this assignment or leaving it to the last minute because of other work; all these decisions and actions are related to task affordances, both in terms of the possibility of such choices, and in terms of additional affordances as a result of the strategy decisions. For example, multimodal assignments lend themselves more easily than essays to peer collaboration, which then opens additional affordances, both positive and negative. Essays, on the other hand, is easier to leave to the last minute as it does not involve as many mediating factors (see Chapter 10.3 which discussed materiality).

Whilst the strategies so far can be applied to any task, multimodal assignments involve deciding on the production strategy. Essays and presentations also involve planning the content, identifying resources and similar stages, but it is still possible to produce one without careful planning (even if not necessarily a good one). With a screencast, there are more processes to manage, more diverse resources to bring together, more possibility for errors that are harder to correct late in the day. There are additional layers, which can be roughly summarised as "the look and feel", such as visual style, consistent aesthetic and a basic technical quality of production. Because of all this, a screencast cannot be created 'on the hoof', but we have also seen that for Media Arts students the quality of the artefact is experienced as a much more personal matter than the quality of written work. This means that at least a basic production strategy needs to be worked out, in relation to content, overall "look and feel" and available resources.

From the interviews we have seen that some participants started from writing the script, and then looked for visual examples relevant to the script. Others started from images (or websites, game sequences or similar objects of analysis), jotted down their impressions, and then looked for readings which covered the chosen aspects. Both approaches had their own consequences for the produced artefact (with the participants describing them as too 'text-heavy' and 'not academic enough' respectively). However, production strategy may also involve imagining future uses and targeting specific audiences. For example, the assignment may be seen only as a means to getting a grade, where the only potential audience is the tutor, which may result in following more closely the recommended resources and presentation styles perceived as 'more academic' or 'text-heavy'. Or like for David, it can be seen a step towards developing own YouTube channel, in which case different technologies or genres may be seen as more beneficial. Or, like for Jerry and Larry, it can be also an opportunity to add to portfolio, in which case it might make more sense to spend extra time and effort on learning the advanced software, or animating parts of the screencast, or investing into other extra elements which are not required by the assignment brief but may add value to the future portfolio.

Other examples from the analysed screencast sample include reusing work from a practical animation module (Chapters 7.2 and 7.3) or deciding to deviate from the instructional genre conventions and use a completely different overall style and rhetoric, with potentially risky outcomes (Chapter 7.4). Once again, the choice of production strategies once is directly relevant to the perception and enactment of affordances. It is guided by the affordances already perceived, but at the same time impacts on the perception and realisation of further affordances. For example, the decision to use the task as a portfolio opportunity may result in discovering personal strengths or weaknesses, identifying further self-promotion opportunities, getting a head start in future modules (or conversely, investing too much time to the detriment of other modules). It also impacts on the choice of resources, which in their turn carry their own affordances.

11.4.3. Engaging in production

During the final stage, most of the strategies discussed above are enacted in practice. The student actions at this stage involve preparing the script for the voice-over narrative (whether fully written up or a set of bullet-points), making the final selection of images, recording the voice-over, and editing everything together. For some, this is a time of significant stress and anxiety, due to encountering technical problems, disagreements with peers or the pressure from the looming deadlines across several modules. Others describe it as the most creative and exciting period, when the 'magic' finally comes together. The editing of the final version was described in the interviews as the most frustrating part, but also as the stage "which is the most fun part" (L2:028). During this period, the adopted strategies, risks and experimentation pay off or prove unsuccessful and the perceived affordances materialise to a greater or lesser extent or fail to materialise. As a result, the initial attitudes and perceptions of the task may change dramatically, feeding into subsequent encounters with similar assignments.

The diagram in Fig. 90 is based on the previously discussed aspects of student agency but emphasises the cyclical and iterative nature of affordance perception and enactment. This is captured, firstly, by the arrows at the centre, indicating that the

three sub-processes are not separate, but overlapping and mutually influencing. The initial assessment of the subjective task value represents the perception and mental enaction of specific positive and negative affordances within the assignment brief. This leads to the adoption of strategies which the student considers appropriate for managing the perceived threats and opportunities. The choice of strategies further limits or expands the perception of affordances, which impacts back on the subjective task value, reinforcing the previous attitudes or undergoing change. The adopted strategies govern the choice and deployment of technological, representational and knowledge resources, with the further impact both on the quality of the experience and the quality of the final artefact. The experience of practical production, the quality of the final artefact, the feedback from tutor, peers or other audiences, and the emotions experienced as a result, lead to the reassessment of the subjective task value, and feed into subsequent engagement with similar tasks.

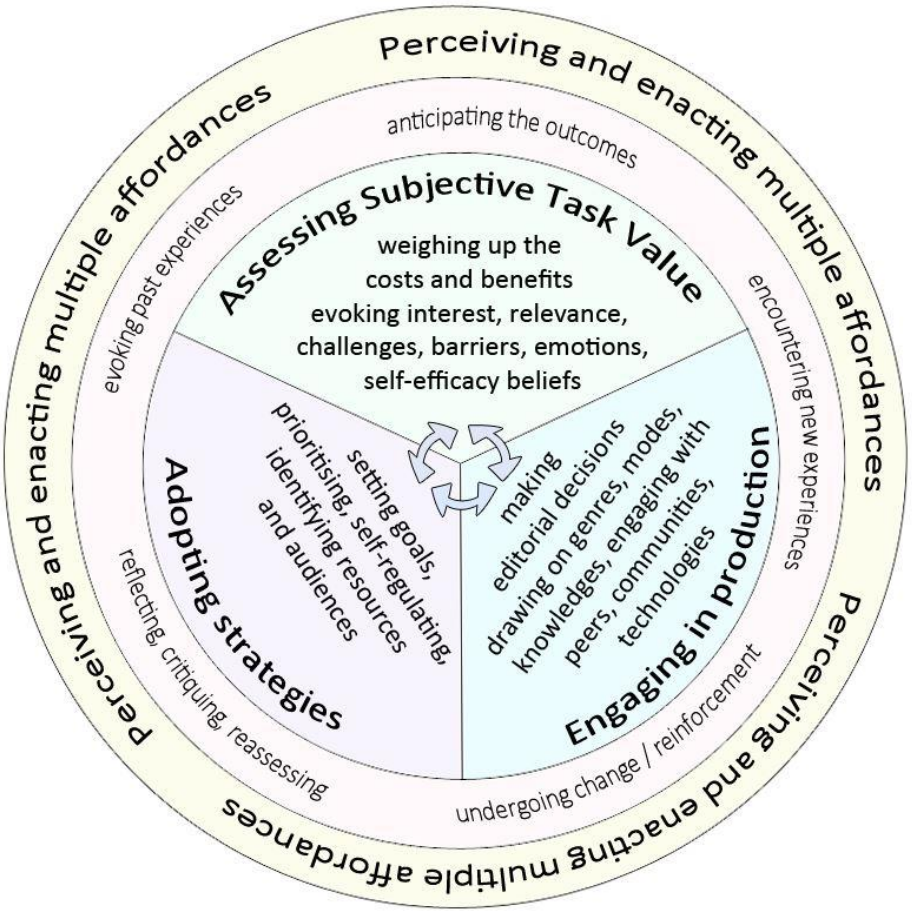


Fig. 90 - Engagement with the assignment as the process of affordance enactment

In addition to the overlapping and iterative stages of assignment engagement, there are more general processes represented by the ring around the three areas. During various stages, from the first introduction of the assignment brief to the final submission and receiving the results, the students evoke past educational experiences and encounter new experiences, anticipate and reflect on various outcomes, critically appraise their own work and the work of others, troubleshoot and cope with difficulties, experience and manage emotions, and undergoing change as well as reinforcing some of the previous attitudes. These processes, as well as the more specific task-related actions captured in the three parts of the circle, represent the students' agency in the realisation of assignment affordances.

11.4. Conclusion

This thesis has explored and analysed the incorporation of a digitally mediated audio-visual assignment ('screencast') into theoretical-contextual modules in a Creative Media Arts programme at a post-1992 University. The study had a dual focus on the student-produced artefacts themselves, and the students' perceptions and experiences of the assignment. To answer the first research question, a sample of seven screencasts has been analysed, bringing out the semiotic work undertaken in each case, the expressive resources used, and the types of knowledge conveyed. To answer the second research question, semi-structured interviews have been conducted with sixteen participants, sharing their experiences and evaluations of the assignment. The analysis of these two sets of empirical material forms the basis for developing a substantive grounded theory, reconceptualising student work on the screencast assignment as the process of enacting affordances.

The study demonstrates the applicability of Gibson's original definition of affordance, enriched by the insights from the emerging socio-materiality perspective. The multiplicity and variability of the attitudes, behaviours and outcomes reflected in the interview accounts, confirm that affordances "emerge in the mutuality between those using technologies, the material features of those technologies, and the situated nature of use" (Evans et al 2017, p 36). Further, the affordances of any assessment task have a complex and nested structure, incorporating smaller and more basic affordances furnished by multiple affordance-bearers. Each affordance-bearer can have a positive or negative valence in the eyes of individual students, or it might not be perceived at all. Therefore, the affordances of a particular assignment type cannot be taken for granted, they can be undermined or enhanced by any one element within its design, as well the students' agency and the overall learning context. This offers material for pedagogic reflection when considering the introduction of multimodal assessment into theoretical and contextual modules.

Introducing multimodal assessment into theoretical modules can lead to a range of dramatically different outcomes. Firstly, in the absence of established guidelines and well-tested practices, the novelty itself can be experienced by individual students as a creative opportunity or a significant threat. Secondly, knowledge articulation through very different means of expression may be difficult to reconcile with the intended learning outcomes, focusing on the skills such as argument development or conducting academic research. This is a challenge for students and tutors alike, with potential issues for quality and academic benchmarking. Thirdly, shifting from 'technology-light' to 'technology-heavy' work processes presents an opportunity for additional skill development or greater engagement for some students, but also disproportionately increase the overall workload, stress and resources required.

This does not mean that there are no benefits in introducing such assignments. The analysed empirical material provides many examples of potential benefits. Rather, the argument is that we cannot assume that such assignments will 'inherit' only beneficial affordances from its various affordance-bearers. There can be a significant difference between the pedagogic intentions of the tutors, and what the students perceive in the assignment and choose to enact. Tutors and students are different actors viewing the same object from the lens of different positions, experiences and priorities. Shifting the emphasis away from the assumed "affordances of" a media form or technology, to the "affordances for" student action, may help to address a mismatch between the intentions of the module and the specific actions implied in the assignment brief.

Careful attention to the design of the assignment brief is the matter of good practice on any module, but it becomes even more crucial in the case of radical innovations. Which affordance-bearers are involved, can they potentially unravel the task, for which students and in what circumstances? Which affordance-bearers work in synergy with each other, and which might cancel each other out? What learning situations are the most conducive for the desired affordance to materialise? Does the wording of the assignment brief open or close opportunities for the students to increase personal relevance? How does the assignment interact with other assignments within the

module, as well as other modules within the programme? What kinds of knowledge lend themselves best to this form of expression? Do the learning outcomes need revisiting to ensure that the increased workload does not go uncredited? These and other questions can be asked during assessment design to increase the possibility of productive and meaningful engagement.

Chapter 12: Final reflections on the study

12.1. Contribution to knowledge

This thesis responds to the shortage of literature on the use of digitally mediated multimodal assessment in Higher Education. The scoping review in Chapter 3 reveals conceptual, empirical and methodological gaps in the existing evidence. The published research on the subject tends to focus on secondary settings, whilst the studies conducted in university context tend to be dominated by the 'sharing good practice' genre. Whilst they provide interesting and useful insights, they tend to focus on examples of productive engagement, rather than examining a range of student voices and attitudes. There are hardly any in-depth analyses of the artefacts themselves, making it difficult to understand and evaluate the conclusions and the claims about increased knowledge and engagement. Based on these claims and conclusions, the innovations may be emulated by others with unrealistic expectations, impacting on the quality of student experience. Whilst the present study is exploratory in focus and does not provide clear-cut solutions, it is a step to address the gaps in knowledge. The insights from this study can be refined and taken further by other researchers and practitioners in the field.

- By conducting in-depth qualitative analysis of two sets of data (interviews and artefacts), the study provides rich empirical material for the development of substantive theory. The application of grounded theory methods, explicitly showing how the codes and categories have been developed during analysis, allows the readers to scrutinise and evaluate my reasoning and conclusions. Numerous illustrative examples, artefact images and interview extracts, both within the main body and in the extensive Appendices, offer an opportunity for the readers to go beyond my interpretation and develop their own insights, more applicable to their own context.

- The interview sample includes as wide range of attitudes as I could access, and the analysis ensures that the dissenting and ambivalent views are fully reported. This to some extent redresses the overall celebratory slant and highlight the diversity and complexity of students' circumstances, skills, motivations and decision-making in response to the assignment. The artefact analysis brings out issues for further pedagogic consideration, from the constraints of the medium on the kinds of knowledge produced, to the productive reuse of material from other modules or outside sources, to the tension between the intended learning outcomes and students' creative experimentation.

- The study does not stop at detailed empirical analysis but attempts to integrate concepts from motivation and affordance theories. In the process, it clarifies the notion of 'affordance' and shows the applicability of Gibson's original theory to assessment, especially when combined with the insights from the more recent socio-material perspective. In doing so, it moves away from the limited use of the concept as a stand-in for 'benefit' and highlights its complex and situated nature. Whilst the empirical findings are very context-based, the concepts used within the substantive theory are sufficiently abstract and general. As such, they allow transferability and adaptation in research and practice within other contexts.

12.2. Study limitations and further research

The main limitations of the study are due to being produced by a single researcher, with a limited or uneven access to participants, artefacts and documentation. Inability to involve multiple coders within this project potentially affects the validity of coding procedures and developed themes. To some extent these issues have been redressed through as much transparency as possible, however the analysis and conclusions are still limited to the nature of the sample and my own understanding. Further research is needed to build on the insights gained in this study, overcome its limitations and provide an updated picture.

- The interview sample is not very consistent, with different participants being interviewed at different stages in the process. For example, some were interviewed during the planning stages, some during the stress of production and impending deadlines, and others were interviewed months after completing the assignment and receiving the grade. The timing of the interview would have affected individual participants' responses. Further studies could achieve a more accurate and dynamic picture by interviewing each participant shortly after the assignment briefing, during the production, and ideally the following year. This would highlight the shifting emotions and priorities, and how they impact on the perceived value of the task.

- The participants are volunteers, and the sample may not represent the full range within their cohorts. Media students might find it difficult to admit struggling with technology or with creative aspects. Most volunteers (except one) tended to have strong views on the topic, but it is possible that the rest of the cohort was indifferent and saw it simply as yet another thing to get through and forget about. This must be taken in account when evaluating the results and final findings.

- The sample of analysed screencasts is also limited, although the problem here was not so much access as the time constraints. The sample is limited to first-year modules sharing a very similar assignment brief, whereas the interview discussion and the substantive theory highlight the crucial importance of the way in which assignment briefs are formulated. This means there is some disconnect between the two bodies of empirical material, and the screencast analysis does not support the overall argument as much as it could have done. Future research could involve comparative studies of different assignment briefs, with an artefact sample from each module or course context. Another possible avenue would be a more systematic n-depth exploration of use of different genres within multimodal assessment. The present study offers some insights, but they are quite impressionistic. New research could identify more clearly the affordances of different genres, the ways they complement or compete, and the impact on the knowledge produced.

- The work on the thesis was interrupted by several long study breaks, due to serious medical reasons. Therefore, some of the data may be out of date, due to new technologies and changed university policy and infrastructure. The incoming student cohorts may have very different priorities from the participants in this study.

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Zimmerman, B. J., & Schunk, D. H. (Eds.). (2008b). *Self-regulated learning and academic achievement: Theoretical perspectives*. Taylor and Francis. Kindle Edition.

Appendices

App 1.1: Typical course structures at the start of research

The modules included in this study, or referred to by the interview participants, are indicated as 1A, 1G, 1D, 1GDA, 2A and 2E.

Year of study	*Semester 1 modules*			*Semester 2 modules*		
1	Shared practice skills module	Specialist practice skills module	Specialist theory module *(1A, 1G or 1D)*	Shared theory module *(1GDA shared)*	Specialist production module	Group media production project
2	Specialist production module	Professional skills module *(2P)*	Elective choice for most course *(for one course core theory module 2A)*	Elective choice *(incl. shared module 2E)*	Specialist production module	Group media production project
3	Specialist production module	Professional skills module	Major practical project (60 cred over two semesters)			Elective *(on some courses includes a short dissertation)*

Due to course revalidations, the structure changed midway through the research, however, this did not impact on the participants, who pursued the previous structure. Modules 1A, 1G, 1D and 2A were still in place and using screencasts at the end of the study in 2017/18, although the module documentation and the assignment brief may have changed. Modules 2P and 2E have been replaced during revalidation.

App 1.2.a: Module learning outcomes and assessment (extracts from the validated descriptors)

<table>
<tr><th>Module</th><th>Learning outcomes</th><th>Assessment breakdown</th></tr>
<tr><td>1A</td><td>analyse animated films in terms of their visual design, narrative, cinematography and production context, supporting your discussion with relevant scene breakdowns and storyboards
locate key literature in the field, using this material to inform assessed work, and referencing it appropriately in line with academic conventions
communicate relevant knowledge in a variety of formats for different audiences</td><td>
<table>
<tr><th>Task No.*</th><th>Short Description of Task</th><th>SI Code EX/CW/PR</th><th>Task Weighting %</th><th>Word Count or Exam Duration**</th></tr>
<tr><td>1</td><td>AV presentation</td><td>CW</td><td>40%</td><td>5-7 min</td></tr>
<tr><td>2</td><td>Critical Analysis Report</td><td>CW</td><td>60%</td><td>3000 w</td></tr>
</table>
</td></tr>
<tr><td>1D</td><td>• describe, analyse and evaluate digital media artefacts, using vocabulary and concepts derived from a variety of relevant critical analytical approaches
• contextualise your analysis, commenting on the relationship between its form, content, relevant production practices and intended audiences
• locate key research and design literature, using this material to inform own work, and referencing it appropriately in line with academic conventions
• communicate ideas in a variety of formats, as appropriate for your target audience (general, specialist or academic)</td><td>
<table>
<tr><th>Task No.*</th><th>Short Description of Task</th><th>SI Code EX/CW/PR</th><th>Task Weighting %</th><th>Word Count or Exam Duration**</th></tr>
<tr><td>1</td><td>AV presentation</td><td>PR</td><td>40%</td><td>10 min</td></tr>
<tr><td>2</td><td>Report</td><td>CW</td><td>60%</td><td>3000w</td></tr>
</table>
</td></tr>
<tr><td>1G</td><td>• outline the key components of a contemporary digital game, including game mechanics, level layout, storytelling techniques and user interface
• discuss the relationship between game play, narrative, interface and use of space, appropriately drawing on players' experiences
• locate key research and design literature, using this material to inform own work, and referencing it appropriately in line with academic conventions
• communicate ideas in a variety of formats, as appropriate for your target audience (general, specialist or academic)</td><td>
<table>
<tr><th>Task No.*</th><th>Short Description of Task</th><th>SI Code EX/CW/PR</th><th>Task Weighting %</th><th>Word Count</th></tr>
<tr><td>1</td><td>AV Presentation</td><td>PR</td><td>40%</td><td>10 min</td></tr>
<tr><td>2</td><td>Critical Analysis Report</td><td>CW</td><td>60%</td><td>2000 w</td></tr>
</table>
</td></tr>
<tr><td>1GDA</td><td>Explain key developments, concepts and debates about your area of media practice
Prepare a web-based or AV resource based on an aspect of your research
Produce a research report following appropriate academic conventions</td><td>
<table>
<tr><th>Task No.</th><th>Task description</th><th>SI Code</th><th>Task Weighting</th><th>Word Count / Duration</th></tr>
<tr><td>1</td><td>Web-based resource</td><td>CW</td><td>60%</td><td>n/a</td></tr>
<tr><td>2</td><td>Essay</td><td>CW</td><td>40%</td><td>2000 words</td></tr>
</table>
</td></tr>
<tr><td>2A</td><td>• Critically analyse the relationship between narrative and image, applying key theoretical approaches to contrasting examples of visual storytelling
• Develop and pitch ideas for your own case-study of visual storytelling
• Prepare and deliver a set of written and visual resources illuminating a specific theoretical debate relevant to visual storytelling</td><td>
<table>
<tr><th>Task No.*</th><th>Short Description of Task</th><th>SI Code EX/CW/PR</th><th>Task Weighting %</th><th>Word Count or Exam Duration**</th></tr>
<tr><td>1</td><td>AV presentation</td><td>CW</td><td>50%</td><td>7 min + live pitch</td></tr>
<tr><td>2</td><td>Report</td><td>CW</td><td>50%</td><td>3000 w</td></tr>
</table>
</td></tr>
<tr><td>2E</td><td>Research and present a case study of cross-media production, including the product itself, audience expectations and associated practices of entertainment industries
Conduct a theoretically informed and empirically supported discussion of the relationship between media industries and fan cultures
Present your work in a variety of formats (orally, online and in writing), according to the specified guidelines and in line with appropriate academic conventions</td><td>
<table>
<tr><th>Task</th><th>TASK DESCRIPTION</th><th>Weighting</th><th>Word Count / Duration</th></tr>
<tr><td>1</td><td>Presentation (live or AV)</td><td>50%</td><td>15 min live presentation of your case study or a screencast (this needs to be agreed by week 4)</td></tr>
<tr><td>2</td><td>Research essay / report</td><td>50%</td><td>2500-3000 w paper targeting publication in the Fa Research Journal.</td></tr>
</table>
</td></tr>
</table>

App 1.2.b: Module information for Module 2P

MODULE LEARNING OUTCOMES

- Demonstrate understanding and knowledge of your chosen area of specialisation
- Demonstrate an understanding of relevant industrial and cultural practices in your chosen area
- Develop networks and contacts in a professional context
- Conduct professional research in the context of an identified goal and your personal career development strategy.

There are two assignments :-

1. A Vod cast that focuses on the results of your research into potential career paths.
The Vod Cast will comprise of visuals and sound preferably in embellished self interview format. It should be no longer then FOUR minutes long and be delivered in .MOV or .AVI format on returnable memory stick.

2. A written report that details what you have learnt about your proposed career path and how you learnt it. The report should take the form of a 2000-4000 written report. It should however be the type of report that one would expect to find with in the media industries. It should have lots of graphics and as far as possible be fun to read. The style can be slightly less formal, although it is still a written report and not a blog. Each section should be about 500-800 words.

ASSESSMENT TASK INFORMATION

Task No.*	Short Description of Task	SI Code EX/CW/PR	Task Weighting %	Word Count or Exam Duration**	In-module retrieval available
1	Vodcast	CW	50%	N/A	N
2	Report	CW	50%	1500	N

App 1.3: Example assignment brief

(adapted from 1A, 1D and 1G assignment briefs as used in the 2012/13 module documentation)

- The screencast will be 5-7 min long and will focus on one theoretical concept relevant to the module. You can work individually or in pairs. If you work in pairs, you will receive a group mark.

- The list of topics will be placed on Blackboard in week 3, along with the supporting readings. There will be interim class presentations, and peer critique sessions to provide feedback on work in progress.

- The screencast will be designed as a visual learning resource for others. It must be accurate, with a clear voice-over narrative and appropriate visual illustrations. You are free to choose a formal style or employ humour and metaphor, use your own artwork or found images, such as screenshots, diagrams, live action video or photographs.

- The task is to convey your knowledge and understanding of the material in an accessible and engaging manner, so that it can be understood by an interested lay person or a new student. The screencast must have a clear structure and show evidence of research.

- You are expected to use the key readings in addition to your own sources and include Harvard-style references.

- The proportion of existing film-clips must not exceed *1/4* of your total screencast length, and all the clips must be commented upon in the voice-over narrative. Do not use film clips as a filler, nor interview clips from bonus DVD to make your points for you. Use such materials to illustrate or support your own points. If in doubt- check your draft work with the tutor.

- You will submit your work to Sheaf Reception, on a CD or DVD. The submission will include a video file with the screencast and a Word document with the voice-over script. Permitted formats: .wmv, .avi, .mp4. Make sure the video is properly exported and can be opened and played on a standard University PC. You are advised to upload it on YouTube as a back-up and add the link to your script. You can keep the file location hidden from public view and remove it afterward.

App 1.4: Example rubric marking

(based on the common format, criteria and comments from 1A, 1D and 1G rubrics as used in the 2012/13 documentation)

Criteria	Below pass	40-49	50-59	60-69	70 and over
AV PRESENTATION / SCREENCAST					
Communication clarity, structure, focus and purpose	There is no obvious purpose or focus, the presentation is unstructured	The purpose is stated but the content of the screencast does not reflect it. Introduction or conclusion may be missing. The section headings may not relate to the section content.	The structure is logical, and there is a focus on the topic. Transition between points or integration of different types of material required more editing.	A focused and well-structured presentation with a good flow, the tone is appropriate for the chosen purpose and audience, but there are still some flaws which should have been ironed out prior to submission	A focused and structured presentation with a good flow and well-integrated material, the tone is appropriate for the chosen purpose and audience. There are no obvious flaws, the presentation shows creativity and flair
Explanation of the set term / concept	The main concept is difficult to identify. There may be serious errors. The presentation is not referenced	The main concept is identified but needed more research. Explanation contains errors or lacks relevance. There are some references, but the sources are poor. .	The main concept is identified and defined, with some explanatory points. The explanation is generally accurate but required more research. The definitions could be clearer, there may be major omissions or missing references	The main concept or issue is clearly explained with several references to appropriate sources. A solid, competent and accurate presentation that the 'lay viewer' can learn from. First-class work will show more depth and some critical awareness of complications, tensions or alternatives.	
Illustrative material	The visuals do not help explain the topic, due to lack of relevance. Images may be unedited, lack commentary, or used without adding value.	Some illustrations are provided, but there is insufficient relation to the narrative or purpose. Existing videos are relevant but overused with not enough commentary	Appropriate illustrations in principle, with some flaws in implementation (eg relevance to voice-over). Needs more commentary and analysis	A very good set of visual materials clearly illustrating the points made in the voice-over narrative. A good combination of existing examples and own artwork / designs. Upper-second class work may have minor imperfections, but otherwise a solid and competent presentation. First-class work will be more polished with no obvious flaws.	

App 1.5: Ethical approval letter

Sheffield Hallam University

Our Ref AM/SW/20-2012

21st September 2012

Dear Geir

Request for Ethical Approval of Research Project

Your research project entitled "**An exploration of the transformative potential of student-generated digital artefacts in HE**" has been submitted for ethical review to the Faculty's rapporteurs and I am pleased to confirm that they have approved your project.

I wish you every success with your research project.

Yours sincerely

Ann Macaskill

Professor A Macaskill
Chair
Faculty Research Ethics Committee

App 1.6: Project flow and time frame

November 2011 – Enrolment and meetings with prospective supervisors. Clarifying the research proposal.

Winter/Spring 2012 - Identifying possible modules Approaching tutors. Attending workshops on Open Educational Resources. Reading up on the changing HE context / digital natives / use of digital technology in teaching and learning.

Spring-Summer 2012 – participated in LTA projects, evaluating the introduction of client-based screencasts May 2012 - RF1 and Ethical Clearance Exploratory interview (JR)

October 2012 – Visit modules, send invites. November 2012 - RF2. Abandoned focus groups following rapporteurs' feedback about potential ethical problems

Reviewing LTA / exploratory interview scripts to develop the "feel" for issues. "Pen and paper" analysis of available screencast examples (not included in the sample). Reading up on Constructivist Grounded Theory

Summer 2012 – Conference Presentations (ISL, HERSG, SHU LTA)

November 2012 - First round of interviews (T1, A1, M1, C, PF). Dec-Feb – Transcription, initial coding and clustering Feb-May 2013 – Second round of interviews (L1, LS, RF, TDE) Transcription, coding and updating the diagrams

May 2013 Structural breakdown of the screencasts received to date (manual / pen-and-paper) Summer 2013 – Conference presentations (MES, ACES) September 2013 – Extra interviews (CJ, J1)

Ongoing transcription and iterative coding throughout 2013/14. Mapping out the issues encountered in the interviews. Narrowed the research focus to exclude OER since no longer able to interview potential users. Continued coding, diagramming, first drafts of analysis

Spring-Summer 2014. Follow-up and additional interviews (A2, T2, K). Conversations with tutors and grad ALs. Presenting at the Faculty LTA conferences. Mapping out the initial integrative diagrams outlining the process of the participants' engagement with the assignment

Autumn 2014 – Spring 2015. Reading examples of multimodal research for methodological guidance on existing analytical techniques. Experimented with MMAV software. Returned to manual coding, conducted page-based microanalytical transcription of selected screencasts. Slowed down by health issues – diagnosed with diabetic retinopathy in 2014 (in addition to earlier diagnosis – diabetes and hypertension).

Summer 2015. A systematic lit. search on multimodal assessment in post-secondary education. Mapped concerns, empirical evidence and theoretical approaches. Identified 'affordances' and 'motivation / engagement' as key claims.

2015/2016 Health issues continue to disrupt research, changed to PT study. Conducted theoretical reading, focusing on the three concepts from the 2015 review – multimodality, affordances, motivation. Using literature to increase theoretical sensitivity and identify new analytical categories for the final selective coding stage. Re-analysing empirical materials in the light of the literature. Drafting the chapters based on theoretical literature. First contours of grounded theory, more integrative diagrams

2017 – study suspended for 12 months for medical reasons, although continued with moderate reading and updating draft chapters. Completed the selective coding of screencasts in MMAV. Literature review presented at the ESRC conference 'Ways of Being in a Digital Age' (October 2017).
2018 – return to study, restructuring thesis, writing up. May 2018 - full draft submitted for the final feedback. Methodology presented at MECCSA PGN Conference (June 2018).

App 1.7: Alternative paradigms and their basic assumptions

(from Guba and Lincoln 2005, p 195)

Issue	*Positivism*	*Postpositivism*	*Critical Theory et al.*	*Constructivism*	*Participatory*[a]
Ontology	Naïve realism—"real" reality but apprehendible	Critical realism—"real" reality but only imperfectly and probabilistically apprehendible	Historical realism—virtual reality shaped by social, political, cultural, economic, ethnic, and gender values; crystallized over time	Relativism—local and specific co-constructed realities	Participative reality—subjective-objective reality, cocreated by mind and given cosmos
Epistemology	Dualist/objectivist; findings true	Modified dualist/objectivist; critical tradition/community; findings probably true	Transactional/subjectivist; value-mediated findings	Transactional/subjectivist; co-created findings	Critical subjectivity in participatory transaction with cosmos; extended epistemology of experiential, propositional, and practical knowing; cocreated findings
Methodology	Experimental/manipulative; verification of hypotheses; chiefly quantitative methods	Modified experimental/manipulative; critical multiplism; falsification of hypotheses; may include qualitative methods	Dialogic/dialectical	Hermeneutical/dialectical	Political participation in collaborative action inquiry; primacy of the practical; use of language grounded in shared experiential context

App 1.8: Critical issues for different paradigms

(from Guba and Lincoln 2005, pp 198-199)

Issue	*Positivism*	*Postpositivism*	*Critical Theory et al.*	*Constructivism*	*Participatory*
Axiology	Propositional knowing about the world is an end in itself, is intrinsically valuable.		Propositional, transactional knowing is instrumentally valuable as a means to social emancipation, which is an end in itself, is intrinsically valuable.		Practical knowing about how to flourish with a balance of autonomy, cooperation, and hierarchy in a culture is an end in itself, is intrinsically valuable.
Accommodation and commensurability	Commensurable for all positivist forms		Incommensurable with positivist forms; some commensurability with constructivist, criticalist, and participatory approaches, especially as they merge in liberationist approaches outside the West		
Action	Not the responsibility of the researcher; viewed as "advocacy" or subjectivity, and therefore a threat to validity and objectivity		Found especially in the form of empowerment; emancipation anticipated and hoped for; social transformation, particularly toward more equity and justice, is end goal	Intertwined with validity; inquiry often incomplete without action on the part of participants; constructivist formulation mandates training in political action if participants do not understand political systems	
Control	Resides solely in researcher		Often resides in "transformative intellectual"; in new constructions, control returns to community	Shared between inquirer and participants	Shared to varying degrees
Relationship to foundations of truth and knowledge	Foundational	Foundational	Foundational within social critique	Antifoundational	Nonfoundational

App 1.9: Critical issues for different paradigms – continued

(from Guba and Lincoln 2005, pp 198-199)

Issue	*Positivism*	*Postpositivism*	*Critical Theory et al.*	*Constructivism*	*Participatory*
Extended considerations of validity (goodness criteria)	Traditional positivist constructions of validity; rigor, internal validity, external validity, reliability, objectivity		Action stimulus (see above); social transformation, equity, social justice	Extended constructions of validity: (a) crystalline validity (Richardson); (b) authenticity criteria (Guba & Lincoln); (c) catalytic, rhizomatic, voluptuous validities (Lather); (d) relational and ethics-centered criteria (Lincoln); (e) community-centered determinations of validity	See "action" above
Voice, reflexivity, postmodern textual representations	Voice of the researcher, principally; reflexivity may be considered a problem in objectivity; textual representation unproblematic and somewhat formulaic		Voices mixed between researcher and participants	Voices mixed, with participants' voices sometimes dominant; reflexivity serious and problematic; textual representation an extended issue	Voices mixed; textual representation rarely discussed but problematic; reflexivity relies on critical subjectivity and self-awareness
			Textual representation practices may be problematic—i.e., "fiction formulas" or unexamined "regimes of truth"		

App 3.1: Review of published evidence (LR) - questions and search procedures

Literature review questions. The review of published evidence on the use of audio-visual assignments in post-secondary education, focused on the following literature review questions (LRQ):

LRQ1: What are the key drivers and expectations underpinning the introduction of student-produced artefacts into formal learning, teaching and assessment?
LRQ2: What theoretical basis is presented to support the assumed benefits of such assignments?
LRQ3: What is the nature of empirical evidence presented by the authors to support their claims about the benefits or drawbacks of such interventions?

Literature search procedures. To identify relevant articles, I searched the following online databases through the University Library Gateway: SCOPUS, ProQuest, Science Direct and JSTOR. SCOPUS and ProQuest were chosen because they provide comprehensive coverage across social science and education titles and include main academic publishers. Science Direct and JSTOR mostly returned duplicates of the articles already identified through SCOPUS and ProQuest. Several combinations of terms with Boolean operators were applied to all databases (see Appendix 4.2).

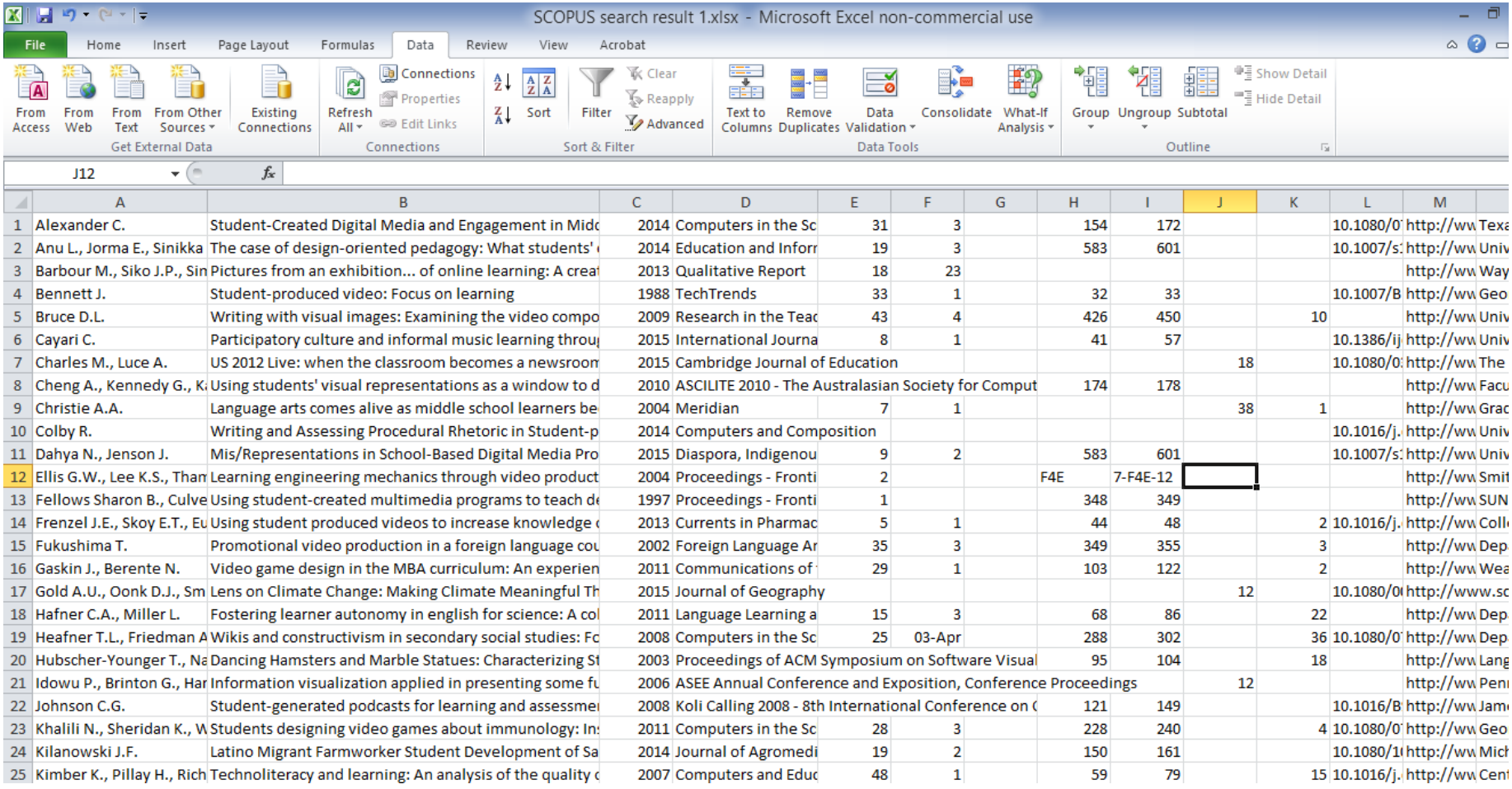
Search set 1 aimed to locate records with substantive *content* relating to the nature and purpose of the intervention. Other terms such as *"learner-generated content"* or *"artefacts"*, were tried and rejected due to excessive breadth or diverse interpretations. Applying Set 1 to the selected databases yielded a large number of results, but many referred to demographics and context of low relevance to my study, such as primary schools or kindergartens. Others focused on video-production on film-making modules rather than as an alternative to traditional written assignments. I therefore repeated the search with the second set with additional terms "*University*", "*Multimodal*" and "*Writing*" which were closer to my context and focus. Using both sets helped to offset the diverse uses of terminology by different authors and disciplines (for example 'digital video remix', 'digital storytelling', 'screencast production', 'multimodal artefacts' or 'multimedia writing'). One problem was "search noise", with too many results having only "tenuous link to the matter in hand" (Cullen et al 2002, p 23). The SCOPUS search of "Multimodal AND Assessment AND University" threw up 180 hits, which included randomised drug tests, greenhouse gas reduction, psychological pain events and only six articles dealing with assessment of university students' multimodal work. To identify further citations, I used the 'recommended articles' and cross-referencing facilities. The database searches returned 9220 total results, which were cleaned from duplicates, and progressively screened and reduced, using two lists of selection criteria (see Appendix 4.2).

LR search terms and screening

Search set	Term 1	Term 2	Term 3
1	Student-produced	Media	Assessment
	Student-created	Screencast	Learning
		Video	Education
2	Multimodal	Assessment	Student
		Learning	University
		Writing	Education

Initial search results	
Initial search ProQuest	3546
Initial search SCOPUS	3725
Initial search Science Direct	122
Initial search JSTOR	1804
Snowballing	23
Total number of articles	9220
Screening process	
After removing duplicates	3217
After removing articles with no full-text access	3021
After initial screening (title, abstracts, initial loose selection criteria)	194
After second screening (skim-reading full articles and tighter criteria)	112
After the final screening (using the final inclusion-exclusion criteria)	42

LR search records in Excel representing SCOPUS returns



	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Alexander C.	Student-Created Digital Media and Engagement in Midc	2014	Computers in the Sc	31	3		154	172			10.1080/0	http://ww Texa
2	Anu L., Jorma E., Sinikka	The case of design-oriented pedagogy: What students'	2014	Education and Inforr	19	3		583	601			10.1007/s:	http://ww Univ
3	Barbour M., Siko J.P., Sin	Pictures from an exhibition... of online learning: A creat	2013	Qualitative Report	18	23							http://ww Way
4	Bennett J.	Student-produced video: Focus on learning	1988	TechTrends	33	1		32	33			10.1007/B	http://ww Geo
5	Bruce D.L.	Writing with visual images: Examining the video compo	2009	Research in the Teac	43	4		426	450		10		http://ww Univ
6	Cayari C.	Participatory culture and informal music learning throu	2015	International Journa	8	1		41	57			10.1386/ij	http://ww Univ
7	Charles M., Luce A.	US 2012 Live: when the classroom becomes a newsroom	2015	Cambridge Journal of Education						18		10.1080/0	http://ww The
8	Cheng A., Kennedy G., K	Using students' visual representations as a window to d	2010	ASCILITE 2010 - The Australasian Society for Comput				174	178				http://ww Facu
9	Christie A.A.	Language arts comes alive as middle school learners be	2004	Meridian	7	1				38	1		http://ww Grac
10	Colby R.	Writing and Assessing Procedural Rhetoric in Student-p	2014	Computers and Composition								10.1016/j.	http://ww Univ
11	Dahya N., Jenson J.	Mis/Representations in School-Based Digital Media Pro	2015	Diaspora, Indigenou	9	2		583	601			10.1007/s:	http://ww Univ
12	Ellis G.W., Lee K.S., Tham	Learning engineering mechanics through video product	2004	Proceedings - Fronti	2			F4E	7-F4E-12				http://ww Smit
13	Fellows Sharon B., Culve	Using student-created multimedia programs to teach de	1997	Proceedings - Fronti	1			348	349				http://ww SUN
14	Frenzel J.E., Skoy E.T., Eu	Using student produced videos to increase knowledge	2013	Currents in Pharmac	5	1		44	48		2	10.1016/j.	http://ww Coll
15	Fukushima T.	Promotional video production in a foreign language cou	2002	Foreign Language Ar	35	3		349	355		3		http://ww Dep
16	Gaskin J., Berente N.	Video game design in the MBA curriculum: An experien	2011	Communications of	29	1		103	122		2		http://ww Wea
17	Gold A.U., Oonk D.J., Sm	Lens on Climate Change: Making Climate Meaningful Th	2015	Journal of Geography						12		10.1080/0	http://www.sc
18	Hafner C.A., Miller L.	Fostering learner autonomy in english for science: A col	2011	Language Learning a	15	3		68	86		22		http://ww Dep
19	Heafner T.L., Friedman A	Wikis and constructivism in secondary social studies: Fc	2008	Computers in the Sc	25	03-Apr		288	302		36	10.1080/0	http://ww Dep
20	Hubscher-Younger T., Na	Dancing Hamsters and Marble Statues: Characterizing St	2003	Proceedings of ACM Symposium on Software Visual				95	104		18		http://ww Lang
21	Idowu P., Brinton G., Har	Information visualization applied in presenting some fu	2006	ASEE Annual Conference and Exposition, Conference Proceedings						12			http://ww Pen
22	Johnson C.G.	Student-generated podcasts for learning and assessmer	2008	Koli Calling 2008 - 8th International Conference on (				121	149			10.1016/B	http://ww Jam
23	Khalili N., Sheridan K., W	Students designing video games about immunology: In:	2011	Computers in the Sc	28	3		228	240		4	10.1080/0	http://ww Geo
24	Kilanowski J.F.	Latino Migrant Farmworker Student Development of Sa	2014	Journal of Agromedi	19	2		150	161			10.1080/1	http://ww Mich
25	Kimber K., Pillay H., Rich	Technoliteracy and learning: An analysis of the quality c	2007	Computers and Educ	48	1		59	79		15	10.1016/j.	http://ww Cent

LR inclusion and exclusion criteria

The initial screening, using titles and abstracts only, reduced the results from 3021 to 194 articles. Each article was then skim-read in full, noting the context, methods and relevance to my study (Appendix 4.5), with a further reduction to 112 articles. The first screening did not always highlight the fact that the content was not appropriate for review, for example, "middle-school students" could mean the 7-11 age group, or 11-14, or 12-15. During this stage I finalised the inclusion and exclusion criteria listed in the table below. The final corpus of 42 articles are in Appendix 4.8.

Inclusion criteria
Peer reviewed journal articles
Written in English
Published after 2005
Focusing on student-produced visual / multimedia artefacts
Focusing on artefact production as part of formal learning / assessment process
Focusing on artefact production in the university / college / high school context
Exclusion criteria
Focus on written work, collections, art-portfolios, e-portfolios, web-sites, live performances (unless recorded, and the recording is the discussed artefact)
Focus on practice-based modules, where artefact production is the outcome and purpose in its own right (for example a film produced on a film production module)
Focus mainly on a shift from traditional to digital tools (for example embedding hyperlinks in written documents; or virtual models produced on architectural design courses)
Focus on essentially traditional assignment, but with some enhancement (for example adding visual illustrations to written reports)
Focus on child development / early years' education
Involving participants below the age of 14

LR second screening – fragment from spreadsheet

A	B	C	D	V	W	X	Y	Z	AA	AB	AC	AD	
Author	**Year**	**Title**	**Journal**	**Loc**	**Phenomenon / event / object of study**	**Age group**	**Subj**	**Key issue**	**Meth.**	**Methods**	**Findings / Conclusions**	**Relevance**	**Im**
Alexander C	2014	Student-Created Digital Media and Engagement in Middle School History	Computers in the Schools	US	Students creating digital storyboard using a dedicated web app and historical images	Middle School	History	Engagement	Qual	Case study. Observations. Artefact analysis. Interviews.	Endorses the task as potentially beneficial, but noted that the source of engagement could not be be simply atributed to only technology or activity, but also students needs, ability, motivation and logistics. Identifies several patterns of engagement (decorators, creators, avoiders, analysers) Suggests pedagogic strategies for each type	Despite 'wrong' age group - useful connections to my research. Overall positive, but highlights challenges. Discusses tech affordances as well as students engagment patterns. Provides assessment rubric for higher order thinking	Patterns of engagemer Is it possible to estab Multiple methods help Small groups - might t larger? Is it transferab if it was longer term / Possible ethical issue strategy once labeled
Anu L., Jorm	2014	The case of design-oriented pedagogy: What students' digital video stories say about emerging learning ecosystems	Education and Information Technologies	FIN	Students creating digital videos about winter fishing	Middle School	Science	Enquiery driven learning. Design oriented pedagogy. Afforded learning ecosystems	Qual	Narrative thematic analysis of videos. Content analysis.	Video based collaborative storytelling is productive when integrated with design oriented pedagogy. Digital videos are important part of learning portfolies, and tools to help students reflect on learning. Produces visable learning outcomes via sharable digital learning objects , which can help to develope localy grounded knowledge. DOP is a beneficial pedagogical framework for	Wrong' age group, but similar brief - create a learning object. Also, usefull theoretical concepts - "design oriented pedagogy", "emergin learning" and "learning ecosystems".	Many issues to critiqu group. Unlike Alexand imidiate helpful thing wishy-washy, many cl claimed that there is a this project" (with a di they appled a specific diagram was based or This is glossed over
Bennett J.	1988	Student-produced video: Focus on learning	TechTrends									Article not available	
Bruce D.L.	2009	Writing with visual images: Examining the video composition processes of high school students	Research in the Teaching of English	US	Student created video compositions in a secondary English language / Media studies	High School (14-18)	English Comms	Differences between written and video composition. Exploring the issues students use to compose	AR	Ethnography. Survey. Reflective journals. Think-aloud protocols. Interviews.	Video has great potential for English language classes, due to multimodal compositions. It extends compositional features of print. However, "standardized testing in academic settings makes it difficult to invest the classroom time that video projects and training require" and "educators must continue to navigate between the possibility of using new means of expression and the constraints of current policy and curricula." (p 447)	Very spesific to the context, may not be transferable. The task (music video) too different. Focus on compositional process, rather than content / learning / knowledge creation.	

LR data extraction and narrative synthesis

Once the final corpus was identified, I designed a data extraction form, with sections for the described intervention, study design, reporting issues and brief notes. The headings had to be constantly tweaked due to the diversity of the material. One of the initial headings was 'theoretical framework', but it did not apply to shorter evaluation case studies, which only offered a string of references early in the article. The use of terminology could indicate a particular theory, or merely a buzz-word. For example, "real-time multimodal digitally connected students of today" (Downing et al 2014, p 1) seemed to connect to theoretical debates about 'digital natives' and multimodality theory, but neither were mentioned again. Similarly, the initial category 'findings' did not always apply, especially in thinner pieces, using quotes without much analysis to "let participants speak for themselves", which made them difficult to synthesise (Thomas and Harden 2007, p7). Examples of documentation created at this stage are in Appendix 4.7, showing how the information was extracted from individual articles to be pooled into narrative synthesis later.

The final stage, analytical theme development, leading to narrative synthesis, is "potentially the most controversial, since it is dependent on the judgement and insights of the reviewers" (Thomas and Harden 2007 p10). Developing analytical themes from diverse sources may involve 'going beyond' the content of the articles, inferring the issues that the original authors may not have been primarily concerned with. For example, in their own review, Thomas and Harden (2007) inferred the 'barriers and facilitators' directly from the participants' quotes, rather than from the authors' interpretations. It is therefore important to emphasise that the synthesis was based on my own agenda and structured according to theoretical concepts relevant to my study, which may not coincide with the authors. Conversely, some issues of primary importance to authors were not covered in the same detail due to space and focus limitations. A fuller set of concerns is captured in a diagram in App 4.11, providing a collective picture of contexts, drivers and motivations behind the introduction of multimodal assignments in Higher Education context.

LR data extraction sheet example

General Information	
Article reference	*The reference has been removed to avoid singling out or misrepresenting a particular author / study. These were private notes for my own use, included here only as an example of one of the stages in the review process and documentation techniques. The comments are based on immediate impressions and the critique may not be entirely accurate.*
Context	A foundation module – Intro to Business' Systems. The intervention is part of a larger Course Transformation Project (CTP), that "turns large lecture courses into blended courses that combine large group lecture, media rich interactive online activities, and small group experiential learning" (p 3). Originally used lectures, exercises, quizzes and tests, but more recently, to increase engagement, added clickers, media rich interactive online content, web-based tools for peer support and, at the time of the study, student produced video tutorials. Clickers are used throughout the course to increase participation, and "aggregate results are posted anonymously, but clicker IDs are associated with student answers so students can receive participation credit." (p 3)
Researcher position	Assume tutors?
Intervention	Students produced video tutorials, part of CTP. Aim to add small group experiential group activity, which was previously lacking. "Much research has shown that teaching a topic is an excellent way to really learn that topic and that students taking leadership or consultancy roles in projects increase their interest and engagement" (p 4). Also "their content could be efficiently delivered to both peers and the instructor" (p 4) – peer help. Worked in groups of 5 to create videos explaining and demonstrating specific skills. All students could access the videos as part of revision. Students were free to use any software, but a free version of Jing was also available on lab computers.
Rationale	Raising cost of HE, need for cost efficiency. Changed learner styles and needs - end of lectures. Student engagement as key to HE survival.
Key references	"a recent survey of employers" (p1) Many sources of current educational and pedagogic research, with focus on peer assisted and technology enhanced learning. Sources on meaning making
Assumptions	"student engagement activities as a way to ensure deep learning" (p 1) Implicitly digital natives ("digitally connected students of today" (p1)) Teachers as facilitators of learning – "the manager of the process that brings the students to the point where they believe that they learned by themselves […] providing and ensuring valuable student-student and student-technology interactions" (p 2)
Discourse/quotes	"multimodal digitally connected students of today do less and less well in the "lecture only" format" (p 1). "Universities want graduates equipped with skills and knowledge necessary for the 21st century career" i.e. "ability to problem-solve in diverse settings and to apply knowledge to issues in their fields" (p 1)
Study Characteristics	
Aims	To compare to versions of the same course (fall and spring), one with and one without student-produced videos.
Participants	Business students 200 + students in semester group with response rates respectively, 75% and 83%. Mean age group 20.
Study design	Questionnaire using NSSE (National Survey of Student Engagement) questions – then "compare responses to these questions over two different Semesters "(p 4) – "Student response means were calculated for both semesters, and z-testing (two sample for difference of means) was used with the null hypothesis being that there was no difference in means" (p 5) One group had 10 questions, the other an additional 11 question asking about how often they felt the video assignment increase their engagement.

	"The questions were administered during a normal class period during each of the two semesters being studied"(p 5)
Outcomes	Questionnaire results suggest that student engagement is increasing. "For Fall 2013 the mean for this question was a very strong 2.13, suggesting that the addition of the student-produced video tutorials added to the feeling of engagement in the course." (p 7). "As these assignments are tweaked and expanded and as the balance and content of the online activities, large group lecture, and small group experiential activities are adjusted and perfected, it is expected that student engagement will continue to rise." (p 7)
Reporting / Information	
Study info	Questionnaire. Provided in results with table descriptive statistics
Course info	Appendix with full detail of assessment and LOs
Limitations reported	Different student populations in each semester – possibly the students in Fall 2013 were already more engaged (p 7) recommends that "larger and better experimental design is needed before conclusions can be generalizable. Additional and more sophisticated comparison of students and classes over time can address this limitation." (p 7)
Ethical issues considered	Declares no conflict of interest. Does not comment on the ethical dimension of extra credit given for completing the survey (the credit was for use of clickers but still….) – just mentions it on p5. "Participation counts as 15% of each student's OMIS 259 grade" (p3) "[…] Students were informed that all responses were anonymous, participation was voluntary, and all collected results would be reported in aggregate only." (p5)
Omissions	No discussion or even description of the final products. Unclear what students actually thought/felt about making/using them. No consideration of problems.
Notes	Strengths: Provides a lot of useful documentation, gives good idea of the intervention. The literature review acknowledges definition problems and multifaceted nature, linking engagement to meaning making, cognition, integrative dimension and developmental and contextual factors (many references). However, this is not carried over to the study design, see notes about questionnaire. Weaknesses - Since the limitation about two groups is impossible to get around anyway – why do it? Instead of comparing with/without perhaps could have had a more detailed questionnaire examining the experience and students views in detail. The question "how often did you feel more engaged due to video" is problematic, firstly it asks about the frequency of feeling rather than strength, secondly they may feel more engaged working in groups of 5 with a specific project etc. Not to say must go qualitative – it is perfectly possible to use survey/stats to get a fuller and more detailed picture – however as the authors say "The goal of this research was certainly not to create and validate a new instrument, so questions from the widely accepted National Survey of Student Engagement (NSSE) were used." (p 4) –widely accepted, but is it useful? Looks like this design might be due to the pressure to show tangible improvements, rather than better understanding of processes. Is this a more general problem for evidence based practice?
Overall	Article shows similar concerns to other literature -changing context, student engagement, new expectations. Shows that student-produced media are being introduced as part of meeting this challenge. However, does not provide much evidence to support claims about the impact introducing video, largely due to study design – I was left with too many questions unanswered.

App 3.2: LR final list of articles included in the review

NO	Author	Year	Title	Journal	Phenomenon / intervention	Context
01	Adsanatham et al	2013	Re-Inventing Digital Delivery for Multimodal Composing: A Theory and Heuristic for Composition Pedagogy	Computers and Composition	Students creating multimodal videos for Composition	US University Composition
02	Baepler and Reynolds	2014	The Digital Manifesto: Engaging Student Writers with Digital Video Assignments	Computers and Composition	Video assignment for intermediate-level writing	US University Writing class
03	Berry et al	2014	Sustaining Narratives of Hope: Literacy, Multimodality, and the Dr. Pedro Albizu Campos High School	English Education	Collaborative video by students, teachers and administrators about the community	US High School English
04	Bruce D.L.	2009	Writing with visual images: Examining the video composition processes of high school students	Research in the Teaching of English	Student created video compositions in a secondary English language / Media studies	US High School English&Com
05	Burnett et al	2014	A Programmatic Ecology of Assessment: Using a Common Rubric to Evaluate Multimodal Processes and Artifacts	Computers and Composition	Students creating games for English Composition, looking at issues of assessment	US University English
06	Colby and Povey	2014	Writing and Assessing Procedural Rhetoric in Student-produced Video Games	Computers and Composition	Producing a persuasive game as a last stage in assessment	US University Writing
07	Dale et al	2009	An evaluation of learner-generated content and podcasting	J. of Hospitality, Leisure, Sports and Tourism Education	Students created resources to be used by visitors at heritage sites	UK University Heritage Management
08	DeVoss et al	2005	Infrastructure and Composing: The When of New-Media Writing	College Composition and Communication	Multimedia writing and compositions	US University Writing
09	Downing et al	2014	Transforming a Course to Blended Learning for Student Engagement	Education Research International.	student produced video tutorials as part of blended learning	US University Business
10	Dubisar et al	2010	Palin/pathos/peter griffin: Political video remix and composition pedagogy	Computers and Composition	3 case studies of students on creating remixed videos	US University Writing
11	Erjestad et al	2007	Re-mixing multimodal resources: multiliteracies	Learning, Media and Technology	2 case studies of students re-mixing videos	NO Upper secondary

			and digital production in Norwegian media education			Media
12	Frenzel et al	2013	Using student produced videos to increase knowledge of self-care topics	Currents in Pharmacy Teaching & Learning	Students created videos to teach the public about self-help.	US University Pharmacy sc.
13	Gaskin et al	2011	Video game design in the MBA curriculum: An experiential learning approach for teaching design thinking	Communications of the Association for Information Systems	Creating a game for Design Thinking module.	US University Design
14	Gold et al	2015	Lens on Climate Change: Making Climate Meaningful Through Student-Produced Videos	Journal of Geography	School children making video about climate change mentored by Geoscience students	US School + Uni mentors Science
15	Goulah, J.	2007	Village Voices, Global Visions: Digital Video as a Transformative Foreign Language Learning Tool	Foreign Language Annals	Japanese language students creating short digital videos with	US University Languages
16	Hafner and Miller	2011	Fostering learner autonomy in english for science: A collaborative digital video project in a technological learning environment	Language Learning and Technology	Students created a multimodal scientific document (digital video) based on a simple experiment	CH University English Science
17	Hafner, C.A.	2014	Embedding Digital Literacies in English Language Teaching: Students' Digital Video Projects as Multimodal Ensembles	TESOL Quarterly	Students produce a written report and a YouTube video aimed at a general audience	CH University English for Science
18	Hakkarainen, Päivi	2009	Designing and implementing a PBL course on educational digital video production: lessons learned from a design-based research	Educ.Technology, Research and Development	Students produce educational videos commissioned by the faculty as part of assessment.	University Education
19	Hepple et al	2014	Multiliteracies pedagogy: Creating claymations with adolescent, post-beginner english language learners	Journal of Adolescent and Adult Literacy	Immigrant children learning English by making claymations	AUS School ESOL
20	Hsiao-Chien Lee	2014	Using an arts-integrated multimodal approach to promote English learning	English Teaching	2 students using multiple modalities to learn English.	
21	Hung et al	2013	Multimodal assessment of and for learning: A theory-driven design rubric	British Journal of Educ. Technology	Investigating PowerPoint slides of 18 volunteer students	TWN University
22	Khalili et al	2011	Students designing video games about immunology: Insights for science learning	Computers in the Schools	Students creating a 2D game about immunology	US High School Science
23	Jones, L.A.	2010	Podcasting and Performativity: Multimodal Invention in an Advanced Writing Class	Composition Studies	Students creating educational resources for other students, before final written assessment.	US University Writing

24	LaMonde et al	2007	Infusing arts/multimedia into a secondary pre-service course on language and literacy across the disciplines as imaginative and critical practices	Language and Literacy	Pre-service teacher trainees creating art and videos to learn literacies they can teach children	CAN University Teacher training
25	Lee, Lina	2014	Digital News Stories: Building Language Learners' Content Knowledge and Speaking Skills	Foreign Language Annals	Students learning Spanish created digital news stories	US University Languages
26	Lim et al	2009	Integrating Digital Video Technology in the Classroom	Journal of Physical Education, Recreation & Dance	Examines the usefulness of incorporating digital video into classes	US
27	Litchfield et al	2010	Student-produced vodcasts as active metacognitive learning	10th IEEE Conference proceedings	Students crating a vodcast based on interview with IT professional.	AUS University IT
28	Loch et al .	2015	How to make mathematics relevant to first-year engineering students: perceptions of students on student-produced resources	International Journal of Mathematical Education in Sc & Tech	High level engineering and multimedia students create animated videos for first years	AUS University Maths Multimedia
29	Loftus et al	2014	Students' readiness to move from consumers to producers of digital video content: A cross-cultural analysis of Irish and Indian Students	Education and Information Technologies	Irish and Indian students creating digital videos as part of assessment for learning French	IRL/IND University Languages
30	Manfra and Hammond	2009	Teachers' Instructional Choices with Student-Created Digital Documentaries: Case Studies	Journal of Research on Technology in Education	Two case studies of integrating documentary making in social studies classes.	US School Social studies
31	Mavroudi et al	2011	Video Documentaries in the Assessment of Human Geography Field Courses	Journal of Geography in Higher Education	Students producing documentary on rural spaces in Crete	UK University Science
32	Merola, Nicole M	2010	CONNECTING TO NARRAGANSETT BAY: Fostering Ecological Citizenship through Environmental Humanities and Art and Design	Transformations	merging art, design and science when students create artefacts for exhibition about local ecology	US School Science Art & Design
33	Miller, Suzanne M	2007	English Teacher Learning for New Times: Digital Video Composing as Multimodal Literacy Practice1	English Education	A discussion of using digital video in English classes (grades 5-12)	US School English
34	Pflugfelder E.H.	2013	The minimalist approach to online instructional videos	Technical Communication	Students analyse web app videos, then produce their own	University Tech. Comm.
35	Rooney-Varga et al	2014	Student Media Production to Meet Challenges in Climate Change Science Education	Journ. of Geoscience Education	Students create PSA's about climate change	US University Science

36	Ryan B.	2013	A walk down the red carpet: Students as producers of digital video-based knowledge	International Journal of Technology Enhanced Learning	Students creating digital video as part of assessment, and a potential peer resource	IRL University Science
37	Schultz et al	2014	Lights, Camera, Action! Learning About Management With Student-Produced Video Assignments	J. of Management Education	Student produced "News video " for management course	US University Management
38	Schwartz, L.H.	2014	Challenging the tyranny of the five-paragraph essay: Teachers and students as semiotic boundary workers in classroom and digital space	Literacy	Creating hybrid (wiki, blog, web-content w video etc) assignments for English	US High school English
39	Tetloff et al	2014	Multimodal Composition and Social Justice: Videos as a Tool of Advocacy in Social Work Pedagogy	Journ. of Technology in Human Services	Students produce a video aimed at informing a general audience about a social policy	University Social work
40	Urbano and Urbano	2008	Learning through movie production with the MovieClassroom	Journ. of Geoscience Education	Students produce video as an option for extra credits.	US University Science
41	Williams, B.T.	2014	From Screen to Screen: Students' Use of Popular Culture Genres in Multimodal Writing Assignments	Computers and Composition	Students at a "upper level" writing course creating a written essay and a "multimodal digital text" based on the same research	US College English
42	Zahn et al	2014	Video clips for YouTube: Collaborative video creation as an educational concept for knowledge acquisition and attitude change related to obesity stigmatization	Education and Information Technologies	Psychology students created 4-5 minute video about obesity. Two control groups- one who creating video and one who did not.	GER Uni Psychology

App 3.3: LR synthesis preparation (combining information from the data extraction sheets)

NO	Author	**Method**	**Issues and drivers**
01	Adsanatham et al (2013)	Qual. A pilot study. Collaborative teacher-researcher study piloting a heuristic to help students on a first year writing course understand the delivery of multimodal composition. Class observations, interviews, students projects, students Reponses to the heuristics and written reflections.	The prevalence of digital technology and composing warrant a re-theorization of delivery for writing in electronic context Rhetoric. Re-inscription. "real audience" – engaging the students
02	Baepler et al (2014)	Quant. Two case studies introducing video assignments into writing courses. Pre-post test. Surveys distributed in the beginning and end of module. Students were asked to provide student id to match results. Results analysed with paired sample t-tests.	Students need to engage with creative forms like video to take full advantages of living in a participatory culture. Digital literacy needs to woven into traditional coursework and taught. Not assume digital natives. 21st century skills. Gain "meaningful practice". Engage students and build confidence and ability to compose video texts
03	Berry et al (2014)	Qual. Case studies of students constructing understanding of reality. Participatory research. Qualitative video based project, which includes student and tutors, interviews and multimodal texts within a final research video output. "Listening pedagogically" (p 283).	Students and teachers have different literacies. How multimodality can help students and teachers share their visions and help construct understandings of reality. Community at the centre of curriculum
04	Bruce D.L. (2009)	Qual. Teacher-researcher study, explore students composition processes with think-aloud protocols	Disengaged students. Engaging students with writing through video composing . Mulitmodality. New developments in literacy
05	Burnett et al (2014)	Theoretical essay and discussion, but contains a case study. Not method or methodology mentioned.	Addressing assessment rubrics for multimodal artefacts. Workload, efficiency, consistency
06	Colby R. (2014)	Tehorytial essay. Describes a way in which procedural rhetoric can be taught through games. Based on tutor-researcher explanation of implementations and reflections on two student groups and the games they produced.	Assessing procedural rhetoric in video games. Intertextuality and multimodality. Assessing reflective practice
07	Dale and Povey (2009)	Qual. Module evaluation. Student reflections taken from blogs and focus group interviews. Good sample of quotes, but little analysis.	"[…] diversity of students who are increasingly value conscious and require experiences that satisfy their learning needs […] driven by factors that include widening participation policies, the payment of student fees, the quality assurance of programmes and the need to develop the employability skills of students". Blended learning. Engaging students. Learner generated content

			Deep learning
08	DeVoss et al (2005)	Quali. Case study of one teacher. Almost ethnographic in nature, but no method is mentioned. Rich data.	Institutional infrastructure and cultural context is needed to support teaching new media
09	Downing et al (2014)	Quant. Quasi-experimental with a questionnaire on student engagement over two cohorts on "Introduction to Business Information Systems" module, with questions taken directly from National Survey of Student Engagement (NSSE). The second survey had an additional question (How often have you felt increased engagement). 180 and 250 respondents. Analysed with z-tests.	Raising cost of HE, need for cost efficiency. Changed learner styles and needs - end of lectures. Student engagement as key to HE survival. Student engagement to ensure deep learning. Skills and knowledge's for a 21st century career
10	Dubisar et al (2010)	Qual. Interview and analysis of student video remixes. Case studies of 3 students. Research questions: How are students' remixes influenced by the cultural ecologies in which they are produced? The rhetorical work accomplish, and the rhetorical choices contribute to making a remix effective in reaching, engaging, and persuading its audience? What do students learning from composing and distributing remixes?" (p 78)	Compositionist use examples of political video remix as examples for teaching, but there is very little research on how students remix videos, despite the fact that YouTube is full of "prosumer" remixes. Raise of contemporary digital technology transforms literacy; there is a call to teach students the craft to remix text. Engaging students with texts. Engaging students with politics
11	Erstad et al (2007)	Qual. Ethnographic research. The study followed two groups of students from two different schools over a period of several weeks. The research design is based on a ethnographic approach, and included class observations, analysis of student videos, video recordings, researchers field notes, and interviews.	New modes of texts have emerged with the growth of MySpace and YouTube. " 'transactional learning space' between the informal use of different media and the formal structures of learning in schools" (p 195). Conceptualize literacy as an act between agent and culture, not focus on skill.
12	Frenzel et al (2013)	Quant. Pre-post test scores of students watching the produced films. Test scores (with questions created by the students" of the students creating the films.	Accreditation Standards for Pharmacy Education, including "the use of innovative instructional technologies to foster the development of self-directed lifelong learners" (Frenzel et al 2013, p 45). Deep learning. Active learning. Meeting the diverse learning needs of students,
13	Gaskin et al (2011)	Qual. Module evaluation. Drawing on observations, analysis of students produced games and quotes taken from their written reflections (unclear from where).	An experiential learning experience to learn design thinking – an increasingly important skill for managers. Game design is an promising alternative Experiential learning. Hands on activity. Providing concrete experience to draw on
14	Gold et al (2015)	Qualitative evaluation of wider programme, using surveys and interviews	Find alternative ways to communicate accepted research to the public. Outreach and education through "active learning" – student produced video Engaging students in active learning 21st century skills. Science council 'encourages' teachers to teach 21st century skills Developing media literacy important

			today. Improve critical ability. “Affordable price”. Closing the digital divide for marginalised groups
15	Goulah, J. (2007)	Qual. Teacher- researcher. Instrumental case study model. Triangulated data sources, tutors own ethnographic field journal and reflections, open ended questionnaires and evaluations, interviews and analysis of two student produced videos	Multimedia technologies offers new possibilities - educators need to help students become proficient in its use. Competitiveness and job preparedness . Transformative learning Development of skills, subject and generic. Engagement
16	Hafner and Miller (2011)	Qual. Mixed methods. Evaluation of syllabus design and implementation (PBL and multi-literacies). Student questionnaires, focus groups and blog comments.	Need to develop pedagogic strategies to answer recent advances in ICT – emergence of new literacies and affordances of new technology . Learner autonomy - self-directed learning “engaged in a 21st century task” - multimodal texts “engaging with an authentic audience”. Harnessing out of school practices.
17	Hafner, C.A. (2014)	Qual interpretive paradigm (p 665). Analysis of digital videos (multimodal transcription), supported by interviews, focus groups, blog and questionnaire.	Digital technology and social movement have transformed language and communication practices, altering English teaching and learning. The potential for DV creation for language learning benefits Digital mediated communication is becoming more commonplace. New literacy studies / Multimodal learning. Situated learning. Writing modes and identity. Multimodality theory for learning. Engagement in learning. 21st century skills
18	Hakkarainen (2009)	Evaluation of intervention. Mixed methods, questionnaires, interviews, observations and performance results.	HE is challenged by changes in working life and advancement of DV technologies. Students need to develop generic skills. Problem-based learning. Meaningful learning
19	Hepple et al (2014)	Module evaluation. No methods mentioned (data collection or analysis) but have descriptions of students, observations and quotes from interviews with tutor.	Adolescents arriving with low literacy skills faces significant challenges in achieving sufficient English language skills. Academic language is also a new genre – so need to develop language and literacies. Curriculum demand . Multi-literacy approach. Student-centred active learning. “Synaesthetic” – “mode shifting” abilities. Learner agency. Engagement and collaboration
20	Hsiao-Chien Lee. (2014)	Qual. Teacher –researcher case study of two students. Qualitative analysis – close reading of produced multimodal work and reflective reports. “improvement in course participation and increased motivation in writing activities[…] their multimodal creations suggested that they were capable of using a variety of techniques to make meaning and thus	Chinese students are visual learners, due to pictorial alphabet – do not do well with linguistic based English tuition. Also – changed literacies, “youths bring multimodal practices to school”. Therefore “multimodal practice can reframe at-risk students as learners of promise” (p 56-57)

		position themselves as thoughtful and creative authors." Improved writing skills and perceptions of English learning (p 72).	
21	Hung et al (2013)	Mixed methods. Action research. Case study of one module "Communication and Presentation", 18 volunteers. Evaluation of learning achievements, survey of experiences, with interview as "secondary data"	"changes […] are now needed because the rise of digital technologies has led to a re-conceptualization of literacy" Multimodal rhetoric. Multimodal assessment framework
22	Jones, L.A. (2010)	In-depth practitioner reflection, or a theoretical essay based in practice, and drawing on some student interviews. An extended justification for introducing podcasting.	Merging performance studies and multimodal discourse theory to increase effectiveness to improve students authoritative voice. Student engagement.
23	Khalili et al (2011)	Qual. Programme evaluation. Observations by two graduate research assistants and the investigators. Informal interviews by grads with peer mentors and students at the workstations. Analysis of the competed games	Concern over students' scores on STEM tests. Using video game design to increase motivation, achievement and exposure to STEM content. 21st century workforce (innovative). Strengthening skills. Authentic and engaging task
24	LaMonde et al (2007)	Qual. Two year case study, offered workshop in digital expression and communications and video-taped the sessions. Supplemented with interviews, focus groups and open-ended pre-post questionnaire	Critically engaging with pre-service teachers to transform their notion of literacy – a subject met with resistance. Students live in a media-rich multimodal world
25	Lee, L. (2014)	Mixed methods. Interviews and Likert scale survey	" The advent of Web 2.0 technology1 brought new dimensions to foreign language learning and afforded learners new avenues to explore functional use of the target language […] language practitioners have embraced computer-mediated" communication. Build many 21st-century skills. Student centered learning and community of practice. Motivated to engage. Personalized and authentic.
26	Lim et al (2009)	No method. Description of tools , steps and assessment rubrics. Based on Lim's sport management class.	Today's learners are media literate and experientially grounded. Video production encourages active learning. Engagement. Development of "high order cognitive skills"
27	Litchfield et al (2010)	Module evaluation. Mixed methods, survey, focus groups, a "independent multimedia expert" evaluated the student productions, and reflections from staff.	" Today networked audio podcast and video vodcast technologies are being adapted for use in higher education. Pod and vodcasting has been adopted and adapted by innovative educators because they provide better ubiquity and flexibility of access to lecture material to students". Active learning. Learner engagement
28	Loch et al (2015)	Qual. Case study with "a descriptive and explorative focus" (p 6). Interviewed creators and focus groups with audience. Focus: how would final years show relevance of maths to fist year engineers, what was the reaction of first years, who should make resources	Engaging disengaged students. Making maths seem relevant to first year students. Students as co-producers of learning material. Co-production gives deeper understanding, increased motivation.

29	Loftus et al	Mixed methods research. Questionnaire distributed before assignment, but after training. Open and closed questions. Focusing on perceptions of challenges and concerns, pros and cons of the video project, and current level of experience of video creation and sharing. Simple descriptive analysis of closed questions, thematic analysis of open questions.	" Evidence has shown that students have greatly increased their consumption of digital video, principally through video sharing sites. In parallel, students' participation in video sharing and creation has also risen. As educators, we need to question how this can be effectively translated into a positive learning experience for students," Active participants in own learning . Increase student engagement and recall. Students attitudes and readiness
30	Manfra and Hammond (2009)	Qual. Case studies of two history teachers who used student created documentaries. Thick descriptions of teacher experiences focusing on pedagogic aims, and how they were reflected in classroom instructions and student products. Purposeful sample of information rich cases. Interviews and observations. Grounded theory.	Student creations of multimedia for academic aims have been "spurred" by increased availability of hardware and internet. . Learning by doing – de-emphasise of memorisation of facts and learning by texts.
31	Mavroudi et al (2011)	Qual. Module post-mortem, detailed reflections from the tutors point of view of the whole process. Main data sources, students reflections as documented in field journal and module feedback forms + teachers own observations.	A need to create independent and creative students with broad skills for today's flexible job market . Active and Deep learning. Students are increasingly coming equipped with technological skills.
32	Merola (2010)	Qual. In-depth practitioner reflection. Drawing on students comments and reflections and produced artefacts. Not method or methodology mentioned. Pedagogic "call to arms" essay.	Art and design is more meaningful for students when it uses the notions of critical-based pedagogy, ecological literacy and ecological citizenship. Active learning.
33	Miller, Suzanne M (2007)	Qual. Experiences of five participating teachers, one pre-service and four practicing. Class observations and student reflections (but not told from where). Elsewhere it is explained that classes contained oral discussions and written reflections, so it is possible these where used as data	Technological and cultural contexts have produced a shift in the notions of literacy. Multimodal literacies. New ways of knowing Digital natives
34	Pflugfelder E.H. (2013)	Quant. Module evaluation. Based on students assessment of existing videos and self-assessment of own videos. The study uses p values, but it is unclear which method has been used to calculate them.	New forms of hybrid instructional-edutainment video have emerged. Whether minimalist heuristics can help students create better web-app videos.
35	Rooney-Varga et al (2014)	Mixed method evaluation. Used pre and post Likert scale surveys with some open comments, which were analysed thematically. Qualitative analysis of focus groups. Included a team of external evaluators.	Elicit active, affective, social and analytical learning […] increasing engagement and intrinsic motivation and foster deeper learning […] improve video literacy and associated 21st century skills.
36	Ryan B. (2013)	Quant. Module evaluation. "pedagogical evaluative study" (p 24). Anonymous multiple choice questionnaire. Standard module review form. Short reflective essays by students. Researchers own observations and diary. Informal discussions (see p 29 for further). Qualitative data were coded and quantified, emotional words coded and placed on a scale	disengaged and apathetic students are common" – active learning as an approach. Also the viability of making use of student created resources. Students are more comfortable with technology – it is part of everyday life – students demand technology – "digital natives"

37	Schultz et al (2014)	Qual. Evaluation. No methods. Case study of a module in management making use of student-produced videos in a News Room Assignment. Essay / discussion piece describing the process. Evidence in form of module documents and assessment briefs. But have solicited qualitative comments from students	Student produced news addresses employability skills and induce critical thinking skills by creating an "authentic experience" Active learning - learning by doing. Developing skills "beyond written competencies". Enabling students to "visualise" managerial problems
38	Schwartz, L.H. (2014)	Qual. Presents three case studies of Latino students in the same class, includes teacher observations and analysis of produced work focusing on identity, and their use of semiotic resources.	Addressing the contradictory aims of standardisation and new literacy development – the tyranny of the "5 page essay". Enabling young people to draw on their practices and digital tools, engage expansive networked and creative affordances Self-assessment and co-production of marking rubrics. In-school, out-of-school spaces. Engaging student identities in writing. Engaging youth practices and digital tools for reconfiguration of normative genres (essay)
39	Tetloff et al (2014)	Qual. Tutors reflections on the process and the article describes the assignment and provides literature. Provides justification and explains implementation. No specific data sources, or illustrations, but the narrative provides many examples drawn from the process.	Educators must "promote digital literacies […] in order to prepare students for careers […]". "Video composition meets this multivalent need to engage digital age learners, cultivate critical thinking, and instil competencies that are useful for professional practice." (p 24)
40	Urbano and Urbano (2008)	Mixed method. Survey research. Description and evaluation. Participating students where survived, open and closed questions.	Explosion of user-generate videos the last few year, and emergence of user-content-created websites. Meta-cognition Engaging, project based exercise. Multimedia learning Benefits of student produced media for peer-learning
41	Williams, B.T. (2014)	Qual. Interviews and textual analysis. Little detail on method is given. More of a theoretical essay which roots its arguments	Digital media have created the opportunity to create multimodal texts. What has gone un-noticed is the influence of pop genres on these texts. Rhetoric and composition
42	Zahn et al (2014)	Quant. Quasi-experimental design. The course group created a video, and the test group read a selected article. Students completed surveys before and after.	"Today, students can create and broadcast their own digital videos. This can be used for learning about complex topics. Yet applicable educational concepts using collaborative video creation as a method need to be developed" (p 603)

App 3.4: LR synthesis - drivers and issues

Main Rationale	Articles	Notes
Professional and civic agenda	12	Multimodal assignments as a response to a specific disciplinary or professional concern, in some cases also combined with social advocacy or civic agenda, or general learning benefits but largely viewed through the lens of professional education (health, social care, or environmental science). Specific policy or accreditation bodies mentioned as part of justification. **Frenzel et al (2013)** - pharmacy students produced videos to enhance their knowledge of self-care topics and non-prescription medication. The authors evoke the Accreditation Standards for Pharmacy Education, including "the use of innovative instructional technologies, meeting the diverse learning needs of students, to foster the development of self-directed lifelong learners" (Frenzel et al 2013, p 45). **Khalili et al (2011**) - a nationwide initiative to promote STEM subjects as a context for their intervention, where students designed educational games based on immunology concepts. This was explained by the games' assumed capacity to provide key learning processes such as questioning and articulating knowledge, as well as appealing to today's students (Khalili et al 2011, p 234). Designing a video game was presented as "the combination of an interactive, constructivist approach to learning, and the authentic and engaging task", allowing students "to make visible their scientific understanding in a technology-driven environment" (Khalili et al 2011, p 237). **Pflugfelder (2013)** - the changing needs of technical communication professionals, who no longer use the traditional print-based manuals, but increasingly rely on web-based videos, narrated in a light-hearted colloquial manner and representing a hybrid of promotion and instruction. Introducing web video into course assessment intended to prepare them for future work. **Gaskin et al (2010)** - introducing a game design project into a management class to improve the students' creative problem-solving skills (p 104). **Schultz and Quinn (2013)** - management education has a long tradition of using video and film as an instructional tool ("learning from video"), but a shift to a more participatory "learning with video" would enhance management education, encourage problem-solving and peer collaboration. **Loch and Lamborn (2015**) - engineering students' disengagement from mathematics in the first year of study, due to focus on abstract concepts. Higher-level engineering and multimedia students collaborated on producing animated videos, showing how mathematics was applied by professional engineers. The long-term goal was to make it "part of standard university business", generating a bank of useful teaching resources (Loch and Lamborn 2015, p 14). **Gold et al (2015)** - addressing the lack of public knowledge about climate change. University students from a Geoscience course worked with school students to produce videos about locally relevant climate change topics. Linked to the recent policy emphasis on scientific communication, and the requirement for K12 students to learn these skills. References to the National Research Council which defined "communicating" and "sharing information using digital technologies" as "key twenty-first century skills" (Gold et al 2015, p 1). An increased

		motivation and engagement cited as an important outcome. **Rooney-Varga** et al (2014) – also climate change, but the emphasis the complexity of the topicand its politicization in public discourse. Incorporating student-produced media aimed to overcome the "deeply entrenched misconceptions", whilst "simultaneously improving media literacy" (Rooney-Varga et al 2014, p 607). **Merola's (2010)** - environmentally-themed multimodal artefacts incorporated in art and design classes. Argued that students' education is more meaningful "when it is animated by notions of critical place-based pedagogy, ecological literacy, ecological identity and ecological citizenship" (Merola 2010, p 61). **Zahn et al (2014)** - psychology students creating YouTube clips to deepen their own understanding of obesity, whilst at the same time combating social stigmatisation. **Tetloff et al (2014) -** the potential of student-produced videos to function as "tools for social advocacy", whilst also encouraging active learning in social work education (p 22). Social workers need to evaluate and use information from a variety of formats and sources, and translate it into a format that can be understood by a client, to "educate and advocate for change" (p 23). Videos expected to enhance equal access to information, and promote awareness of important social issues. **Mavroudi and Jöns (2011)** - video documentary assignments in a Human Geography field course. Main rationale - general educational benefits ('active' and 'deep' learning) , employability (flexible job markets, broad set of skills), and the need fir the discipline to use more visual methods. Human Geography deals with "other people and places", it involves "differing and often contested representations", which students need to question (Mavroudi and Jöns 2011, p 582). Video documentaries can teach students "the complexities of speaking for others" and the "importance of letting subjects and environments have a 'voice'" (Mavroudi and Jöns 2011, p 582). The participating students self-reported an increased interest in course material, as well as better understanding of the issues. The aspects of project management, together with recording and editing activities, combined the dimensions of 'doing' and 'thinking' in the way which would not be possible in an essay. Compared to oral presentation, the increased control over the quality of the final output, as well as the decreased visibility of the student (apart from the voice) was advantageous to those uncomfortable with public speaking. The drawbacks included the need for technical skills and resources, time constraints and the difficulty in detecting plagiarism, however the authors felt that these can be addressed in future planning. Concluded that "taking a risk, doing things differently and emphasising visual methodologies" has worked well to increase student engagement and critical thinking (Mavroudi and Jöns 2011, p 596).
Language and literacy	9	Focus on the application of multimodal texts in linguistic disciplines such as English, TESOL/TEFL or foreign languages, as well as cross-disciplinary academic writing. interest in alternative literacies and multimodality. Multimodal assignments seen as an extension of opportunities provided by linguistic expression, development of language confidence and writing skills. Other authors were excited by rhetorical and expressive possibilities offered by multimodality. There is a 'civic' strand within some of this work, as language learning involves issues of

		representation, identity and difference. **Goulah (2007)** and **Lee (2014)** - benefits of digital storytelling for foreign language learning. Goulah (2007), foreign language teaching needs to be placed into a broader context of globalisation, focusing not only on language skills, but also on interdisciplinary content, and geopolitical, environmental and cultural issues. Critical literacy also needs to be cultivated in language students, to understand the complex messages from a broad range of media. Using a case study of a mixed-level Japanese language summer class, Goulah's study examined the potential of student-produced video assignments to develop these skills, and become part of transformative pedagogy. Lee (2014) - students struggled to develop foreign language proficiency due to increasingly limited class time and fewer opportunities to practice language in authentic face-to-face communication. Computer-mediated communication has been used in language teaching for a long time, along with educational films and media, and according to Lee, student-produced digital storytelling was a logical next step. In addition to generic benefits, such as 21st Century skills, increased motivation and communal learning, media-production "permits learners to use the target language in a personalised and authentic manner" (Lee 2014, p 339). **Hafner (2014)** - student-produced documentaries used on the course in English for Science in a Hong Kong university. Science students found it difficult to present complex scientific material to non-specialist audience, in particular where English was a second language. Video-assignment format chosen due to its closeness to the genre of popular science documentary, which was already familiar to students, offering a useful "first step" in learning science communication (Hafner 2014 p 681). One of the aspects of the assignment was that the work would be uploaded to YouTube and therefore needed to be of good quality and capable of sustaining the viewers' attention. Scientific communication, multimodal literacies and skill development as important concerns. Video production and sharing presented as "an authentic everyday practice that students can relate to", which meets students' expectations better than traditional assignments. In addition, it provided opportunities to develop "the important 21st century skills of orchestrating semiotic resources in various modes in order to make meaning through multimodal ensembles" (Hafner 2014 p 682). **Jones (2010)** - addressing the insecurities that she noticed in her students when starting on a lengthy research paper. This motivated her to try something different that could build on their strengths early in the class, so that they can be eased into writing after. Arguing that multimodal assignments provide a place outside academic setting, as well as performative and embodied elements. Writing classes often underestimate these modes of expression, and yet performance can help students as a provisional stage in the writing process where they can rehearse their argument. **Hepple et al (2014) -** student-produced Claymation to improve English proficiency in overseas students and other non-native English speakers. With students from over thirty countries speaking over forty languages, as well as different entry and exit points, there is an "ongoing question of how best to utilize available class time to meet the diverse needs of this changing group" (p 220). Claymation was chosen due to its student-centred nature which allows to create meanings in multiple modes, whilst building confidence in language use. For example, it allowed to experiment with dialogue choices and

		understand the "balance between direct speech and narration" (p 220). **Williams (2014**) - popular media and their "ambivalent relationship" with composition pedagogy and scholarship. Despite plenty of research on students' experiences of popular media forms and genres (including film, TV and videogames), not enough attention has been paid to their impact on students' approaches to composing. Williams argues that composition classes largely use popular culture as examples to critique, instead of learn from. However, when students are asked to compose multimodal texts, they do not have much to refer to outside popular culture. Therefore, teachers should start from what students bring in from their previous engagement with popular culture, and then help them develop a critical understanding of what may or may not work in their own compositions created for different purposes (Williams 2014, p 119). **Hsiao-Chien Lee (2014)** incorporated digital storytelling activity into his English class in a Taiwanese University, to engage vocationally-oriented students, who were used to hand-on training and "intimidated or discouraged by the conventional linguistic mode" of written assignments (p 56). Chinese-speaking learners, he argued, are more visually oriented due to "Chinese characters forming the written language" (p 57). Drawing on theoretical and research literature on arts-based literacies he argued that arts can "make school more engaging, especially for disenfranchised and disengaged students" (p 58). Multimodal assignments, including video, drawings and digital story-cuts, were introduced as an alternative way to express thoughts and construct meaning, and ultimately to increase motivation to study. The article presented two case studies of students who were initially not engaging with the course, but gradually built confidence and motivation, as well as improving scores. They "grew into writers because they were allowed to explore a variety of modes to construct meaning and their confidence was enhanced", although the author is careful not to attribute this exclusively to the multimodal project (Hsiao-Chien Lee 2014, p 72). **Schwartz (2014)** - English learning and teaching in the context of urban schools of the US-Mexico borderlands, with predominantly Latino students. The usual disciplinary concerns in this case were exacerbated by the political and social context, including "xenophobic legislations", "long-standing deficit discourses" about Latino population, underfunding and lack of technological resources (p 125). Schwartz pointed out that local schools have underestimated "Latino households' funds of knowledge" (p 125). Student-produced digital stories intended to create spaces for students' identities and cultural practices, within their writing development: "Our objective was to support students' movement of semiotic resources across the boundaries of genres normative to in-school and out-of-school spaces and to combine students' new media repertoires, interests and concerns with academic purposes." (Schwartz 2014, p 124). **Berry et al (2014)** - urban school context, which used video projects to allow students narrate their own histories and represent their communities. The school in which the intervention took place had a long history of engagement with the Puerto Rican community, collaborating with a number of community programs. The school curriculum emphasised the idea of a "social ecology", in which people were connected to one and another, the community and the wider world (p 285). The introduction of the student-produced documentaries was consistent with the school's overall ethos of critical pedagogy. The aim was

		not simply improving the learning of English language, but providing a space for students to "to express themselves and potentially influence others" (p 293).
Harnessing young people's skills and practices.	15	Diverse group, with different views on students' skills – but they all refer to students out-of-school interests and media practices as part of the rationale for the intervention. **Miller (2007)** and **LaMonde and Rogers (2007)** - concerned with preparing trainee teachers for the new multimodal communication landscape. In a dedicated section titled "Teaching Digital Natives", Miller references Prensky's (2001) argument about a gap between the students' literacy practices and print-based schooling. She adds that most students "arrive at schools more competent in multimodal practices than their teachers" (Miller 2007, p 65). Elsewhere in the article Miller switches from 'digital natives' to the 'millennial generation', who are increasingly "immersed in popular and online culture and think of messages and meanings multimodally" (Miller 2007, p 62). The 'millennials' need opportunities to develop new literacies and strategies, but instead they are offered "restrictive school practices" and out-of-date "traditional schooling" (Miller 2007, p 62). Because teachers are positioned as outsiders in relation to out-of-school popular culture, they need training opportunities to catch up with students' literacies. Digital video composing is proposed as "a potential solution to the problem of teachers under-using the affordances of new multimodal literacies" (p 66). If trainee teachers get comfortable with the literacies and technologies used by their prospective students, it is hoped that the "educational ecology of schools" may eventually change (p 80). This formed the rationale of Millers video composing project in a teacher education class, and the subsequent article. **LaMonde and Rogers (2007**) -secondary teachers perceived themselves as subject content teachers, underestimating the importance of literacy across curriculum. Video production was introduced to pre-service teachers not simply for skill training, but to allow them to play with, and transform, their own notions of literacy. The emphasis was less on teachers 'catching up' with students, but on cooperating to foster imaginative approaches to learning. At the end of the project, the trainee teachers self-reported a shift in perceptions which was attributed to the assignment. The trainee teachers understood that formal education competes for learners' attention with electronic media and therefore video production can become a useful vehicle "for engaging today's connected and interactive teenagers" (LaMonde and Rogers 2007 p 13). Having experienced video-production themselves, they wanted to use this technology in their own classrooms, to motivate and engage diverse learners (LaMonde and Rogers 2007 p 20). **Erstad et al (2007)** - students' video remixing practices and "the new possibilities digital media offer for getting access to semiotic resources" (p 195) with emphasis on creativity. Norwegian national curriculum privileged skills-based conceptualisations of 'digital literacy', overshadowing the creative and critical dimensions. They argued that it is important to do more research on the students' engagement with the available cultural tools and participatory media culture. Although not a dominant theme, the familiar motif of the

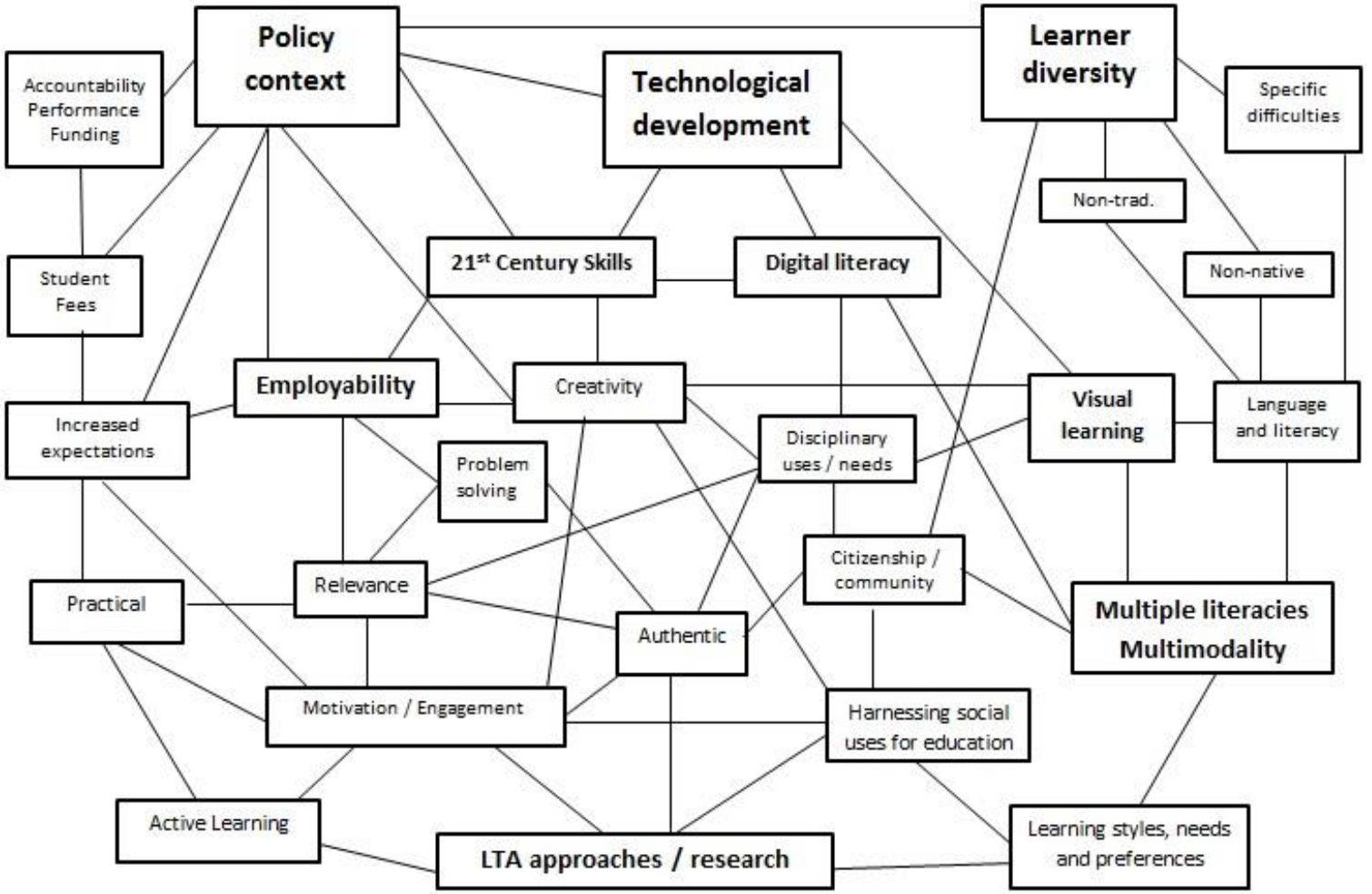
		disconnection between formal education and young people's out-of-school practices is used as a rhetorical 'opener' to set the scene: "Youngsters are increasingly using digital technologies through participation in informal settings. Schools, however, seem to be struggling with implementing digital technologies into formal school activities" (Erstad et al 2007, p 183). **Dubisar and Palmeri (2010)** - rhetorical writing classes may benefit from incorporating political video remix. They note a lack of research on students' video remixes, even though YouTube is full of amateur "prosumer" examples. In addition to helping with composition skills, the authors consider political remix "an important form of citizen action" and "one way in which young people participate in public civic discourse" (p 78). For this reason, they argued, students should be analysing and producing remixes, and scholars should study their implications. **Lim et al (2009)** - "today's students are media literate and experientially grounded" as part of the explanation for their dislike for writing and preferences for hands-on activities. This was taken as a given, without discussing any other possible reasons for these preferences. **Litchfield et al (2011)** - better incorporation of the "new technologies of creating, representing and communicating multimedia knowledge" into all aspects of teaching and assessment in order to "improve educational relevance and the engagement of 'digerati' students" (p 564). **Ryan (2013)** - today's students "demand the most interesting and up-to-date technology as part of their learning", being accustomed to it throughout their lives (p 25). **Hafner and Miller (2011**) - young people's technological proficiency as an opportunity for education, and explained the success of their multimodal assignment by its appeal to students' informal literacy practices. The present time was referred to as "a digital age which is characterized by widespread participation in globalized, online spaces" (Hafner and Miller 2011, p82), and the 21st century education should provide space for this. **Zahn et al (2014**): "Today students can readily create and broadcast their own digital videos for others and create new patterns of video-based information structures for modern online communities and multimedia environments" (p 603**). Ryan (2013)** - "even the digital natives may not be so technology savvy when confronted with unfamiliar, specialised software" (p 26), the student population as 'digital citizens' which include both 'digital natives' and 'digital migrants' who were less exposed to the technology due to socio-economic and cultural reasons. Students' technological competence needs to be levelled out in their degree studies, to meet the employers' expectation of key graduate attributes. **Baepler and Reynolds (2014)** "deflating" the myth of digital natives (Bennett et al's 2008), the student population is diverse, with uneven and evolving technology expertise. Students must be taught digital literacy, along with critical thinking, traditional competences and creative media, so that they can "express ideas across multiple modalities" and "take full advantage of living in a participatory culture" (p 122). **Burnett's et al (2014**) - whilst students are generally "tech savvy" and familiar with conventional writing, they are less familiar with composing visually and orally (p 54). Baepler and Reynolds (2014) designed a hybrid composition assignment, involving both writing and video, and allowing students to practice transmedia navigation. Unlike the older articles in this group, the term "digital natives" is debated, rather than simply assumed, and is used more explicitly as the rationale for the intervention.

		Colby (2014) – focus on individual skill profiles. Due to growing up with certain technologies, but not others, and using them for certain purposes only, students can be expected to have "a level of behavioural mastery", but only in a narrow range of functional literacies. "Unequal access, interest, and association lead to literacies with certain technologies that often imbalances their use in a classroom" (Colby 2014, p 47). He describes a project where an academic writing course incorporated game creation into assessment, pointing out that procedural representation, and more general multimodal composition, requires specific functional literacies from a designer. The so-called 'persuasive games' used in advertising and education provide particularly clear examples of rhetorical situations, as well as being media-rich products. The act of game design was promoted here as a "productive pedagogy that fosters positive habits of mind including curiosity, engagement, and creativity" (p 43). To address skill and literacy imbalances between students, the emphasis should not be on a "professional looking product", but on its rhetorical possibilities and intentions. This would also align the design activities with critical thinking and learning outcomes, connecting rhetoric, research, production and writing. **Loftus et al (2014)** - examining the skill gap empirically, in a cross-cultural comparison research. They started from noting that students' consumption of digital video for entertainment significantly increased, along with video sharing through YouTube and on mobile devices. Educators, too, began incorporating content creation tasks to enhance skill development and student engagement. However, they argued that students' readiness to use these practices for education cannot be assumed, but needs to be investigated across different contexts. .
Focus on implementation	7	Simple pilot evaluation reports, with only brief references to current pedagogic concepts, in-depth qualitative case studies to examine the impact of a specific factor, or refered to a defined body of theoretical literature. But they all start the assumption that the use of new technologies in education is a 'fait accompli' (Ryan 2013), and educators must now turn to the questions of how best to implement the innovations, rather than the reasons why they should be implemented. **DeVoss et al (2005)** - multimedia writing was already happening in contemporary classrooms, so their article aimed to document the ways in which infrastructural frameworks within an institution supported or disrupted new-media writing (p 14). Infrastructure does not only mean hardware and software, but also curriculum, assessment regimes, quality guidelines and other "invisible issues of policy, definition and ideology", which define the value and legitimacy of different type of work (p 16). Using a single case study of one cohort, the authors examined "the structures, technologies, and decisions that teachers and writers navigate" (p 23), from campus security protocols, to file storage, to physical spaces, to policy. They showed how infrastructure can dictate the curriculum design, and promote the adoption of specific pedagogic practices. However, they argued that the "rupture points" can in itself become "teachable moments". By encountering and navigating infrastructural issues, the tutor and the students increased their understanding of the platform requirements, and in their turn contributed to the development of a

		new infrastructure for multimedia writing. **Manfra and Hammond (2009)**- focus on tutors, and their role as "curricular-instructional gate-keepers" (p 240). As the technology became more and more available, and multimedia assignments were increasingly incorporated into classes, they argued that the researchers' attention should turn to illuminating the impact of other factors. Using two case studies, where video-assignments were incorporated into history classes under similar conditions but by very different tutors, the authors examined how the tutors' pedagogic aims and strategies impacted on the student productions in their respective classes. **Urbano and Urbano (2008)** used an open source tool, The MovieClassroom, as a basis for movie-making assignments on a Geoscience course. Their starting assumption was that video production can promote learning as well as producing a bank of educational resources for peers. The article did not explicitly address any specific policy pressure or theoretical issue, but largely described the tool and the process, followed by evaluating its usability for students. The main reason was to take advantage of the emerging technology, more specifically video-sharing websites and user content creation tools. **Hung et al (2013)** - rubrics and criteria used for traditional assignments may not apply to multimodal texts, so alternative ways of assessment are needed to support these emerging practices. The article presented the results of a pilot where a 'theory-driven' design rubric was developed as a tool for peer review and formative assessment. **Burnett et al (2014) -** multimodal assessment inherits all the challenges of written assessment, but adds additional challenges. In particular there may be new difficulties in maintaining consistency within the programme, as multimodal tasks reflect and promote multiple perspectives and strategies, not only in terms of composition, but also teaching and learning. These new perspectives and strategies needs to be incorporated into the "programmatic ecology of assessment", which goes beyond individual classrooms and reflects the philosophy of the whole programme (Burnett et al 2014, p 55-56). Using the case study of a first year English composition class, the article demonstrates how a well-developed but flexible rubric can be used for consistent assessment, but also as a planning and review tool for students. **Lim et al (2009)** - not based on a particular case study, but provides an overview of steps and tools required in the introduction of digital video, which is assumed to enhance learning, along with creative and critical skills. As part of this, the authors provide example documentation, such as assignment briefs and assessment rubrics. **Hakkarainen (2009)** associates video-production with the benefits of problem-based learning (PBL). The article opened by a brief reference to "the challenges faced by higher education, resulting from changes in working life and the advancement of technology" (p 212). It continued with the need for students to develop generic skills, such as problem solving, creativity and information literacy, and reminding that PBL can contribute to this. Several research references are then provided, to support the point that video production "can promote the active […], intentional, constructive, authentic, cooperative, creative, collaborative, conversational, contextual and emotional aspects" of learning (Hakkarainen 2009, p 212). The main purpose of the article is to evaluate a pilot of a course design, which incorporated student-produced educational video as part of PBL.

App 3.5: LR visual representation - concerns and expectations inferred from the reviewed articles

(The box sizes and top-bottom locations are not representative of the respectively saliency, but due to the limitations of 2-dimensional page space, and my decision to group similar concerns into more general categories, eg 'learner diversity'.)



App. 6.1: The final selection of screencasts sample for analysis

Screencast topic	*Module*	*Micro-analytical multimodal transcription / open-coding*	*Structure breakdowns and summary table*	*Gist-transcribed*	*Focused / theoretical coding in MMAV*
Colour	1A	**X**	**X**	**X**	**X**
Anthropomorphism	1A		**X**	**X**	**X**
Principles of animation	1A		**X**	**X**	**X**
Walk cycle	1A	**X**	**X**	**X**	**X**
Blue-screen compositing	1GDA	**X**	**X**	**X**	**X**
Game camera	1G		**X**	**X**	**X**
Challenges / actions	1G	**X**	**X**	**X**	**X**
Emergent narrative	*Pilot – aiming to learn the software, test the codes and illustrate some of the procedures during supervision meetings*				

App 6.2: A list of knowledge codes applied in selective coding of screencasts (MMAV)

Family	Code Label	Code Expanded	Description
KN-CONC	KN-CONC-TERM	Conceptual (term)	Recognising, evoking or explaining key facts, terms and concepts from the specific domain, and/or from related domains, in relation to the given task or topic
	KN-CONC-PRNCPL	Conceptual (rules and principles)	Recognising and explaining key rules and principles from the relevant domains
	KN-CONC-AN	Conceptual (analysis)	Analysing specific instances with reference to more general concepts / principles
	KN-CONC-RELATE	Conceptual (relations)	Identifying and relating different concepts, principles, areas of content or experience.
KN-PROC	KN-PROC-APPL	Procedural (application)	Showing ability to carry out a procedure relevant to the topic discussed
	KN-PROC-EXPL	Procedural (explaining)	Explaining how the procedure should be carried out
	KN-PROC-APPL+EXPL	Procedural (both applying and explaining)	Being able to both carry out and explain the procedure
KN-SIT	KN-SIT-ORG	Situational (organised)	Evoking typical domain-specific situations, which are potentially relevant to higher-level disciplinary knowledges (conceptual and / or procedural). Can be often used as an example, fleshing out and contextualising the abstract concepts, rules and principles.
	KN-SIT-FRAG	Situational (fragmented)	Referring to typical domain-specific situations, facts or anecdotes without sufficient connections to other relevant knowledge within the explanatory content.
KN-GEN	KN-GEN-CONTEXT	General contextual	Mentioning general facts or 'common knowledge' which is related to the given domain / context, for example factual info about key persons, places, technologies or industries – but not as specialist as situated knowledge. (Something that 'everyone knows'). "Disney films target family audience". "There are different kinds of game genres".
	KN-GEN-INFO	General information	Referring to general 'common-sense' information not related to given domain, evoking fragmented facts in the course of explanation, which are only loosely related to the topic.

App 6.3: A list of evidentiality and epistemic modality codes applied in selective coding of screencasts (MMAV)

Family	Code Label	Code Expanded	Description (all taken from Loos et el 2017)
EVI	EVIDENTIAL	Expression of evidentiality	Where the speaker indicates the source of the information on which the proposition is based. Opposite to judgmental.
	JUDGEMENTAL	Expression of judgment	A statement based on the speaker's judgment, as opposed to other sources . This may include the following: (a) unqualified declarations (b) something that is assumed to be true from typical occurrences / cases (c) hypothetical or speculative cases (d) logical reasoning and deduction, based on the assumption that other propositions on which the statement relies, are true. Opposite to evidentiality.
EPI	EPI-QUAL	Qualifiers	Terms and statements which are used to qualify the strength of the speakers' confidence in the knowledge claim, such 'certainly', 'probably', 'likely' , 'I assume' and other tentative or confident phrases. Also providing counter-examples to the statement, or acknowledging divergent views or stating the criteria under which the claim is applicable
	EPI-ASS	Assertion	Knowledge of typical domain-specific situations, facts or anecdotes which are not sufficiently related to any other knowledge within the explanatory content.
JUST	KN-SO-TESTIMONY	Justification by testimony	Providing justification for a knowledge claim by referring to the views of others, typically published sources but can be also unnamed "professionals", "researchers", "students" etc.
	KN-SO-EMP-OBSERV	by empirical observation	Knowledge claims justified by drawing on experimentation, demonstration, analysis of examples
	KN-SO-COMSENSE	by references to common sense	Knowledge claims justified by references to common sense or common experiences which were not explicitly demonstrated or explained. Something that "everyone knows" or "anyone can see".
	KN-SO-REASONING	by logical reasoning	Knowledge claims justified by logical reasoning ("this is because ….")

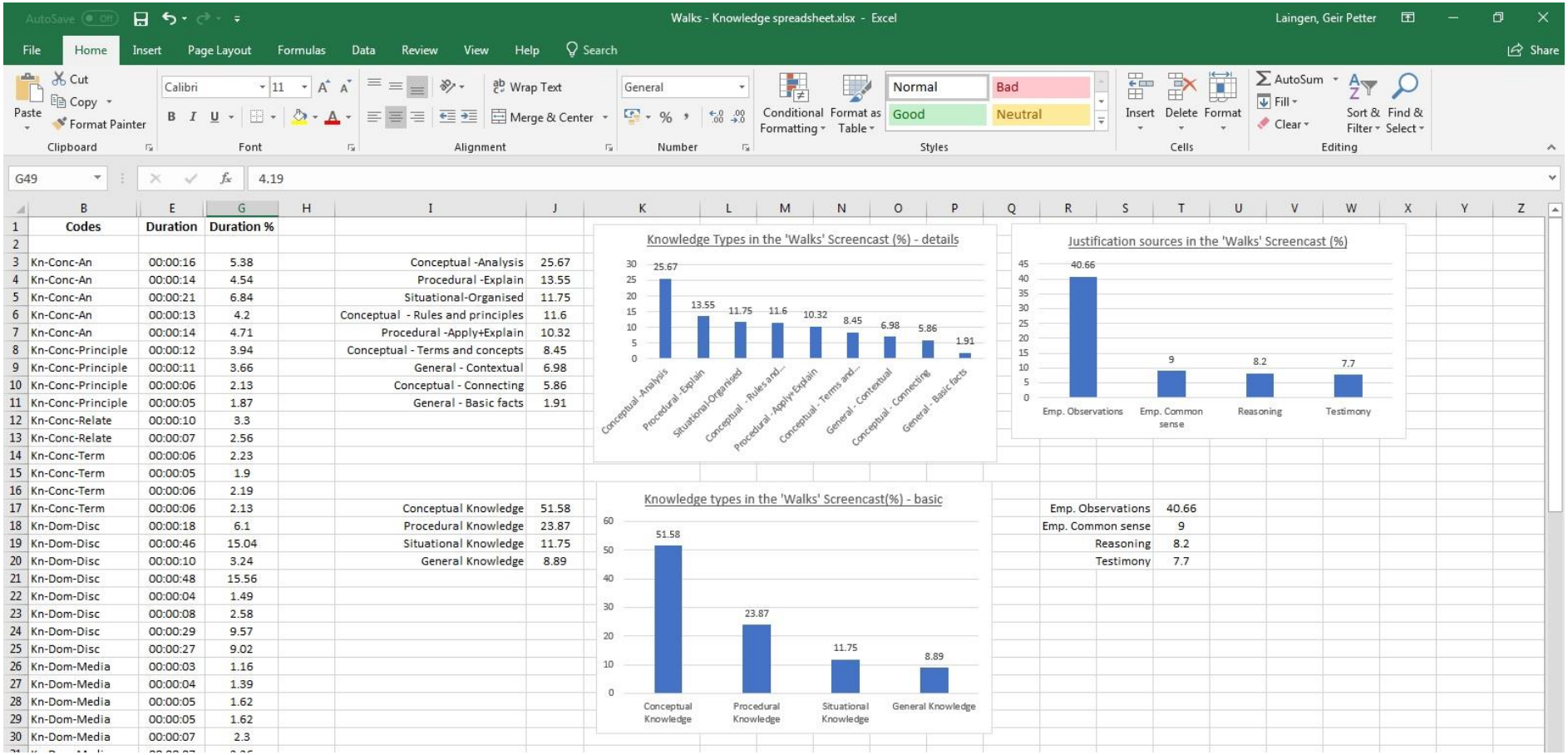
App 6.4: A list of communication design codes applied in selective coding of screencasts (MMAV)

Family	Code Label	Code Expanded	Description
DES-DIRECT	DIR-AGENDA	Design – Directing – Agenda	Directing the viewer's attention to the message structure, setting expectations, outlining, reiterating and summarising the key stages, items covered or not, take-away points
	DIR- NAV	Design – Directing - Navigation	Assisting navigation between specific extracts. For example, headings, transition frames with identifiable design, or changes in background colour to mark out different sections.
	DIR-EMPH	Design – Directing - Emphasis	Directing the viewer'attention by emphasising the most pertinent parts of the message, for example through graphic symbols or diagrams, repetition, highlighting, image cropping, clip looping, size, colour, or other means of emphasis
DES-SEGMENT	SEGM-STRUCT	Segment-Structural	Using a content segment representing a structural feature which is conventionally used across different media forms and genres, and can be expected in the instructional, presentational or assessment context – for example introduction, conclusion, list of credits or references
	SEGM-EXPL-STATE	Segment-Explanatory-Statement	Using an explanatory segment in the form of a statement, for example defining a term, summarising a principle or procedure, stating a fact
	SEGM-EXPL-ELAB	Segment-Explanatory-Elaboration	Using an explanatory segment providing more detailed information on the stated fact, term or principle, including contextual info, justification, complications, procedural and critical points
	SEGM-EXPL-GRAPHIC	Segment-Explanatory-Graphic	Using an explanatory segment representing the stated principle or procedure in a graphic/pictorial or diagrammatic form
	SEGM-EXPL-EXMPL	Segment-Explanatory-Example	Using an explanatory segment describing or showing an existing example of the explained principle in action, or specific instances of the stated term, or current applications of the procedure.
	SEGM-EXPL-DEMO	Segment-Explanatory-Demonstration	Using an explanatory segment demonstrating the procedure explained, and mimicking a real-time demonstration format ('if we do this, then this will happen')
	SEGM-EXPL-REF	Segment-Explanatory-Reference	Using an explanatory segment referring to the authority of some sort, from quoting and referencing a textbook to 'the guys in the industry' or even 'everyone knows'
DES-AFFECT	AFF-SIT-INT	Affective-Situational Interest	Increasing engagement by creating situational interest, including humour
	AFF-GEN-INT	Affective-General Interest	Increasing engagement by appealing to the viewers' assumed personal, professional or interests, more general and longer-term than situational interest
	AFF-ADDRESS	Affective - Audience Address	Directly acknowledging or addressing the viewer, 'breaking the fourth wall', for example, pronouns 'you' or 'we', greetings, 'good-byes' and similar dialogic forms
	AFF-AESTH	Affective - Aesthetic	Making a special appeal to aesthetic judgment (over and above the screencast's overall aesthetic)
	AFF-FLOW	Affective - Flow	Maintaining immersion by creating the sense of natural and effortless flow

App 6.5: A list of rhetorical codes applied in selective coding of screencasts (MMAV)

Family	Code Label	Code Expanded	Description
RHET-APPEAL	RHET-ETHOS	Ethos-based appeal	Using persuasion based on credibility, establishing expertise, authority, trustworthiness etc.
	RHET-PATHOS	Pathos-based appeal	Using persuasion that appeal to the viewer's passions or emotions
	RHET-LOGOS	Logos-based appeal	Using persuasion based on logic and clarity of the argument
RHET-FNCT-IDE	RHET-FUN-IDE	Ideational meta-function	Representing 'subject matter' /'what's going on in the world', experiences, entities and processes. Relations between participants and circumstances within the representation
RHET-FNCT-INTERPERS	RF-PRONOUN	pronouns	Displaying interpersonal orientation via use of pronouns
	RF-IMPER	imperative mood	Displaying interpersonal orientation via use of imperative mood
	RF-RQ		Displaying interpersonal orientation via use of rhetorical questions
	RF-TAG Q		Displaying interpersonal orientation via use of tag questions
	RF-HUM		Displaying interpersonal orientation via use of humour
	RF-EMPH		Displaying interpersonal orientation via creating emphasis (awareness of audience / anticipating needs)
	RF-FORM EXP		Displaying interpersonal orientation via use of formulaic expressions, eg Hey guys! Or Thanks for watching!
RHET-FNCT-TEXT	RHET-FNCT-TEXT	Textual meta-function	Using features which help to organise the screencast into a cohesive 'text' (cohesive links, consistency of style and register, cross-references, transitions, preparing the audience to what will be said/shown, and similar)

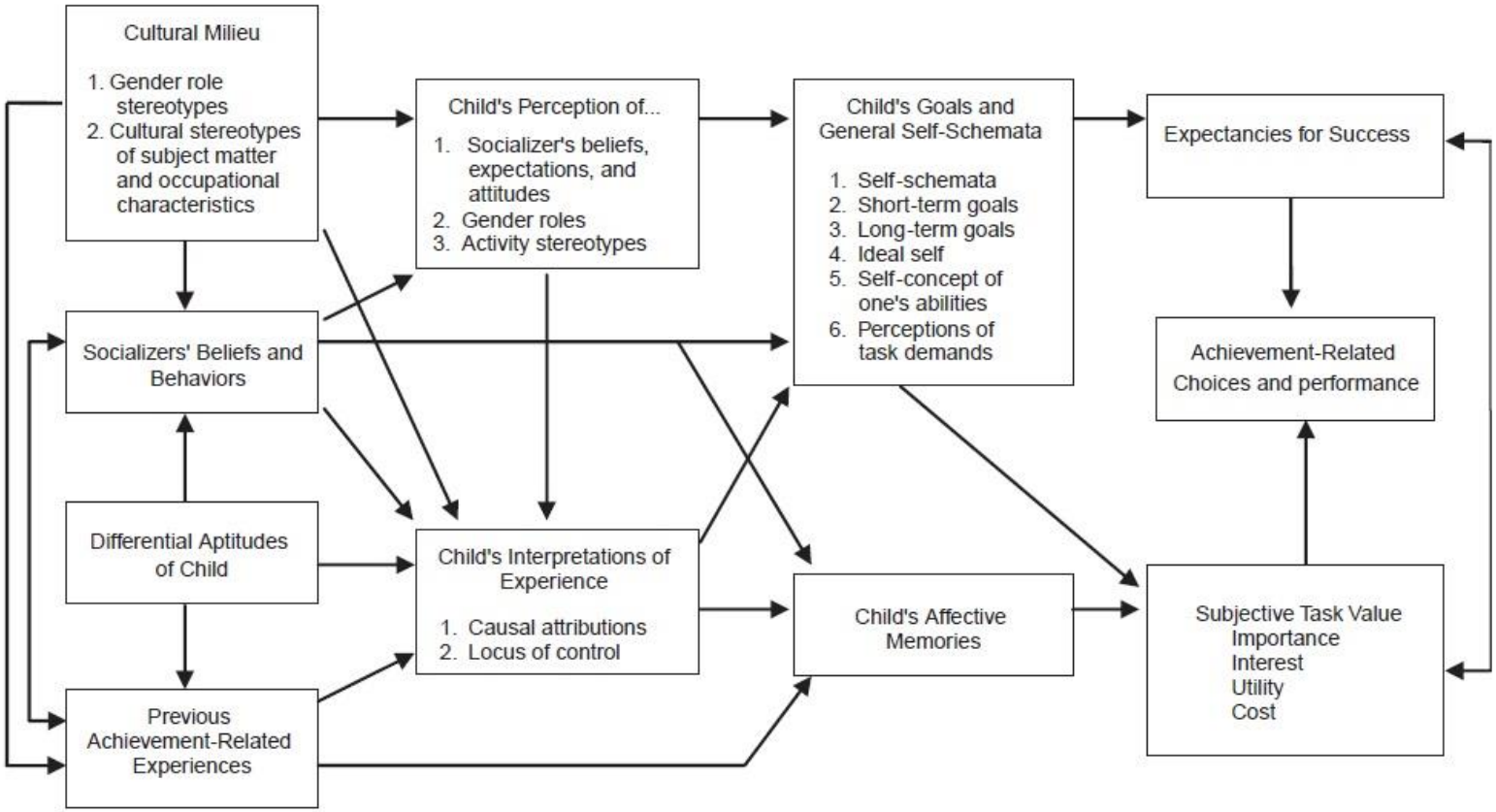
App 6.6: Example spreadsheet based on the coding of the 'Walks' screencast (exported from MMAV)



Codes	Duration	Duration %		
Kn-Conc-An	00:00:16	5.38	Conceptual -Analysis	25.67
Kn-Conc-An	00:00:14	4.54	Procedural -Explain	13.55
Kn-Conc-An	00:00:21	6.84	Situational-Organised	11.75
Kn-Conc-An	00:00:13	4.2	Conceptual - Rules and principles	11.6
Kn-Conc-An	00:00:14	4.71	Procedural -Apply+Explain	10.32
Kn-Conc-Principle	00:00:12	3.94	Conceptual - Terms and concepts	8.45
Kn-Conc-Principle	00:00:11	3.66	General - Contextual	6.98
Kn-Conc-Principle	00:00:06	2.13	Conceptual - Connecting	5.86
Kn-Conc-Principle	00:00:05	1.87	General - Basic facts	1.91
Kn-Conc-Relate	00:00:10	3.3		
Kn-Conc-Relate	00:00:07	2.56		
Kn-Conc-Term	00:00:06	2.23		
Kn-Conc-Term	00:00:05	1.9		
Kn-Conc-Term	00:00:06	2.19		
Kn-Conc-Term	00:00:06	2.13	Conceptual Knowledge	51.58
Kn-Dom-Disc	00:00:18	6.1	Procedural Knowledge	23.87
Kn-Dom-Disc	00:00:46	15.04	Situational Knowledge	11.75
Kn-Dom-Disc	00:00:10	3.24	General Knowledge	8.89
Kn-Dom-Disc	00:00:48	15.56		
Kn-Dom-Disc	00:00:04	1.49		
Kn-Dom-Disc	00:00:08	2.58		
Kn-Dom-Disc	00:00:29	9.57		
Kn-Dom-Disc	00:00:27	9.02		
Kn-Dom-Media	00:00:03	1.16		
Kn-Dom-Media	00:00:04	1.39		
Kn-Dom-Media	00:00:05	1.62		
Kn-Dom-Media	00:00:05	1.62		
Kn-Dom-Media	00:00:07	2.3		

Emp. Observations	40.66
Emp. Common sense	9
Reasoning	8.2
Testimony	7.7

App 8.1: Expectancy-value model (Eccles 2005, p 106)



App 8.2: Overview of self-theories (Dweck and Master 2008, p 33)

	Entity Theory	Incremental Theory
Definition	Intelligence is fixed	Intelligence is malleable
Students' goal	Look smart even if sacrifice learning	Learn new things even if hard or risky
What creates learning?	Native ability	Effort, strategies
What is success?	Being smarter than others	Improvement and mastery
What does failure mean?	Failure means low intelligence	Failure means low effort, poor strategy
What does effort mean?	Effort means low intelligence	Effort activates and uses intelligence

App 8.3: Goal orientation model (Pintrich 2000, p 100).

Two Goal Orientations and Their Approach and Avoidance States

	Approach state	Avoidance state
Mastery orientation	Focus on mastering task, learning, understanding	Focus on avoiding misunderstanding, avoiding not learning or not mastering task
	Use of standards of self-improvement, progress, deep understanding of task	Use of standards of not being wrong, not doing it incorrectly relative to task
Performance orientation	Focus on being superior, besting others, being the smartest, best at task in comparison to others	Focus on avoiding inferiority, not looking stupid or dumb in comparison to others
	Use of normative standards such as getting best or highest grades, being top or best performer in class	Use of normative standards of not getting the worst grades, being lowest performer in class

App 8.4: Attribution process (Alderman 2008)

	Internal		*External*
	Controllable	*Uncontrollable*	*Uncontrollable*
Stable	• I've really improved my keyboarding skill due to my practice over the last six months. • Since I've consistently used the PQ4R, my grades have improved.	• I'm not good at math. • I can't draw a straight line.	• Mr. Jones' tests are impossible to pass. • I'm not a good writer because I never had a teacher that made me write.
Unstable	• I didn't overlearn material for the last exam. I wasn't well organized in studying. • "Success, success." I did better than I expected. I put my best efforts into passing and came up with good results. I studied until the terms became second nature.	• I was sick all week and couldn't study for the test.	• I got a good grade because my tutor helped me. • I made an A; the test was easy.

Note. There is no external-controllability column because, from the view of the student, external factors are uncontrollable.

App 9.1: Interview participants

Name/date	*Details*	*Evaluation of experience and sharing intentions*	*Expressed reasons / motivations/elaborations*
Tom Oct 2012 and March 2015	UK, straight from school /college. Two interviews, T1 and T2 (First and third year of study).	Positive. Screencast is a welcome substitute for written work, more fun, more 'visual' and 'relevant'. In the second interview – some reservations, more appreciative of essay. Sharing is 'natural' and useful, intended to share in first year, but in the end only used in show reel	Tangible / shareable product. Hands-on, practical. Not written. Show-and-tell. Procedural. Social aspects of learning. Creative / design aspects. Personal – dyslexia, being a 'visual person', 'never been good at writing'. Second interview - style / substance and other limitations.
Chris Nov 2012	UK, straight from school /college. Interviewed in 2nd year of study.	Ambivalent – stressful process but admits some benefits. Screencast as a good addition to more traditional tasks. Positive to sharing, intention to share on own Youtube channel.	Visual / creative. More rounded mix of assessment Tangible / shareable product. Developing tech skills. Voice recording daunting. Time-consuming. Having to find the right images. More restrictive than essay.
Andrea Nov 2012 and March 2015	European, straight from school, two interviews – A1 and A2 (in first and third years of study)	Ambivalent (apprehensive in the first interview, more positive later). First year interview – 'interesting but not useful', essay easier. Third year - 'can be interesting and useful, but not necessary'. Not intending to share.	More restrictive than essay, with no significant extra benefits. Usefulness / fun depend on topic and purpose. Pros– practical, tech skills, but lacks theoretical challenge / depth. Informal tone /style is harder for non-native speakers. To share online would need a more professional quality
Peter Nov 2012	UK, straight from school /college. Worked with Fred, interviewed together in first year of study.	Positive. Sharing useful in class, non-committal re online "maybe, have not thought about it really" (PF286). Group consensus -turns starting 'yeah, and', finishing each other's sentences.	Novelty, fun, engaging, social learning, show-and-tell (display interactive features / procedural knowledge but also seeing and learning from peers' examples).
Fred Nov 2012	UK, straight from school /college. Worked with Peter, interviewed in first year of study.	Positive. Sharing – useful in class, non-committal re online "yeah, can't see why not" (PF287). Group consensus - turns starting 'yeah, and…' - finishing each other's sentences.	Novelty, fun, engaging, multimodal nature (visual + aural), more creative than written work.
Max Nov 2012	Mature student from outside Europe, professional artist, interviewed in his first year	Positive. Screencast as a welcome substitute for essay. Sharing useful and the right thing to do (reciprocity). Intending to share online.	Visual and social aspects (others will watch it but essay just for tutors). Skills dev-t. Dyslexia, being an artist, visual memory, new experiences, conversation topic with friends outside University

Ryan March 2013	UK, straight from school /college. Interviewed with Fiona, in first year of study – but worked in separate screencasts.	Moderately positive. Not considered sharing – "might do, haven't thought about it to be honest [laughs]" (RF082) but seeing others' screencast is useful (RF053-057). No particular group consensus or disagreement, some difference in opinion but mostly making their own points.	Pros – enjoyable / fun, show-and-tell, hands-on / practical, easier to start than essay. Personal - "cack at written work" (RF068), relevance / goals – "if I wanted to be a writer, I'd do journalism" (RF073). Cons – having to find 'correct visuals'. Sharing – instrumental (what scr should be like / improving own)
Fiona March 2013	UK, straight from school /college. Interviewed with Ryan in her first year, but separate screencasts	Negative, although prefers screencast to oral presentation. Finds it acceptable as an option, so people "play to their strengths" (RF070). Sharing – "definitely not" (RF081) but likes watching other people's screencasts	Screencast useful when needing a visual aid or peer examples. Reservations – limited depth, technical issues / frustrations, self-conscious re own voice.
Tony March 2013	UK, straight from school /college. Group interview with David and Evan, in second year of study.	Positive. Not intending to share. The least assertive / dominant in group interview. Consensus despite different approaches (laughing at each other's jokes / adding commentary)	More 'relaxing' and practical than essays, more control than in oral presentation.
David March 2013	UK, straight from school /college. Group interview with Tony and Evan, in second year of study.	Positive. Will not be sharing, but will use skills for producing other content that he will share. Consensus despite different approaches (laughing at each other's jokes / adding commentary)	Visual nature / show-and-tell. Fun, novelty, variation and engagement. Eases the way into writing. Developing skills to produce 'non-academic' Youtube content.
Evan March 2013	UK, straight from school /college. Group interview with Tony and David, in second year of study.	Negative. Not intending to share. The most assertive /dominant in group interview. Consensus despite different approaches (laughing at each other's jokes / adding commentary)	Frustration, tech issues, having to find suitable visuals, lack of depth, extra work for no benefit. Personal - 'I'm more inclined to be a writing person' (TDE). Social – would compromise own channel
Cassie Sept 2013	UK, straight from school /college. Worked with Josh, interviewed together just before starting their third year of study.	Ambivalent. Not intending to share. Interview dynamic difficult, short answers, not elaborating much, possibly constrained by 'researcher effect', and in its turn possibly constrained Josh's responses.	Pros – practical, relevant topic. Cons – too much work, lack of depth.
Josh Sept 2013	UK, slightly older, a couple of years break before Uni. Worked with Cassie, group interview just before starting their third year.	Positive. Open to sharing, but not intending to share at this point. Interview dynamic – more elaboration than Cassie, but possibly constrained by difference in attitude to their joint screencast.	Application of theory in practice, developing technical skills, tangible product, social aspect (something to show).

Larry Sept 2013 Feb 2015	UK, straight from school /college. Interviewed just before the start of 2nd year and in 3rd year of study.	Positive, depending on purpose. A good addition to assessment. Not intends to share, but making use of extracts in his show-reel. First interview via Skype failed to record, so only notes.	Pros – more engaging / interesting, opportunity to develop tech skills, opportunity to add to his show-reel for employers. Cons – extra work, restrictive length/depth, own voice, sometimes no purpose.
Jerry Sept 2013	UK, straight from school /college. Interviewed in his second year of study.	Positive, linking to creating and being "creative people", incorporating practical elements and making use of what you learn. Not sharing, but making use of material in show-reel.	Creative and practical nature. Enjoyment. Topic relevance. Developing technical and creative skills. Personal – "we are creative people; we like doing things more than researching them" (J082). Applying knowledge in practice (J044). Welcomes challenge – eg drawing not his strength but chance to develop 'wide range' and use in show-reel (J060-90). 'Time-consuming but I did not mind it' (J022.)
Karl Nov 2014	UK, worked for a few years between college and university. Interviewed in his third year of study.	Positive. Has not shared it. Would have liked to see other students' work (different module context / cohort culture?)	Visual, show-and-tell nature. Personal – education history, dyslexia. Restrictive format a pro rather than con, as it helps structuring an argument. Does not think it would be interesting to others.
Jake and Ray	Exploratory interview not part of the sample, conducted in first year of the study as part of a LTA project and to generate the initial codes and interview schedule		

App 9.2: Interview Schedule

- Views on using student-produced screencasts in the context of theory modules (rather than media production modules)
- Thoughts and feelings about their own experience of producing a screencast for assessment on theory modules
- Memorable moments – first reactions, details of the process, specific personal achievements or barriers
- Comparison to the more traditional assignments (essays and presentations) and their view on pros and cons from the students' perspective
- Views and intentions regarding online sharing or other subsequent uses[26]
- If they could change some aspects of the assignment brief, what would this be?
- With all said and done, would they say this is a worthwhile assignment / should it continue for future cohorts?

Whilst trying to keep to the schedule and cover the above questions, I allowed the participants to speak freely and lead the conversation in pursuing the avenues they felt like talking about. The exception was the interviews where participants were not talkative and required more prompting. This resulted in lower consistency between the interviews but gave me a clearer understanding of the participants' different priorities as well as more clues about their own dispositions and approaches to study. Whilst personal dispositions were not part of the initial agenda (which was limited to descriptions and evaluations of experience), this aspect gradually came to the fore during analysis, due to its salience within the empirical material and its relevance to motivation and engagement. However, at the time of the interviews, no participant was asked, prompted or otherwise encouraged to reveal or evaluate their personal dispositions.

[26] This was not part of the initial schedule, but introduced after the first two interviewees mentioned it as an important aspect

App 9.3: Participant invitation and information letter and consent proforma

Dear student,

My name is Geir Petter Laingen, I am a PhD researcher currently looking for student volunteers to participate in my research project.

My research focuses on digital audio-visual resources produced by students as part of assessment on university theory modules (such as screencasts, videos, websites, online tutorials, wikis and similar). I am interested in students' experiences of producing these resources, and their views on any benefits, drawbacks or difficulties compared to the more traditional forms of assessment. I am also interested to find out students' views on the University using and distributing these resources after the assessment is over.

I would be grateful if you agree to help, as I appreciate how busy you are with your studies, work and social life. Taking part in this project will involve participating in two interviews, each lasting about 30-45 minutes. I would also need your permission to show your resource in focus groups with potential users, supervisors.

You tutors will only be involved in this project as respondents, that is, they may also be interviewed to provide their own perspective on such resources. Faculty or administrators from the university will neither be present at the interview, nor have access to the interview recordings or notes. All data gathered from the interviews will be anonymous and securely stored. The only person having access to the raw data will be myself. Whether you decide to participate or not, this will have no effect on your assessment.

I hope you will consider taking part, as this would be an opportunity to reflect on your learning outside of normal class structures, and it might also provide you with an insight into research processes which you can utilise later in your own research projects. If you are interested or want to know more I will be holding an initial briefing meeting approximately one week after the date this letter has been sent out. For further details, please contact me via email or SMS to my mobile phone at the bottom of this letter.

Thank you very much for your time

Geir Petter Laingen
PhD researcher
(personal details removed)

Consent for participation in an interview on the perceptions of student-created audio-visual resources

I volunteer to participate in a research project conducted by Geir Petter Laingen. I understand that the project is designed to gather information about students' perception on student created audio-visual resources, and is to be used towards a PhD research project.

1. My participation in this project is voluntary. I understand that I will not be paid for my participation. I may withdraw and discontinue participation at any time without penalty. If I decline to participate or withdraw from the study, no one on my campus will be told.

2. I understand that most interviewees will find the discussion interesting and thought-provoking. If, however, I feel uncomfortable in any way during the interview session, I have the right to decline to answer any question or to end the interview.

3. The interview will last approximately 30 - 45 minutes. Notes will be written during the interview. An audio recording of the interview and subsequent dialogue will be made.

4. I understand that the researcher will not identify me by name in any reports using information obtained from this interview, and that my confidentiality as a participant in this study will remain secure. Subsequent uses of records and data will be subject to standard data use policies which protect the anonymity of individuals and institutions.

5. Faculty and administrators from the university will neither be present at the interview nor have access to raw notes or transcripts. This precaution will prevent my individual comments from having any negative repercussions.

6. I understand that I can at any given time (up to two months before publication), contact the researcher and review the data I have given, and the subsequent analysis and presentation of it.

7. I have read and understood the explanation provided to me. I have had all my questions answered to my satisfaction, and I voluntarily agree to participate in this study.

8. I have been given a copy of this consent form.

App 9.4: Interview vignettes

Vignette 1. Tom

Tom, an Animation and Visual Effects student, was interviewed in his first and third years of study, in October 2012 and March 2015, each interview lasting approximately 40 minutes. Even though the first interview took place early in the first year, it became clear that Tom had already developed useful learning strategies and self-regulatory habits, which helped him to cope with unfamiliar experiences and benefit from them. The defining features of his account were relatedness and openness to challenge. Tom's words "easier is not always the best" became a key in-vivo code capturing a particular stance shared with four other participants (Larry, Andrea, Max and Jerry). Since the last interview, he has successfully graduated, completed a postgraduate course at another university, and began working in the Visual Effects industry.

Tom had no previous experience of screencasts and found it useful to see examples from previous cohorts before embarking on his own. He chose to work with Adobe AfterEffects software, which he had already used "for donkey's years" prior to university and owned his own copy. He worked on his screencasts at home, rather than on campus, and thought that most of his course mates did the same. Tom was confident in his skills apart from "little things" which he "had to google here and there" (T2:072). He helped his fellow students who were less experienced with the software but did not think that any extra training was required, as the screencasts were not marked on technical quality. Most students on his course either had the basic technical skills already or accessed YouTube for online tutorials.

During his degree course, Tom produced two screencasts, for the first-year modules 1A and 1GDMA. His first screencast for Module 1A explained the methods of blue screen compositing. His priority was to make his screencast informative and well structured, without it

becoming boring. Addressing and engaging the audience was more important for his screencast than for an essay, as essays were primarily written for the tutor. For this reason, he expected to make more revisions than he would in an essay (as we shall see later, this perception was quite widespread across the interviews). During our first interview, Tom was still in the planning and research stages, and was looking forward to production:

> "I am looking forward to doing some design work, because that's what I did in college. I look forward to kind of getting back into that, and… kind of igniting my creative side […]. In my script I've got, like, little brackets of scenes, and what I got of graphics that can go in the background, so it is nice to be writing it, but also imagining it as it goes through the creative process." (T1:062-064)

For 1GDMA, discussed in the second interview, Tom worked together with another participant, Larry, producing a video resource for the university's writing support unit. It was based on vox-pop-style audio-tracks, approximately half a minute long, where students from other universities reflected on their approaches to writing. The audio recordings were provided by staff, with students choosing one particular track to visualise. The visualisation was followed by a reflective account of the student's own creative decisions.

For 1GDMA, Tom worked together with another participant, Larry, producing a video resource for the university's writing support unit. It was based on vox-pop-style audio-tracks, approximately half a minute long, where students from other universities reflected on their approaches to writing. The audio recordings were provided by staff, with students choosing one particular track to visualise. The way Tom explained his initial reactions and choices, is one of the many examples of his openness to challenge:

> "There were two [tracks] that I kind of pondered on. The one where he talks about a flow from the brain to the pen … I think a lot of people went for that one, because it is quite easy to visualise. Whereas with this [other track], there was more depth behind it […] a lot of angles you could come up with, and I liked that" (T2:108-112).

Tom's high level of relatedness was also evident throughout, and he often emphasised the social aspects of learning and creativity. His reflections on producing the writing support video, brings out his openness and appreciation of other perspectives.

> "Creative writing, well, writing in general, is not my strong point. So there I was kind of… 'Yeah, we are going to be animating! Oh no, it is about writing!', and that kind of brought it down a little bit [laughs]. Being an animation student, I find a whole lot of people who don't like writing much. So, it was interesting to hear the perspective of someone who gets quite a lot of enjoyment out of it. It might be like … when some animator is talking about animation, they would be the same kind of vibrant, and be able to explain it really, really well" (T2:116).

Tom was enthusiastic about his screencasts, emphasising the development of creative and technical skills, as well as working visually, which he found easier due to dyslexia. Although he preferred screencasts to other assignments, in the second interview, he admitted that an essay would have probably been more informative and better structured. Overall, Tom felt that screencast production was a good experience. It was a "practical bit in a theory module" which "does not happen often", and so he knew he "should take advantage of it" (T2:141). Apart from providing a break from academic writing, he developed the skills he saw as valuable for his chosen career. He also enjoyed the social aspects of the assignment, in particular in GDMA1, which involved an authentic client brief, and a mixture of competitive and collaborative elements.

Vignette 2. Larry

Larry, an Animation student, was interviewed in his first and third years of study, in October 2012 and February 2015. The first interview was via Skype and lasted approximately 40 minutes. Unfortunately, the audio failed to record, so I could only use the written notes made during the interview to outline the context and the general stance. The second interview lasted just over an hour, allowing us to go over some of the details lost in the first interview and verify my previous notes. The defining features of Larry's interview accounts were self-awareness and a sense of agency. Similar to Tom, he welcomed new challenges, and directly linked any benefits of the task to the amount of effort that he has put into it. He has since graduated and set up his own media production company.

During his degree course, Larry produced four screencasts: two in his first year, for modules 1A and 1GDMA, and two for his second-year modules 2A and 2P. For Module 1A, Larry produced a learning resource explaining three fundamental principles of animation (anticipation, squash-stretch and overlapping motion). He chose the topic that seemed "most relevant to what I wanted to do, and I was quite happy about it because it wasn't written" (L2:016). As a basis for the script, he revised lectures and recommended readings provided on Blackboard. He then recorded the audio "which seemed to take forever", and spent some time finding images and video-extracts to illustrate his points. Finally, editing the video took "three or four straight days, which was the most fun part" (L2:028-032). For 1GDMA module, he worked with Tom to produce an animated resource about academic writing for the University's educational development unit. He enjoyed this assignment and considered it useful for his future career, in particular its client-based aspects.

Larry owned his own copy of the preferred software and worked on all his screencasts at home. Although initially he was not experienced with the software, he did not require extra support due to the availability of online software tutorials. Having produced a short practice screencast

in the first week of 1A reassured him that the task was easily manageable, so he decided to use the assignment as an opportunity to learn a more advanced professional editing software:

> "I used Adobe Premiere […], I mean, I could've probably used something simpler, but I knew at the time that I needed to get to grips with Premiere, so I thought I may as well try and use it. […] I can't remember there being much [technical] support, but I am sure there would have been if I had asked. Because we did a practice screencast first, and everyone had managed to make one, it was pretty obvious, you know, technically. Everyone knew what they were doing" (L2:047, 063).

Whilst Larry generally preferred visual work to writing, he reiterated several times that the usefulness of the assignment depended on the purpose and implementation details. He felt that his first-year screencasts, 1A and 1 GDMA helped him develop a variety of relevant skills, as well as deepening his understanding of the subject matter. The second-year screencasts, however, were less beneficial. His Screencast 2A largely reiterated the material from the written report, although in a more condensed and visual fashion so he questioned the need for both tasks. Vodcast 2P, he felt, was entirely counter-productive, as it required the kind of content which would have been better conveyed through a live presentation[27].

Larry did not plan to distribute his screencasts, although he placed them on YouTube as a back-up, in case the submitted assignment fails to open. Whilst he enjoyed making them, he saw his screencasts as a stage in the education process, an assignment to learn from and move on,

[27] Module 2P
is not part of my sample, and by the time of the last interview had already been discontinued. From the participants' explanations, I understood that they were required to interview a media professional, and then film themselves talking about the interview and their own career aspirations. The produced video therefore was similar to a video-blog or a recorded live presentation, which is what Larry is alluding to here.

rather than an object for public display. The future uses Larry envisaged, was cutting out a few short extracts for his show reel, as a way of demonstrating his technical animation skills.

All in all, Larry appreciated the screencast assignment because it added variety to the overall assessment diet and made it easier to explain and demonstrate animation or film-making principles. Whilst in his first-year interview he evaluated screencasts as a 'naturally' better choice for "creative, visual" courses, this changed by our third-year interview, where he emphasised the importance and usefulness of all types of assignments: reports, projects, oral presentations and screencasts. Fitness for purpose and the overall balance of assessment became more important than the benefits of any one format.

Vignette 3. Chris

Chris, an Animation student, was interviewed in his second year of study, in November 2012. By that time, he had produced two screencasts for Modules 1A and 2P, and was just starting on his third one for Module 2A. The second interview was planned but did not materialise as he took a year of study abroad. He has successfully graduated and went on to work in online marketing and free-lance content creation.

During the interview, which lasted 40 minutes, Chris came across as quiet and reserved, with tentative answers often starting with 'I don't know' or 'I guess'. Unlike Tom and Larry who offered rich and detailed reflections, Chris talked about the experience in very general terms, with little specific detail, even when encouraged to elaborate. He was ambivalent towards the assignment, although he welcomed the use of student-produced screencasts as a teaching aid, because they were produced "by people on the same level as you", which he found more engaging to watch than a PowerPoint presentation by a tutor (C:004).

Chris's first-year screencast for Module 1A explained three specific animation techniques, and he found this a useful, albeit time-consuming, assignment. He initially tried using university's PC labs, but found them too busy, so from then onwards he mostly worked from home. He acquired a copy of Adobe Premiere, rather than using the recommended free software, which he considered too limited in quality and functionality. Whilst most other participants began from planning the script and revisiting lecture notes and key readings, Chris started from imagining the type of visuals he would need to include, and what he might be able to say about them in the voice-over commentary:

> "When I make an essay I just sort of … under the headings, I make bullet-points of what I am going to do, and then sort of research it, and then it gets bigger, sort of half sentences and then words, and I will go through all that, and put it into proper sentences. […] For a screencast, I would probably first find all the examples I want to use, the screenshots I am going to use […] I think in my head, what I am going to talk about, but I would not have written it down anywhere. And then I'd go through YouTube and films, finding examples, and go through Google Images finding images. And then, if that sort of … fits in with what I want to say, then I'd start recording it and put it all through video-editing software, and kind of put it all together. Which I think is the most time-consuming part" (C:090-094)

His screencast for Module 2A was still in the planning stage during the interview, although he admitted not having read the assignment brief yet due to more pressing deadlines on other modules. At the time of the interview, he had just received feedback for Vodcast 2P, for which he expressed a strong dislike as the assignment brief required too much content for its short duration.

Chris found the process quite daunting and stressful, and more time-consuming than traditional assignments. Unlike Tom and Larry, he would have welcomed more technical support, in particular an early workshop on audio-recording, as this is something that he and his peers had struggled with. He admitted feeling better about it once the work was completed, and able to appreciate the benefits of skill development, in

particular video-editing. His first screencast was already on his YouTube channel, partly as a back-up and partly to get feedback from viewers. He was unsure if his latest screencast would turn out well enough to upload it, if the quality is not very good then "it is embarrassing to have it among your work" (C:057).

Despite not enjoying the task, Chris felt that screencasts are generally appropriate for university assessment. He acquired the media skills which he might not have been able to acquire through the traditional written coursework, and due to the prolonged engagement with the material he remembered it much better than other content from that year. Screencasts added diversity to the overall assessment diet, making it "fair for everyone" and "pretty good for people on our [arty] course" (C:105). Chris's advice to anyone wishing to introduce screencasts into assessment was to ensure the time limit is adequate for the required content, and to include a formative 'practice screencast' before the assessed one.

Vignette 4. Andrea

Andrea, an animation student from Eastern Europe, was interviewed in her first and third year of study, in November 2012 and March 2015 respectively. In the interviews she mentioned four screencasts for different modules (1A, 1GDMA, 2A and 2P) but only two were discussed in detail. During the first interview, lasting about 30 minutes, Andrea was quite reserved, but by the time I interviewed her again in the third year, we got to know each other through involvement in university activities. The second interview was therefore more relaxed, lasting almost 90 minutes, and providing rich reflections (although at times veering off into marginal areas). Andrea has now successfully graduated, completed a postgraduate course elsewhere and is working as an independent film-maker, producing animated shorts for international studios and festivals.

Andrea's attitude towards the screencast assignment was ambivalent, although more positive than Chris's: "It was useful, it was interesting […] but I can't say it was necessary" (A2:076). She considered the development of technical skills to be the main benefit, as she came from a classical art background and had no previous experience in video or animation technologies. Like Tom, Larry and Chris, Andrea considered Vodcast 2P to be "pointless" and ill-designed. She appreciated Screencast 1A because it "forced" her to develop technical skills, and enjoyed the storytelling aspects of Screencast 2A, but it was the essay which she considered to be the most important assignment for both modules. Any benefits of the screencast were expressed in a quite reserved way, and mostly in the context of her overall university experience:

> "I enjoyed the process, because in the first year I enjoyed pretty much everything […] With screencast, I didn't feel it was extremely useful. But at the same time, I could see benefits of it. As a task for a first-year theory module, it was quite good. It was just an addition to an essay anyway. And, personally for me it offered a little bit more of a challenge… which was, yeah, which was good" (A2:018).

Andrea worked on all her projects at the University, using Adobe Premiere software that she did not have at home. This also enabled her "to separate work from life … you come to work to do work" (A2:054). She did not intend to distribute her screencasts, although she did not object for them to be used by tutors as an example for new students. Her screencasts were merely assignments, something she may have been proud of at the time, but now "done and forgotten". She compared it with looking at her own childhood drawings, describing them as 'oh so cute' but not representing her current ability.

Despite some similarities with Tom and Larry, Andrea's narrative was in many ways unique. Firstly, she did not view university as preparation for employment, but rather as part of personal growth. Whilst others valued creating a product for a client or real audience, Andrea disliked

those aspects, and felt they restricted creativity and depth. Secondly, Andrea was the only participant who seemed to appreciate theoretical study for its own sake, really enjoyed reading and writing, and did not need "any extra additions to make it more interesting" (A2:084).

Like Larry and Tom, Andrea's account revealed a strong sense of agency and self-regulation: "I tried to programme myself to enjoy everything, and that approach helped" (A2:036). Her multiple comments throughout the interview indicated that her acceptance of the screencast was largely informed by her overall attitude to university as a place of personal development, which she was determined to enjoy. She didn't seem to be daunted by the workload, having been used to it in high school, where "we normally had forty hours of lectures a week […] and after that I also had my art school" […] (A2:054).

Andrea's overall orientation to learning, her previous educational history and high self-efficacy, may explain why she did not recollect any particular frustrations with the screencast. Her main objection was that the format itself seemed simplistic and instrumental in nature. She strived for creative and intellectual challenge, but the assignment brief required her to explain something very basic terms to a hypothetical 'novice' (who, in her opinion, would have been better off going to the library or reading Wikipedia). She accepted that this sort of work also involves creativity, but it was "not the type of creativity" of interest to her. As soon as the initial technical challenges were overcome, there were no further learning benefits left, and her time would have been better spent either on more advanced theoretical study, or more advanced film-making.

Vignette 5. Max

Max, a mature student from the Middle East, was interviewed in November 2012, during his first year of studying animation, when he was half-way through making his first screencast for Module 1A. By the time I met him, Max was already a professional sculptor, and had lived,

worked and studied in several different countries. English was not his first nor second language, and as I am also a non-native English speaker, the language barrier presented significant difficulties in this interview. There were misunderstandings on both parts, and I often had to paraphrase my questions, or explain specific words. However, Max was a very warm and friendly interviewee, trying to provide as thoughtful and considered answers as possible. At times, when the language failed us, he doodled on a piece of paper to support his explanations, and it seemed that this was quite natural for him, something he was used to doing.

Max was probably the most enthusiastic of all my participants, offering several reasons for his appreciation of the screencast assignment. As a dyslexic and a non-native speaker, he found writing and typing difficult, so he screencasts useful both as an alternative assignment format, and a learning resource. Throughout the interview, he made repeated references to 'visual memory'. Whilst he acknowledged that the assignment would not suit everyone, as an artist, he found it much easier to remember something that he saw or felt, rather than hearing or reading (M:010).

Max's other comments focused on the technical skills required to produce more interesting work, and on the usefulness of screencasts in demonstrating specific procedures or techniques. However, elsewhere in the interview, there were several glimpses into his personal context and aspirations. He became very excited when talking about his screencast case studies, *Waltz with Bashir* (2008) and *Persepolis* (2007). Both are animated documentaries, rooted in autobiographical material and dealing with serious issues such as war, politics and personal trauma. That particular extract finishes with his remark: "This is why I came here, to make things like this; I could not make things like this at home" (M:048).

When creating Screencast 1A, which aimed to explain core cinematography concepts with references to his chosen film, Max started from watching past examples, as well as various YouTube videos, to get the feel for the overall flow and how the images might be combined in a typical screencast. He then watched his chosen film and selected the scenes that in his view illustrated most clearly the concept or principle he was going to discuss. When the rough visual flow was ready, he wrote his script around the selected images, commenting on their composition and the cinematographic techniques used.

Because of his strong accent, Max decided not to record a spoken audio-track, but used textual slides accompanied by the music extracts from the film score. This limited the amount of information he was able to convey, as he was unable to provide verbal and visual information simultaneously, so he used more screen-time for each point. He would have also liked to create a screencast with more flair, but was held back by his lack of software skills, which he explained by his age and different prior experiences:

> "in this day, the younger generation knows all these things […] I studied before as a sculptor […] and we did not have these things" (M:097)

Social aspects were very important to Max, and he mentioned several times how he learned from observing other students' screencasts. He offered many comments, both critical and appreciative, about specific screencast examples shown in class, and the techniques the authors used to guide the viewer. Although his own skills were more limited at the time, he could clearly see what had been done in each case, and what he would need to learn in order to produce a similar effect in his own future work. Max also used his work on the screencast to enrich his social interactions outside the university. He frequently discussed his topic with friends, taking in their comments, but also teaching them something new:

> "When I told other friends, they are not students, each friend has got something to say. It is not just … take a camera and film it, they all use techniques and composition, lighting, shadow, and… [my friends] did not know, it was something new for them. Was interesting for them, yeah" (M:064).

This, he feels, would not have happened with his written work. Essays are something that only the tutor will read, you "cannot put them on YouTube", they are not interesting for others (M:060), people would not "have enough time to sit and read" them (M:064).

Max intended to share his screencast, despite its technical and creative limitations: "Yes, of course, when I finish it I will put it on YouTube" (M:060). He explained this in both ethical and pragmatic terms. Sharing his screencast online would be fair, as he had used other people's videos for inspiration, and therefore his screencast should be available for others to learn from. Showing it in class was also part of a reciprocal process: "if I don't show mine, they do not show theirs", and an incentive to take more care and produce better quality: "I was imagining not to do something wrong so they do not laugh at me *[laughs]*" (M:117). The prospect of sharing seemed natural to Max, and he saw it as expanding experiences for all involved: "This is the idea to show each other, and learn more… To have more experience" (M:119).

The defining characteristics that stood out to me in this interview, were Max's self-awareness and social relatedness (both in the way he spoke about other students' work, and the way he drew on his outside social networks). The screencast assignment seemed to fit in with his sense of self and his orientation to life and education. It allowed Max to side-step several barriers associated with linguistic expression and written assessment, enrich his social life and provide an opportunity to learn new skills. The overall task value was therefore very high in his estimation, whilst the time and effort required were perceived as less than would be required for an essay.

Vignette 6. Peter and Fred

Peter and Fred, two Game Design students, were interviewed in November 2012, in their first year of study. At the time of the interview they were in the process of producing their first screencast for Module 1G, on which they worked as a team. The interview lasted for almost one and a half hour, the atmosphere was very warm, and the participants came across as confident and willing to talk. They often finished each other's sentences, shared several in-jokes, and were in agreement with each other throughout the interview, as illustrated in the extract below, making the point that oral presentations are less controlled than screencasts.

> "P: You can still, you still have practiced it over and over, but obviously
> F: …. there are bits that you can miss out.
> P: Yeah, or may read and think 'I don't really understand all of it'
> F: Yeah" (PF:134-137)

Their screencast focused on challenges and player actions in videogames. They split the work equally, each researching a specific concept and working to their strengths. Fred then drafted a script based on the points from both pieces of research, which they discussed and adjusted together. When it came to video and audio-narrative, they again worked separately to start with, each recording his own part, and then Peter edited it all together into one product. At the time of the interview, the screencast was still being edited, to identify and fill the gaps in video footage or voice-over narrative. They both worked from home, using their own hardware and software, and communicating via Facebook as well as face-to-face.

Peter and Fred highly valued the screencast assignment, finding it more interesting and creative than the traditional types of coursework, and particularly suitable for 'creative' courses. It also helped to develop their knowledge and academic skills, especially for those coming from more practical courses. Creating a visual learning resource for a novice audience meant they were "learning about the subject more", "reading books for references" and then "reworking into your own words" (PF:018-19), trying to "help [the viewer] to understand it […] even if you do not understand it as much" (PF:143), as a result, increasing their own understanding of the material. Social and performative aspects of the assignment were also important to Peter and Fred. Interim class presentations and peer critique of work in progress provided an opportunity for learning and emulating academic conventions, as well as a competitive element motivating them to invest more effort.

Communal viewings can also make the process "a bit competitive" (PF 091). Peter and Fred welcomed the competitive element but acknowledged that it may encourage students to invest too much time and resources into achieving high production values. For example, to get the highest possible video quality, Peter and Fred felt they "had to" invest in an expensive video capture card for Xbox, because a cheaper card would have been able to capture the footage needed, it would have been in grey-scale or in lower resolution[28]. Whilst this was Peter and Fred's own choice, they felt there was a possible accessibility problem for other students who may not have their own hardware and software and rely on the unsophisticated free tools or the university PC labs. Despite this, Peter and Fred enjoyed the screencast assignment, welcomed it as a novel addition to creative courses and experienced the social and performative elements as a source of motivation and learning.

[28] Nowadays, the videogames consoles have the inbuilt capture and streaming tools, so this is no longer a problem, but at the time this was not freely available. Therefore, the tutors advised the students to use video-examples from PC games, for which there already existed free capturing software, however Peter and Fred wanted to use a highly popular game they were currently playing on X-Box. There may be a 'cultural capital' element there too, in particular for Game Design students seeing free PC games tend to be casual and low-prestige, as opposed to the console best-sellers.

Vignette 7. Ryan and Fiona

Ryan and Fiona, two Digital Media students, were interviewed together in their first year of study, in March 2013. They were friends and shared the same student accommodation, but worked on different screencasts for Module 1GDMA, which they had just completed. The interview lasted about 30 minutes, the participants answered very quickly, and expressed very clear-cut opinions. Each focused on one particular theme that seemed to have dominated their experience, and it was difficult to explore other issues. Ryan was very enthusiastic about the screencast, he was usually the first to answer, and talked more. Fiona was more reserved and less keen on the screencast, I wondered if she might have expressed a stronger opinion if she'd been interviewed alone. The defining theme of this interview was the importance of diverse assessment allowing students to meet their different needs and "play to their strengths" (RF:078).

Fiona's screencast compared two clothing retail websites and how they appealed to different consumer demographics. She used Adobe Premiere provided by the university and worked on campus. Fiona's approach to research and planning was similar to how she would approach an essay. She started from reviewing the module readings ("articles on Blackboard") and producing a list of points and quotes, then went to her chosen websites and "took many screenshots", looking for "things which were relevant to the quotes". She used this material as the basis for her script, then recorded the audio and edited the video in Adobe Premier (RF:011).

Ryan took an opposite approach to his screencast on the usability of social networking sites. He started from looking at the websites, using their functions "like a newbie" and recording his immediate impressions directly, without reviewing set readings or producing a script. He used his own laptop and the free software Windows MovieMaker. Ryan was very positive about the practical and visual nature of the screencast assignment, finding it "more enjoyable and fun than just sitting and doing essays" (RF:042). The screencast felt "more like a task

than theory" which "kept him interested" (RF:067), and it was far less frustrating than writing. Whilst enjoying the screencast task, he preferred oral presentations, allowing him to "choose what I want to say at that particular time" (RF:017), as well as getting live feedback and interacting with the audience. His other difficulty was finding enough background research on his topic. Where other participants found it difficult to fit in all their material into the strict time limit, Ryan struggled to fill out the required length.

Fiona, on the other hand, preferred screencast to live presentation, as she was nervous about public speaking and anxious about losing the track. She described her screencast as 'tidier', because it was recorded in advance, offering more control over its appearance compared to live presentation. However, given the choice she would have opted for an essay, as she was used to essays at school and considered herself good at writing. Despite careful planning, Fiona found the screencast process too frustrating and hard. She did not object to screencast in principle, in fact when she observed her peers' work in progress, "it made me want to do it, but I was scared" (RF:049). She simply felt that all the technical problems made the process counterproductive. Fiona acknowledged that the assignment may be good for those who struggled with writing or enjoyed working with technology but felt that it should be optional. This way, everyone can play to their strengths and spend valuable time developing content.

Vignette 8. Tony, David and Evan

These three Game Design students were interviewed together in their second year of study, having just finished their screencasts for module 2E[29]. Evan's screencast analysed transmedia elements in the Final Fantasy series, Tony focused on a case study of game-to-film adaptation, and David researched into fandom and player communities. Tony and Evan worked alone on their screencasts, while David worked in a team

[29] An elective theory module, shared by five courses in the media arts programme (but mostly attended by film and games students). The module focused on popular media franchises, transmedia storytelling and fandom, and has been now discontinued

with another student. The interview lasted about 45 minutes. The participants were at ease with each other and shared several in-jokes, whilst remaining quite firm in their own positions.

One interesting aspect was that all three participants stated that the use of Windows Movie Maker was mandatory, although the assignment brief only suggested it as a free tool which produces good enough quality. This created problems for David, as both he and his partner owned Macs rather than Windows PC. The university labs were too noisy for audio-recording, so they had to borrow a laptop from a friend and work at home.

Despite several technical and logistical problems, David was enthusiastic about the task. He had not made a screencast before, as the assignment was optional in his first year, but he watched "tons of" video-tutorials and game reviews on YouTube, and used them as an inspiration:

> "D: It helped me a lot to see how they have visuals to what they are saying, and seeing how concise and to the point they are. It meant that the first few times I recorded I ended up with an American accent *[laughs].* But it was very helpful to see how it was done, as at first I didn't know how to start a screencast, but then I just thought it was like doing a game review but with more refined points" (TDE:019).

David explained any difficulties by his lack of previous experience, rather than the inherent problems of the format. Like several other participants, David felt that screencasts are more visual, concise and 'fun' than essays, and offer more control than live presentations. Like many students, David already had his own YouTube channel prior to university, where he shared his favourite videos. He had been planning to

produce and distribute his own game reviews and software tutorials, so working on the screencast assignment reignited this desire and introduced the relevant skills.

It was David that referred to the screencast as a "spoonful of sugar" for "tedious theory", with Evan joining in and singing "makes the medicine go down" (TDE 060). He enjoyed the informal tone and style of a screencast and the opportunity to work visually and to engage a diverse mix of skills. For him, researching visual material online felt less daunting and more immediate than "sitting down and thinking 'right I'm going to have to do some research now' which can often be like … argh" (TDE:076). However, academic skills were also developed in the process, alongside technical skills. Producing a screencast was a good introduction to the topic before attempting a more advanced written report or essay.

The second participant, Tony, was less talkative and mostly responded or added to the points made by others. This was his second screencast, which made the experience easier. Tony followed the tutor's suggestion and used Windows MovieMaker, however his home computer had a different version of the software incompatible with the University PCs, resulting in multiple crashes or files not opening. Like Peter and Fred, Tony used a console game he was playing at the time as his case study, but rather than buying an expensive card to capture his game footage, his solution was to place camera in front of the TV.

Despite technical problems and compatibility issues, Tony still described the screencast as a more "relaxed" way of completing an assignment, compared to "frustrating" essays or "stressful" live presentations, where he could often forget what he needed to say due to feeling nervous. The screencasts could be perfected and re-recorded at his own pace, which was particularly important for discussing real-time processes in

interactive media, requiring more precise timing of visuals and commentary. Any unwanted emotions, stress and anxiety could also be dealt with away from public view, rather than in front of the class, providing more time and space to employ regulating strategies:

> "T: You have to put yourself into a relaxed chilled-out state […] The second it started going bad I just kind of left it and gave myself half an hour break, because otherwise it would be a downward spiral … and then I found it was better" (TDE:067).

The third participant, Evan, expressed a strong dislike for the task, and maintained this position even when Tony and David presented counterarguments to it. By his second year, Evan already gained a well-established online presence, with a Deviant Art portfolio and a YouTube channel bringing in some income. He did not intend to share his screencast as he felt it would "compromise" his channel, which was clearly understood and supported by the other two participants:

> E: I have a YouTube channel and I get quite a bit of income from it, I have a good following, which I don't want to compromise, so I won't be adding this [screencast]
> *GP: Compromise?*
> E: Yeah, the topic is a bit… And the quality is not that great anyway…
> D: You can't really monetize Uni work, can you?
> E: Harvard referencing … *[all laugh].*

Evan saw little point in the screencast task, partly because he generally preferred written assignments. He described himself as "more inclined to be a writing person than a speaking person", and found the screencast format too limiting and superficial, "just a summary of my topic", "not explaining it in detail" but "having to breeze past everything" (TDE:065).

Whilst David and Tony welcomed the opportunity to express their knowledge through a combination of visual and verbal material, Evan's topic involved the discussion of abstract theoretical concepts, so the visuality of the format was more of a hindrance than help.

> "E: For me, it was just annoying having to spend time searching for all these photos to give it a variety. It just got to the point where I really didn't see it as applicable, it is not something that I would use in the future… […] There is no educational basis in that, as you're finding photos to fill a gap, whereas in a presentation or essay you don't have to do that" (TDE:091-093).

Evan felt that the assignment should remain an option, echoing Fiona's point in the earlier interview. The difference was that for Fiona, technology presented a significant barrier due to her lack of prior experience. She might have valued the outcomes, but the required input was extremely high. Evan, on the other hand, had a daily experience of using similar technologies, and derived income from fairly similar activities. It seems that for Evan, the outcomes were simply not valuable enough to justify the amount of work required. It is in Evan's interview, that 'cost-benefit' balance began to emerge as an important theme, to replace my earlier focus on the inherent 'pros and cons' of the screencast.

Vignette 9. Cassie and Josh

Cassie and Josh, two animation students, were interviewed in September 2013, just before staring their third year. Both have now graduated and are working in creative industries. They worked together on their screencast for Module 2A, and this was their first screencast. The assignment was optional in their first year, so at that time they had chosen a more familiar format of live presentation. The interview was fairly short, lasting just over 30 minutes, and the screencast was largely discussed in the context of the overall project, rather than a discrete

task. Both participants seemed slightly on edge, as they had to rush to another appointment straight after the interview, which limited my ability to probe further.

The participants seemed to have a good rapport as they often worked together. But there were undercurrents of disagreement about that particular project. Compared to other group interviews, much fewer details were offered, and I felt that each had much more to say, but may have been constrained by the presence of the other. Cassie tended to answer each question first, giving quite a strong opinion, whilst Jamie held back and waited for a cue, before providing a milder and less clear-cut view. The defining features of this interview was the influence of group dynamic and the situated nature of the students' evaluation of the task.

This interview focused largely on Module 2A, which involved a very different screencast from those discussed so far in this thesis and caused a very strong emotional reaction in one of the participants. Therefore, it seems worth to pause and revisit the details of the assignment brief. (It will also be relevant to Jerry in the next Vignette 9). The task involved producing a short animatic on a specific student issue, targeting a prospective client from any of the University services[30]. The animatic itself was not marked, but it was presented for feedback to the panel of staff drawn from the relevant services. In the interview Cassie and Josh referred to them as 'clients', although these staff were not involved in setting the assignment or any work in progress until the final presentation. The presentation was also not marked, but the received feedback was to be reflected upon and incorporated into the two assessed tasks, that is report and screencast. Both assessed tasks explained how specific theoretical concepts and animation principles were employed in the production of the animatic. The report had more emphasis on

[30] Animatic can be described as a 'draft version' of a film, produced by editing together the frames from its storyboard into a moving image sequence, and timing it to the soundtrack, so that the future film can be clearly imagined. A good animatic is the final 'proof of concept' before the film goes into production, it shows all the main points of the story, the key shots, angles and poses, and the overall rhythm of the story. In third year, when making their graduation films, the animatic is an important step in film development, along with script, concept art and storyboards. In the context of Module 2A, the animatic was basically a 'moving storyboard', less detailed and less perfectly timed than for the final year graduation film, but it still gave a clear idea of the look and feel of the future film, should it have gone into production.

theoretical literature (with screenshots from the animatic used as evidence of application), and the screencast had more emphasis on application (with just a few brief theoretical points and references).

Although not marked, the animatic was incorporated into the assessed screencast, forming one video, where the first couple of minutes played through the produced story, and the remaining five-six minutes explained how the selected concepts and principles were applied in production and critically reflected on own creative decisions. Therefore, the Screencast 2A was more of 'nested' task, than the first-year screencasts analysed in chapter 8. Whilst the first-year screencasts and essays addressed different topics, or at the very least different case studies, the content of Screencast 2A overlapped with the report.

Such a closely integrated assignment package can make it impossible to separate the different aspects of experience, for example where one particular aspect has impacted on the perception of the whole assignment. For example, Cassie initially enjoyed the assignment, but the clients' response to her animatic during the interim presentation has affected her view of the screencast as a whole. Because her screencast discussed the animatic and was supposed to incorporate reflections on feedback, it 'inherited' all the emotional baggage from that one presentation, making her 'relive' her negative feelings during the screencast production. The opposite can also be true as we shall see in next vignette from the same module (Jerry in 11.9). Because Jerry enjoyed making his animatic and felt proud of its final quality, he also enjoyed discussing its production in the screencast. The participants in these two interviews found it impossible to isolate the aspects of experience which related to different tasks, and frequently switched from one to another. My analysis inevitably followed the participants' approach to articulating their experience, so both 2A-related interviews are discussed as part of the overall module 'package', rather than the strengths and limitations of a specific format.

Cassie and Josh's animatic focused on depression, targeting students as an intended audience and the university well-being and disability services as potential clients. The surrounding screencast then focused on the narrative design concepts and visual metaphors employed in the animatic to convey the concept of depression in an engaging and empathetic manner. Initially, Cassie was happy with the screencast assignment, as it allowed her to pursue a topic close to her heart, having grown up around people suffering from depression. It was also an opportunity to exercise her creative and practical skills within a theory module. Similar to most other participants, Cassie felt that "theory or writing" are less creative than drawing and making things, and evoked her sense of identity as part of the explanation: "That's just me though, probably […] I am just not a writer, it's as simple as that" (CJ:043-045). She appreciated the importance of discussing and critiquing her own work, as shown below:

> "C: I liked that fact that it was fairly practical. I want to do as much practical work as possible… and… it was good to practice writing about own work, and not just other people's […] it forces you to think more about what you are doing, I think…" (CJ:019-021)

For Josh, the topic was less personal, and more of a chance to "do something good", to "make a statement about a misunderstood subject" that "needs to be talked about" (CJ:005, CJ:017). He enjoyed producing the animatic, but also appreciated the screencast assignment as a whole, because they helped him develop his creative media skills, and involved a practical application of theory. Theory was important, he explained, but only if it could be practically applied: "unless you use that theory in some practical work, then, you know, there is not much point, is there?" (CJ:022). Similar to Chris and Larry, he felt that the screencast contributed to the overall assessment diversity:

> "J: With this module, theory, creative work, presentations… having a client, getting that real-world experience in there, getting a good mix […] actually learning about the topic … yes, I have learned a lot" (CJ:025)

Cassie, on the other hand, felt that the module assessment was overloaded with too many elements. She would have preferred for the screencast to be scrapped, describing it as inferior to both essay and live presentation, offering neither immediate feedback, nor enough room for in-depth discussion. Cassie enjoyed making the animatic and during the interim presentations her visual designs received very positive comments from peers and the tutor. She looked forward to presenting the animatic to the clients, but felt disappointed and disheartened with their critique. The prospective clients looked at it from their own professional point of view, prioritising their service needs over its aesthetic or expressive qualities.

> "C: I was happy with the brief and the topic, but our final product, I was not very happy with it […] As we did our presentation to staff, everyone was throwing ideas at us about the things we could have done, had we thought about it […] For me it was intimidating [laughs] and I think if it was not the case, I would have been happier with what we ended up with" (CJ 012-014).

Whilst Josh agreed with Cassie's reservations, he felt motivated rather than disheartened by the clients' critique. Compared to presenting to fellow-students, he appreciated having an audience of "outsiders" with "skills and experiences in that particular area", whose feedback was relevant and helpful (CJ:027). Looking back at it, he saw how the screencast could be improved, for example by interviewing other students (CJ:011). When asked if they ever considered sharing their screencast, their position was again very different:

> "J: I mean, there is nothing stopping us revisiting it, revising it?
> C: As it is now, I would keep it to myself, because I am personally not happy with our final piece" (CJ: 039).

This brings me to the situated nature of experience and the judgments of its value. What seems to be happening here is that two students were initially interested and highly motivated by the project, but then diverged right at the end of the process. From the participants' comments, two reasons have emerged. Firstly, as discussed above, the interview reveals the participants' different orientation to receiving critique. Josh appeared slightly older and alluded to having been in work before starting the university. He previously studied IT and multimedia production, which tend to involve more team-work and an iterative and user-centric approach to product development. Cassie, on the other hand, came straight from school, and was less accustomed to discussing her creative work outside the class or creating a product for a specific kind of use.

> "C: I have never done anything like that before, because all I did before was a basic fine art course, which was just copying other artists, so it is not the stuff I have been forced to think about until then" (CJ:033).

Secondly, the timing of the experience itself and the interview. Cassie reported feeling good about the screencast whilst making it, but this completely changed towards the end of the module, partly due to the overall workload, and partly to the clients' critique. Several months later, during the interview, she remained quite negative, but now she could now see some benefits: "Now I am not at that stressful point, I feel we did a lot of work and that was a good thing […] But when you are at that point it is just stress" (CJ:062-064). This demonstrates that the initial expectations of what the experience would be like, can dramatically change in the process, and then change again, with the hindsight when the more lasting drawbacks or benefits can be seen more clearly.

Vignette 10. Jerry

Jerry, an animation student, was interviewed in September 2013, just before starting his third year of study. The interview took approximately 40 minutes. He had completed two screencasts to date, first choosing the screencast option in his first-year Module 1A instead of live presentation, and then producing a mandatory screencast in the second-year Module 2A. He was very positive about both experiences and saw them as a valuable stage in the learning process, rather than focusing on the quality of the end product. He was not planning to disseminate either of the two screencasts, except using small snippets in his show reel, to demonstrate his skills to future employers. Since the interview, Jerry has successfully graduated and gained employment as a CGI artist in a video-production company.

Jerry's first screencast for Module 1A explained three principles of animation. He opted for this assignment format because it was "something new". The set topics were "quite technical", and he chose the principles of animation because he thought he "may as well choose something relevant" (J:002). He remembered feeling happy when he first saw the assignment brief. Like most other participants, he described himself as a practical and creative person, so the opportunity to "create something" within a theory module was appealing. However, Jerry explained his reservations about writing not only in terms of a preference for practical activities, but also as a stage in his skill development:

> " I was just relieved that I did not have to write another essay. […] My writing was not as good back then. And I think it was our first assignment at the Uni… and I like making things" (Jerry: 012-014).

To create his first screencast, Jerry started from finding appropriate film examples that illustrated the principles he wanted to discuss, then edited them together. He added some quotes and bullet-points from the recommended readings, but tried to keep them brief, to avoid

making the screencast too boring. Once all the images, clips and quotes were in place, he recorded the voice-over, explaining how his selected animation principles were used in each film extract. The process, he thought, was relatively straightforward, as the topics were very clearly defined (J:002), and directly related to the set readings available on Blackboard. It was time-consuming, he admitted, especially the audio which he had to re-record "over and over again", but he "didn't mind that" and "quite enjoyed it, actually" (J:022).

Jerry was happy with the grade he received for his first screencast. Despite initially doubting his writing skills, he also achieved a good grade for his essay too, and he thought this was helped by producing the screencast first. Jerry was able to reuse some of his background research and to build on its loose structure, so the screencast eased his way into essay. Whereas Cassie and Evan saw the essay and the screencast as creating unnecessary double-work, for Jerry both were parts of the overall learning progression:

> "J: Come to think of it, I haven't done too badly in the essay either […], I did OK with that, better than I thought. It was easier to do the essay after the screencast.
> GP: Did you do it on the same topic?
> J: Not exactly, but it was still analysing a film. Only with a different angle […] I think it got easier, getting into all the research" (J:014-020)

The screencast was also a useful introduction to the video-editing technologies and skills, which he had little prior experience with. He created his first screencast using the recommended software, Windows MovieMaker, rather than the proprietary packages used in the industry. He found the software "quite crude" but appropriate for the required level of quality. As his skills developed and he gradually learned new software on other modules, his second-year screencast used Adobe Creative Suite, an advanced industry-level package.

Jerry's second-year screencast for Module 2A focused on the ways of conveying mood and emotion through mise-en-scene and sound design. Like Cassie and Josh, the explanation was illustrated with extracts from his own animatic created for a hypothetical client. Because the topic was more open than in the first year, Jerry found the assignment brief initially "a bit daunting", explaining that he preferred clear boundaries. However, he did not want the assignment to become more prescriptive, but rather described the strategies that enabled him to overcome the initial anxiety. For example, "narrowing it down into something you can […] relate to yourself" made it easier to approach the task (J:028). Having thought of various situations he witnessed as a student, he chose to focus on student budgeting, because of his familiarity with the issue, and its importance to other students.

Similar to Josh in the earlier vignette, Jerry felt that it was beneficial to apply theory in practice. In that sense, screencast can be seen as possibly increasing engagement for those students who are more practice-oriented, particularly in media. Jerry did not only speak for himself, but extended this definition to the whole course:

> "I don't think I would have enjoyed the module if we did not create our own thing. We are on an animation course, we are creative people, we like doing things more than researching them. So I think it is always good to have some practical elements of your own in a module" (Jerry: 090)

When asked to describe what he learned from making his screencast, Jerry presented a detailed picture. Whilst Screencast 1A helped him to learn basic video-editing and eased his way into academic research, Screencast 2A was an opportunity to practice storyboarding and animatic techniques and demonstrate his understanding of narrative design: "There was a little graph showing the generic story pattern, how it starts

off slow and then you get conflicts […] this will be good to input into stories in the future" (J:044). When asked about problems, Jerry could not think of any, apart from the process being time-consuming (but he "didn't mind this") and having to work towards a strict time limit for the animatic which affected the pace of the story. Any potential problems were turned into a useful challenge or coupled with some benefits.

Although the screencast was outside of his comfort zone (drawn 2D as opposed to 3D CGI, his main specialism), he looked at it as an opportunity to develop a fuller range of skills. Unlike Fiona, Jerry did not aim to 'play to his strengths' but welcomed an opportunity to improve what he was not very good at. Rather than judging himself in comparison to 2D artists or sound designers, he was happy produced something that was better than he would have done before. This is another sign of self-regulatory strategies, that is setting personal challenges relevant to one's own aspirations, and being able to realistically appraise own learning curve:

> "One of the proudest bits is the music, I wanted some instrumental in the background that would help convey the emotions within the animatic. And I am not very good with mixing audio, but I had two different songs that I managed to synch in with each other quite well. I imagine most DJ's could have done that in five seconds [laughs]. I am happy with that bit. And I am happy with - because I am not the greatest of drawers - so I am happy with quite a few of the pictures, but there are a few that I think are quite awkward... But overall, yeah, I am happy with it" (J:088).

Like Andrea and Larry, Jerry did not intend to distribute his screencasts but saw them as something to learn from and move on. Jerry understood the importance of showing your work online, networking or getting some client work experience, "especially for animation, where it can be difficult to get a job in a studio, and a lot have to do freelance work" (J:054). He was planning to use snippets of his screencast in his showreel, to show a more rounded set of skills, in addition to his main specialism. This interview once again demonstrates the importance of

the student's own dispositions and their impact on the perceived task value, throwing questions on the 'inherent' affordances of a specific task or technology.

Vignette 11. Karl

Karl is a Game Design student, who was interviewed in his third year of study. By then, he had created two screencasts, for Modules 1G and 2G respectively. Before enrolling on this course, Karl had already worked three years in full-time employment. Since the interview, Karl has successfully graduated, went on to postgraduate study and is now employed as a game designer in a company in Europe. Karl was initially approached in his first year of study, and agreed to participate, but unfortunately, his availability clashed with mine and he dropped out of the project. I approached him again when looking for repeat interviews with some of the original participants, and this time he was able to do it. He was very passionate about games design and the module. The interview lasted almost an hour and mostly revolved around the visual nature of the screencast, its usefulness for demonstrating game actions in real time, and for easing the students' way into research and writing. This was very important to Karl due to his dyslexia, he enjoyed writing but never thought he'd be good at it.

The first screencast Karl produced was for Module 1G in his first year. He chose the topic of game camera effects, as he was interested in film as well as games, and camera work is relevant to both. Karl remembered the assignment brief being very clear, and that he had a good idea of what the screencast needed to contain from the beginning. He does not remember seeing any examples in class but stated that it was all "fairly straightforward" (K:020). Similar to Max and Ryan, Karl did not start from a written script. Instead he mentally visualised what he wanted to show, then played the games he wanted to use as examples and looked for the moments in game which would help him demonstrate these camera techniques best. Using his own equipment, he captured the desired gameplay footage, and edited it together as a rough-cut copy. He then wrote a script to fit in with his video, before the final edit.

Karl's examples were from the most recent games which he and his peers were playing at the time. He had his own equipment at home, and enough technical skills not to experience problems. He admitted that a novice could experience technological barriers, including capturing the correct sequences, but the only problem he had himself, was keeping within the time limits. Overall, he was very enthusiastic about his screencast for module 1G. He found it much easier to construct an argument visually than in writing, which was reiterated several times throughout the interview. His referred to his previous academic experiences and compared then to 1G as follows:

> "It just seems to me that whenever I write an essay I tend to… I always got told I have structured it wrong […] And I was really surprised about the mark that I got [in 1G]. Before that … I sort of, just scraped along with essays and stuff, I was never good with essays" (K:046).

Karl was pleasantly surprised by the grades he received for both his screencast and essay, though he still did not think he could structure an essay well. Despite his dyslexia and reported difficulties with reading, Karl enjoyed the theoretical aspects of the course. On his course theory is only taught in first year, whilst the second and third years are very technical. Whilst he enjoyed making the screencast, it was very time-consuming, and involved more work than writing (K:072). However, the workflow of creating screencast before essay was useful in that it helped him create a clearer argument and rehearse his points before embarking on writing.

Similar to other game design students in this sample, Karl did not emphasise acquiring technical skills as one of the benefits of the screencast task. This is probably because the video-editing skills are more relevant for film and animation students, whereas game designer work with very different technologies. Rather he focused on the affective aspect, as he "found it more enjoyable than writing an essay, because I do not

think are really any fun aspects about writing an essay" (K:078). Another benefit was the ability of the screencast to show the effects in action, instead of simply describing them. This made his explanation clearer and more focused. Without this ability to show the process visually, he said he would have ended up "waffling" and spending many more words:

> "'It is just easier to explain what you are talking about, I think that's what I am struggling with, getting my point across exactly… If you got it visually there, people know exactly what you are talking about […] Like in there when I say 'you pull the left trigger and the camera moves closer towards him', and you can slow it down afterwards and express it then and there, and they are aware what you mean." (K:048).

The second screencast Karl made was for Module 2G, a practical module which involved creating a game level. The screencast was a walkthrough of the level with the voice-over explaining his design decisions. Karl did not enjoy this task, as it was followed by a written report, which he felt simply duplicated the work. Even though he acknowledged that he could show his game level more clearly in the screencast, he would have preferred to have just a written report. The level creation itself would have taken most of the available module time, and was the main learning outcome, so he did not see the point in creating two explanations in different formats. The screencast and report parameters were very technical compared to 1G, as they did not require any argument nor focused on a concept, but merely described the technicalities of what had been done in the level.

All in all, the visual nature of the screencast and the ability to focus on the games and topics of personal interest, made the task more engaging for Karl. The ability to capture his own gameplay and edit the flow of the moving image helped him focus his discussion on relevant aspects and demonstrate the actions and situations in real time. Subsequently, this helped him with his essay, by clarifying the possible structure,

bringing out important details and rehearsing the argument. This boosted his confidence and made him more eager to engage with written work, which he had not experienced before due to dyslexia and previous negative feedback. However, screencast required a lot of additional time and effort, and can lose its attractiveness if the student does not see its purpose, or if it appears to duplicate written work, rather than providing a genuine alternative.

App 9.5: GTM coding procedures (Urquhart 2013, p 13)

Book	Suggested coding procedure
Glaser and Strauss 1967	Comparing incidents applicable to each category (includes open coding), integrating categories and their properties (selective coding and theoretical coding), delimiting the theory (selective coding and theoretical coding), writing the theory.
Glaser 1978	Open coding, selective coding, theoretical coding.
Strauss 1987	Open coding, axial coding, selective coding.
Strauss and Corbin 1990	Open coding, axial coding, selective coding.
Glaser 1992	Open coding, selective coding, theoretical coding.
Strauss and Corbin 1998	Open coding, axial coding, selective coding.
Charmaz 2006	Initial coding, focused coding, axial coding, theoretical coding.
Corbin and Strauss 2008	Open coding, axial coding and theoretical coding as distinct stages no longer appear, though open coding and axial coding appear as terms in one chapter. The emphasis is on a broader set of tools named context, process and theoretical integration. Two coding paradigms are used as a foundation for context.

App 9.6: Scott's Conditional Relationship Guide

Extract from the conditional relationship guide						
Category	***What***	***When***	***Where***	***Why***	***How***	***Consequence***
Background as a factor	Expressed areas of personal history Expressed beliefs, habits, preferences and aspirations	Throughout life	In family and social context In prior life experiences incl education	Influence of prior experience Influence of personal characteristics incl health Habits, values, beliefs Influence / support by others Cultural influence	Existing skills / competences Different adaptability Different risks and barriers Different ethical values Different expectations Different life goals / priorities	Perceived ability to act and succeed in the task Perceived benefits and barriers involved Confidence. Openness to experiences / opportunities
Feeling able to act and succeed in the set task	Expressed perception of a manageable task, with no significant barriers, and/or own access to the means for overcoming any barriers Assessing own skills / knowledge either as sufficient or as relatively easy to gain Expressed access to resources required to succeed	Interpreting the brief Communicating with peers / engaging in joint activities Watching examples produced by peers / previous cohorts	In the brief In the task In joint activities In examples of previous work (past cohorts) In the provided infrastructure	Influence of background / history / experiences / characteristics (incl health) Importance of institutional infrastructure / scaffolding (technology, tutorial support) - as well as personal resources (time, space, money, hardware, software) and support networks (family and friends, online groups)	Different existing skills, barriers and self-concepts / confidence/ self-efficacy Different interpretations of what the brief requires (some contradictions re: same task) Different perception of the infrastructure / support / resources within University Different access to personal support networks / resources	Opportunity for action Motivation / demotivation Likelihood of acceptance The nature of engagement
Perceiving barriers to successful action	Expressed lack of confidence in ability to succeed – or success possible but with disproportionate time /effort Feeling ill-prepared / not supported / task inappropriate Skills / knowledge / resources as insufficient and hard to gain	Interpreting the brief Engaging in the task Communicating with peers Throughout life	In the brief In the task In own or joint activities In peer talk In the provided infrastructure	Influence of background / history / experiences / characteristics (incl health) Importance of institutional infrastructure / scaffolding (technology, tutorial support) - as well as personal resources (time, space, money, hardware, software)	Different existing skills, barriers and self-concepts / confidence/ self-efficacy Different interpretations of what the brief requires (some contradictions re: same task) Different perception of the infrastructure / support / resources within University	Opportunity for action may be limited or not perceived Task legitimacy may be reduced (with possible impact on peers) Motivation / demotivation The nature of engagement

	Mentioning specific barriers beyond normal learning curve (eg disability, EFL, technology)	esp. education history	In prior life experiences incl education	and support networks (family and friends, online groups) Is the task appropriate?	Different access to personal support networks / resources	The produced screencast (aesthetic, genre, tone)
Collective intentionality / impact of peer group	Expressed perception of shared peer / group identity (whether one belongs or not) Expressed awareness of 'joint attention' / shared values / 'common sense' in relation to aspects of the task or situation Eg - consensus in group interview, the 'we' identity statements, implied common assumptions within broader networks (peer and other)	Interpreting the brief Communicating with peers / online networks Watching scr produced by previous cohorts / online content by communities	In peer talk / peer culture In joint activities In networks / social media In content produced by professionals / communities / past cohorts	Shared beliefs and common knowledge create a context for interpreting information Social institutions (incl education) depend on collective recognition and acceptance by members of its symbols, practices and status (incl assessment) Different groups within institution can have different values / interpretations	Impact of shared assumptions on the evaluation of the task / interpretation of the brief Ability to draw on peer knowledge / expertise / experience / moral support (in or outside the course group, depending on social identification) Reinforcement of attitudes and expectations – eg "what a screencast should look like"	Likelihood of acceptance Task legitimacy Perceived relevance Motivation / demotivation The nature of engagement The produced screencast (aesthetic, genre, tone) Confidence. Openness to experiences / opportunities
Perceiving relevance	Perceiving an opportunity to use skills and/or pursue topics perceived to be relevant to career aspirations, life goals / personal interests, or to peers / community increasing one's social capital. In some cases, also academic relevance, ie. - tasks / skills seen as legitimate and necessary for University degree In general, or 'part and parcel' of the chosen course / discipline	Interpreting the brief Communicating with peers / engaging in joint activities Hearing / watching professionals Seeing content produced by communities Seeing screencasts produced by previous cohorts	In the brief In the task In joint activities In networks (incl social media) In content produced by professionals and / or online communities In examples of previous work (past cohorts)	Expectations of chosen field Perceptions of what professionals are / do Concern about employment Personal fulfilment Influence of others Shared values / concerns Community participation Social capital / standing Ability to recognise / interpret opportunities Expectations of University Interest in research / debates Using previous students' approaches as examples	Applying practical skills related to chosen industry / personal interests / valued by peers Choosing or tailoring topic to professional needs / personal interests / fandom / shared interests / community pursuits Producing content similar to what is seen on social media / valued by peers / community Studying topics appropriate to the course / discipline Learning theories / terms Engaging with ideas / debates Developing writing skills Creating in-depth argument	Motivation / demotivation - to engage - to put in extra effort - to overcome barriers Likelihood of sharing Likelihood of acceptance as - legitimate for HE -appropriate for the course - useful skills - adds value Nature of engagement The produced screencast (aesthetic, genre, tone)

App 9.7: An open-coded interview transcript (Max)

Max Extract 1			
No	Transcript	Coding 1 (line-by-line codes)	Coding 2 (focusing the codes)
001	GP: To start, what do you think about using these [screencasts] in teaching?	Asking for his view on the use of scr in teaching Opening the topic / interview	
002	M: I think I like the screencast more than written words, because they are visual, and we don't forget them, the techniques, for example, when they are explained on a screencast you can see the images, and… but then you read something, and you might not understand what they are taking about, on the screencast you can see what they are talking about.	Preferring screencast to written texts Appreciating its visual nature Finding it easier to remember visual explanation Not always understanding the topic from reading Screencast enables to "see what they are talking about"	Contrasting the written and the visual Preferring screencast to written work Visuals help understanding
003	GP: So, you do not forget them?	Trying to get him to elaborate	
004	M: you don't, I don't think, for me it is easier to don't forget them, yes.	Finding it easier to remember visuals	Alluding to visual memory
006	M: Because I think that image you can memorise better than when you read, when you read you easy forget… it sticks in your brain.	Finding images easier to memorise Finding reading easier to forget It "sticks in your brain"	Associating visual with remembering, and written with forgetting
007	GP: sticks in your brain more	Confirming / echoing	
008	M: yes.		
009	GP: why do you think this is?		Hoping to elaborate
010	M: depends on... I think different people have different tastes, I mean, for me, I am artist, reading I forget very easy when I read something, but the images I don't forget very easy, even for the, for example, the addresses, if you read for me, or tell me, that house is in that road, I may forget that. If I go to see that house in that road, I don't forget.	Acknowledging individual preferences Bringing in his identity as artist to explain the preference for images over reading Providing examples outside University (remembering address is easier after seeing the house in that road)	Acknowledging differences Evoking identity to account for preferences ("I am artist") to explain preference for images over reading (visual memory) *(a concern presented as fact?)*
End of Max extract 1			

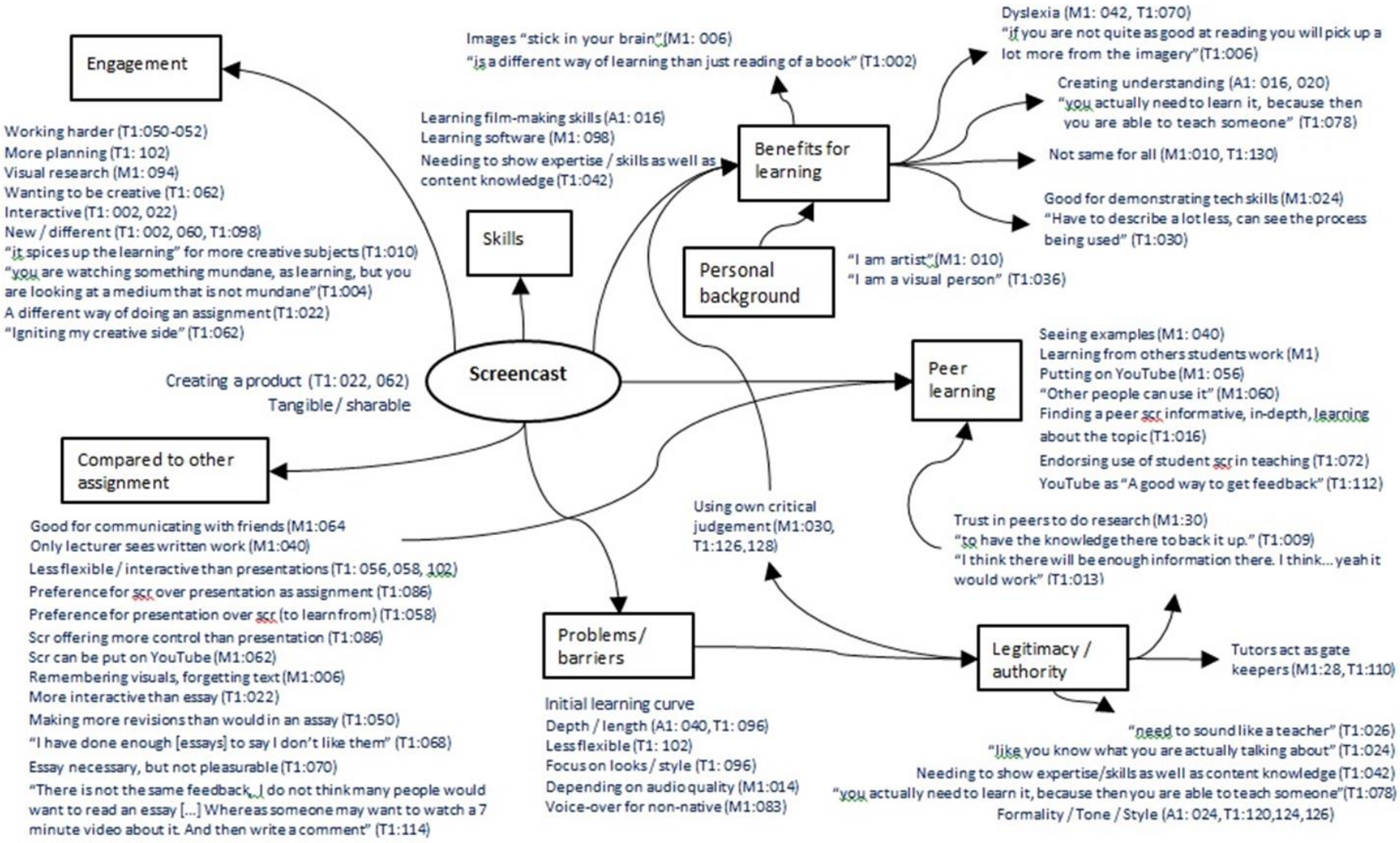
Max Extract 2			
035	GP: But you do not have any problems with the screencast as a learning …	Getting back to the topic of screencast uses for learning	

036	M: No, no. And for me it is very enjoyable, actually. We did not have these things, for example I used to study in […] and in my country we did not have these kinds of things, it is something new to me.	Finding screencasts enjoyable Comparing this to previous learning experiences (in a different country) Finding this experience new	Evoking identity / previous experience to account for preference Welcoming new experiences/ opportunities
040	M: to see different style, to see different use, you can see the work of other students for more experience. But if it is written work, just the lecturer can see them, we don't see them.	Finding it enjoyable to see different styles and uses Seeing work of other students adds more experience Bringing in comparison/opposition with written work – written work is not getting seen except by lecturer	Contrasting the written and the visual – communal aspects ("if it is written work, just the lecturer can see them") Welcoming new experiences
041	GP: Would you like to read other students written work?	Asking to elaborate on differences with written work	
042	M: To be honest, I do not like reading, but [laughs] We were just talking about, we had a talk about dyslexia, I have dyslexia, and I hate writing. That's why a screencast is easier to understand, you can hear and you can see, you do not need to read. Writing, especially to type, is difficult	Admitting to having difficulties with reading due to dyslexia Alluding to a talk about dyslexia (with student support?) "I have dyslexia, and I hate writing" Offering dyslexia as a reason for finding scr easier to understand - struggling with writing, especially typing	Evoking a specific barrier – dyslexia to account for preference Contrasting the written and the visual – understanding / mode
043	GP: So what do you think about making your own?	Moving to the topic of making screencast	
044	M: About my screencast… For example, I first watched the other students screencast, I learned something from them, and then I went home and checked on YouTube a screencast, and then I start to pick up from the feelings and pictures, for example I done a screencast on Persepolis, it is an animation movie, I break it down and use some part of the film and then I wrote about the composition on each extract.	Watching other students screencasts to learn how to make his own Checking YouTube to find more examples Breaking down the chosen film (Persepolis) Using images from the film to write about their composition	Expanding his learning through peers / communal networks Focusing on the concrete / technical Prioritising procedural over conceptual or content related aspects of research
045	GP: Did you choose your own case-study?		
046	M: Yes, it is a very good film. Also Waltz with Bashir, you seen?	Choosing Persepolis because "it is a very good film" - also liking Waltz with Bashir	Personal background
047	GP: Yes, many times, I really like both of them.	Answering his question / agreeing	Establishing rapport
048	M: I did not see before, only first time in this course. This is why I came here, to make things like this; I could not make things like this at home.	Seeing Persepolis for the first time "This is why I came here, to make things like this" Unable to make "things like this" at home	Welcoming new opportunities Alluding to political / creative choice Perceiving personal / social relevance
End of Max extract 2			
Max extract 3			

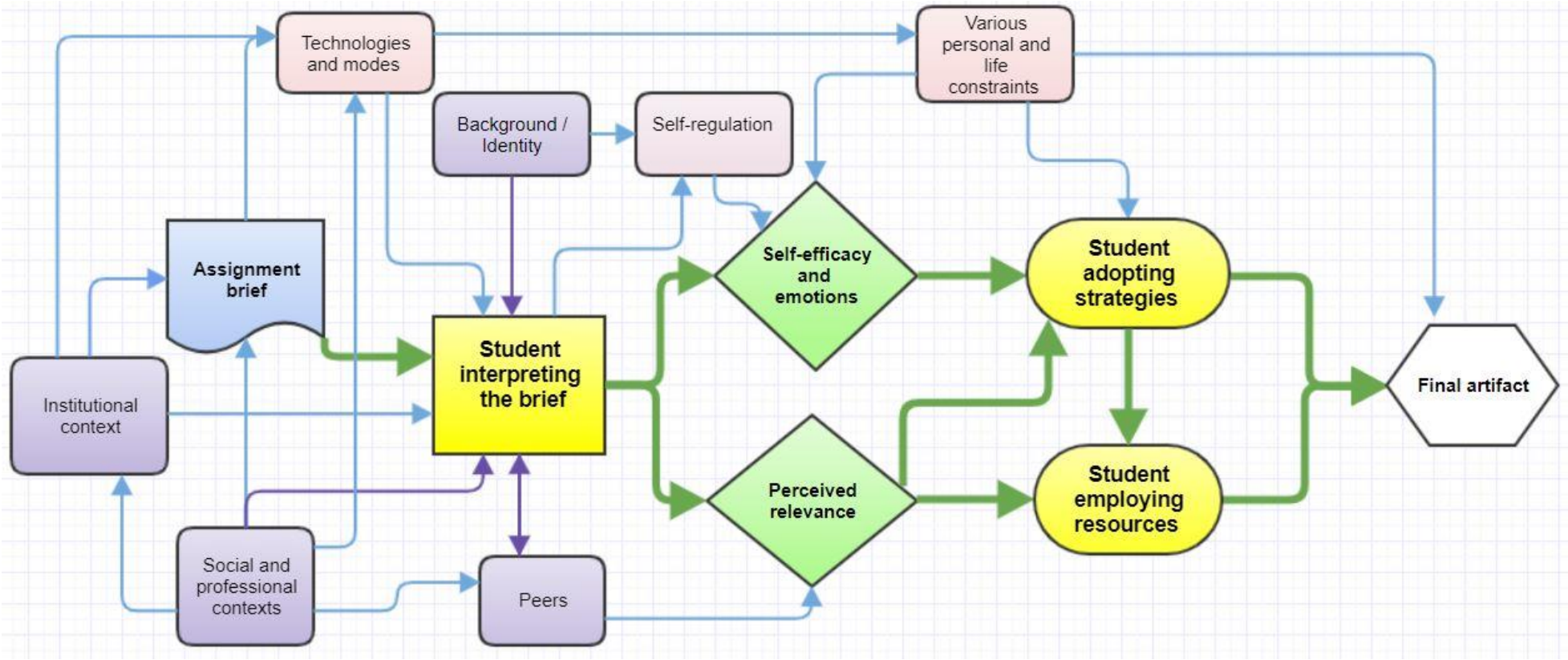
078	GP: When you are making a screencast, can you get just as much information into a screencast as into an essay?	Probing for issues brought up in other interviews (limited length / depth)	
079	M: eh… about information, the screencast is easier to understand. But information, it depends how long it is.	Screencast is easier to understand but the amount of information depending on the length	Contrasting written and visual
080	GP: OK		
081	M: in written you can give more information in just one A4 paper, but a screencast you might need 20 minutes to do, in a film or images, to give the same information as one page.	Needing more time to explain the same content in screencast	Evoking a specific barrier – length, time
082	GP: Is this a good or a bad thing?		
083	M: this is the only bad, I think. But if you talk, because I am a foreign student, I wrote on the screencast. If it was my first langue I could talk on it and even give more information than the written work… because you can talk faster, and… for example one page you can read in 5 minutes, and you can talk as well for 5 minutes on your screencast and showing the… what you are talking about with images [long pause] that means you give more information on the screencast… because it is talking and visual you can hear and see. But written work is just written, you won't see anything, you just have to imagine… and you could imagine wrongly [laughs]	Experiencing additional difficulties as a non-native speaker Using text instead of voice-over due to language Requiring more of scr time to incorporate text Reconsidering how much information you can have in a screencast compared to written Explaining that voice-over and image provides more (and more correct) info than written work When reading you can only be imagining, and you can be imagining wrongly	Specific barrier – non-native (unable to utilise affordances of voice-over vs text) Expressing contradictory needs in relation to text (dyslexic vs foreign speaker) Additional difficulties incorporating text – less effective result Considering affordances and anti-affordances in mode combinations Contrasting written and visual
086	GP: When you are making the screencast, is there anything you particularly enjoy doing?		
087	M: yes, when you watch… ehmm… the subject. When you watch, for example, if you want to break down a film, and then… make it as a screencast… ehm… when you looking, searching for the techniques in the scenes, what they used in the film… ehm… it is kind of searching, and you enjoy when you see that. And [long pause] and yes, it is easy just to just copy and paste them.	Enjoying the subject matter / chosen film Enjoying the process of searching for examples Enjoying breaking it down / analysing the techniques used in the film Finding it easy to copy and paste film clips	Applying critical judgment / appreciation
090	GP: Is there something difficult when you make a screencast?	Asking about difficult aspects	
091	M: What was difficult for me, was the technique. The computer technique [laughs]. But now I know how to do it.	Finding hardware/software difficult Having learnt from these difficulties ("But now I know how to do it")	Overcoming the initial learning curve - Learning from opportunities Focus on technical / procedural
092	GP: so it was only technical problems you had?		
093	M: yes	Only having technical problems	
094	GP: you did not have any problems putting it together		

095	M: No… no, and if you know for example Photoshop and these things, it is very good. You can make better screencasts. If you use… eh… more techniques on your screencast, more… for example you want to show… a specific place on your image you can zoom into that and zoom out… or draw a line on that image… but I could do it on the image, the still image, but I could not do it on the film. When the film was moving, I could not draw a line around something, I could not do that. At the end of it, the software I have to use it… if somebody knows to do these things, the screencast will be more… ehm… be better to understand it	Knowing technology and techniques makes you able to do better screencasts Wanting to implement more techniques to make the screencast more understandable Being able to do more with still images than with moving images Being unable to draw a line to highlight a specific point within moving image Drawing a connection between technical knowledge and explanation quality / scr usefulness for viewer	Learning from opportunities Focus on technical / procedural Considering mode affordances and anti-affordances Prioritising concrete over conceptual Focus on technical / procedural
096	GP: So it makes screencast a very technical process		
097	M: yes [long pause] And I am sure in this day, the younger generation knows all these things [laughs] Because already I saw the others, they are very good… in these things.	Assuming younger people have more skills Having seen his peers' screencast, finds them "very good in these things"	Specific barrier – age / generation Peers as "Digital natives" Expressing appreciation of peers' skills
098	GP: but you have not had anything like this before		
099	M: no [long pause] I studied before as a sculptor. A sculptor, and we did not have these things [pause] But I remember images, and I am good to see how it looks	Not using digital technology in his previous education / background as a sculptor Remembering images, understanding how they work	Evoking personal background / previous education Linking back to visual memory
100	GP: I guess it makes you very good at imagining things, seeing things and finding out where they are going.	Looking for elaboration	
101	M: yeah, when I want to make a statue, if you give me the one image, the front image, I can imagine how is the behind image, for example. [long pause]	Giving example from sculpting Being able to see the front of an object and imagine how it must look from behind	Referring to background / specific abilities
116	*GP: But you have an audience in mind when making it?*	*Probing for more detail on the intended audience*	
117	M: ehm… when I make… Yes. I was imagining not to do something wrong so they do not laugh at me [laughs] [long pause]	Making sure he gets the scr right "so they do not laugh at me"	Evoking identity Referring to peer influence
118	*GP: do you like the idea that it might be used for other students?*	*Asking for views on screencast being used by others*	
119	M: ehm… the idea it might be used for other students [pause] I think so, because… I can use their screencast as well for my experience. If I do not show them, they do not show me as well… and this is the idea to show each other, and learn more… ehm…. To have more experience, not just for me if I do it, or for my teacher… [pause] we won't see each other's job if we just give to the lecturer [pause]	Approving the idea that scr can be used by others Could be using other students scr himself "If I do not show them, they do not show me" Showing each other means learning more Expressing need for sharing to have more experience, than "just give to the lecturer"	Endorsing sharing as fair / reciprocal Expressing personal ethics Welcoming new experiences Endorsing sharing as learning opportunity Expanding learning experiences by seeing each other's work

App 9.8: Initial clustering example (based on the first three interviews – Andrea, Max, Tom)



App 9.9: Flowchart of student engagement used early in the theory development



App 9.10 Memo Example – Reflecting on group interview dynamic

Memo title: Group interview dynamic – Interview with Cassie and Josh. August 2014	
Script	MEMO
	The interview situation essentially invites the participants to reflect back and reappraise their past experience. Group interviews in particular may encourage them to include 'pros' or 'cons' that counterbalance their strongly expressed feelings, or to accommodate the views or expectations of others and maintain the consensus. I suspect that had I interviewed them separately, Josh might have argued more strongly in favour of the screencast, and Cassie perhaps more strongly against it. The fact that they were discussing something that they had produced together, made the disagreement more difficult. The below extract captures the overall dynamic, and shows how individual positions were negotiated and adjusted, moderating their strength to accommodate the other's views or feelings.
"C: But when you are at that point it is just stress [laughs] J: I've got to say that I do think …. C: We got it done. J: … I do think the screencast is a good way of presenting your work. It is a good medium of … you know…	This extract begins with Cassie finishing off her point about the stress of production at the time. By now, she has spoken for the most of three or four minutes, during which Josh only managed a couple of brief interjections, which remained unfinished: "I quite liked it, so I think …" (CJ:054), "I think it is a good module, with a mix of things" (CJ:056), "Quite a bit" (CJ:059) and "Yeah" (CJ:063). At 0:65 and 0:67 we see Josh's another attempt to make his point, that the screencast is a good medium, but before he manages to complete his explanation, Cassie interjects with an opposing view, listing the shortcomings of the screencast and suggesting that it should be dropped.
C: I feel a screencast is in-between of a presentation and an essay, so to do all three felt like repetition […] In the essay, you could fill a lot more content, in the presentation, you are getting live feedback, so…. That's me, personally. GP: [to J] Do you think the same, that the screencast should be dropped?	She then qualifies her negative evaluation as subjective ("That's me, personally"), which provides a cue for me to remember my duties as an interviewer, and to give the floor to Josh. I ask if Josh feels the same way, even though it's been clear throughout that he did not, but despite sounding enthusiastic about throughout the interview, Josh now agrees that the screencast might be dropped. This is qualified by the tentative "maybe", and by the reason given (the workload on other modules, rather than the low value of the task).

J: Due to the amount of work, and the other modules as well … maybe, yeah.	
C: I'd say drop the animatic or the screencast. But it was fine, a bit more stressful than you wanted it to be, but…. You've got to learn how to deal with pressure	Cassie then restates her view ("I'd say drop …"), before retreating into "But it was fine", because the students have to "learn how to deal with pressure" anyway (CJ:073).
J: [turns to Cassie] Can I ask you a question, do you regret doing all that? C: Do I regret it? J: Regret doing all the work. C: No	At this point, Jamie suddenly confronts Cassie with a direct question and invites to reconsider the experience as a collective success: "Do you regret this? […] it was stressful but we got through it" (CJ: 074-078).
J: Even though it was stressful at the time, but, you know … we got through it… C: Yeah, like I said, when you look back, you did a lot of work, so that is a good thing. Because on some modules you feel like you are not doing much at all, and it feels like a waste of a module. This one was definitely not a waste" (CJ:067-079).	Cassie responds by conceding that doing a lot of work was productive and made the module better than it would have been otherwise. Whether to accommodate others, or due to ambivalence, or upon reflection, both Cassie and Josh adjusted the strength of their positions and exerted some influence on one another during the interview. This is probably the clearest example of participants' accounting strategies negotiated in the process of the "mutually constructed story" (Fontana and Frey ref). My own interjections, albeit kept to the minimum, had clearly contributed to this. In the example above, my attempt to give the floor to Jamie, may have had an inadvertent effect of putting him on the spot, which may explain his sudden change of heart regarding the screencast, and the subsequent attempt to redress it. The resulting story is partly rooted in the participants' authentic experiences, which are modified by memory, the changing circumstances and the interview environment, so it is hardly a single and coherent view. Different phrases could be picked from this interview to support completely different points, which is why we should be so careful with 'sharing good practice' case studies. Whilst this interview did not yield much insight into Cassie and Josh's actual experiences, it clearly brought out the limitations of interview-based evidence as presented in such research.

App 9.11 Memo Example – "Easier is not always the best"

MEMO: "Easier is not always the best" (Tom, 2:112)

> "I think that although it had its downsides, it was important to have those downsides. Without them, you wouldn't have learned anything... the benefits definitely surpassed the negatives aspects, so… so for example, if I had to work for somebody who doesn't know much about animation, I would now know how to approach it. And hopefully, although it is kind of a weird thing to hope for, next time there will be something else to overcome. Because then it's something else to learn, something else to overcome… something else to get used to… no, I wouldn't change anything. It just has to be how it is" (Larry 220)

One of the differences between the participants' approaches is how they frame the challenges and difficulties involved in the task. Some mentioned difficulties only in terms of drawbacks and frustrations, but others saw the challenges as a necessary element of learning. Typically, those who framed challenge as necessary and beneficial for learning, also expressed strong acceptance of the screencast.

The passage above is taken from the end of Larry's interview where he is answering the final question, whether the screencasts should continue in future. Here the concept of beneficial challenge comes to the fore, as part of the final assessment of costs and benefits involved. In other parts of the interview, it is clear that given a choice, Larry often goes for an option from which he can learn more, rather than an easier one. For example, in relation to his first-year screencast, he says: "I could've probably used something simpler, but I knew at the time that I needed to get to grips with Premier, so I thought I may as well try and use it" (L047).

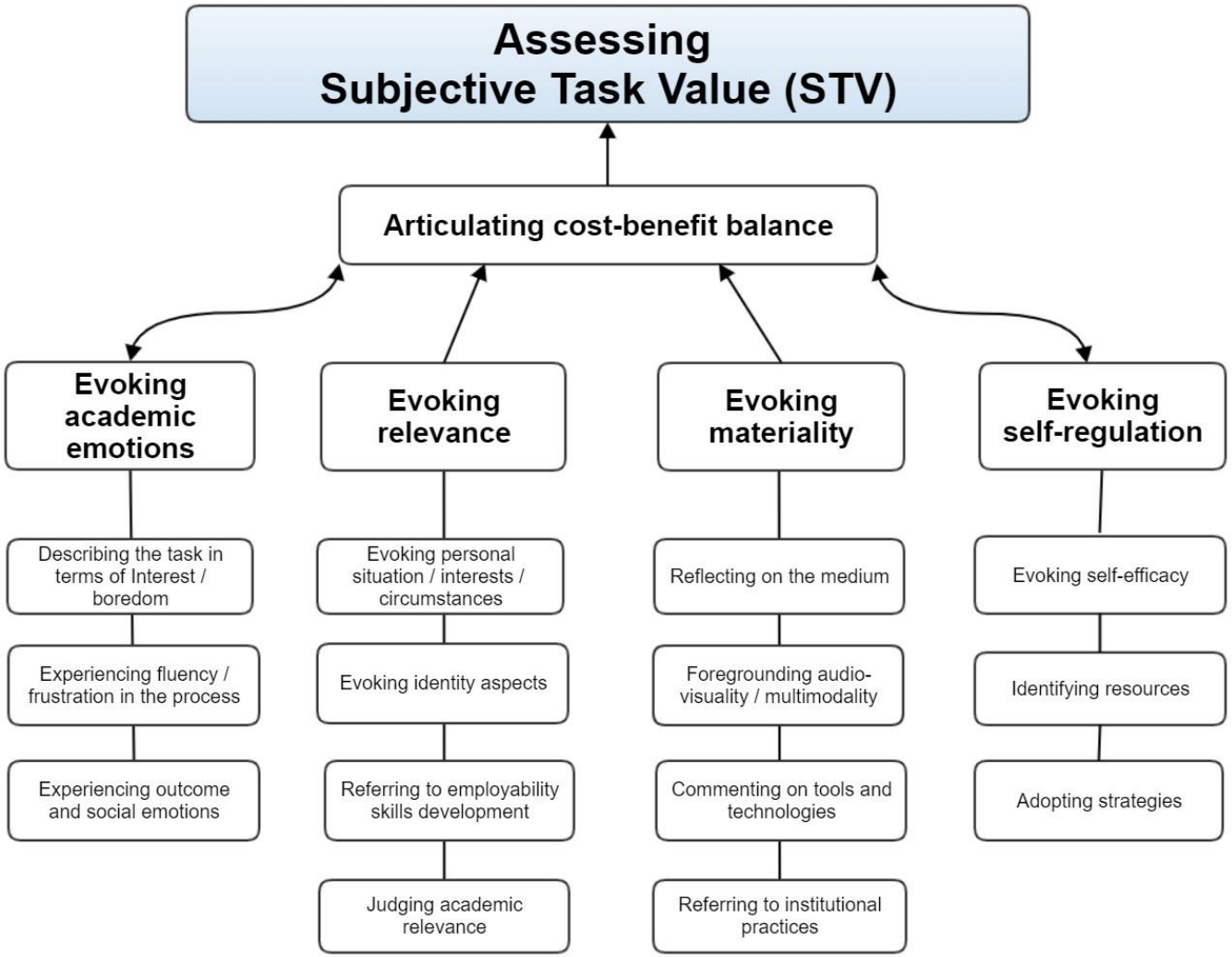
This is similar to Tom, whose words above ("easier is not always the best") are one of the key in vivo codes. Here Tom is reflecting on one of his first-year assignments, where he could choose from different existing audio-tracks to create the visuals for. Although other tracks were easier to visualise, and "a lot of people went for that one" – he wanted to "do something a little different", and chose a less obvious track, where "it was more to play with […] you can mess around with it a bit, and have different actions, a little bit more wiggle movement" (T2-110). Even when feeling a bit apprehensive when first presented with the assignment brief, due to not having done this before, he still felt "overall optimistic": "It was good because it was not another essay. I think that was the way I was thinking. I was thinking that this was not something I had done before, and that it might take longer time, and I was wondering if I would be able to get my points across… but it was overall optimistic" (T2:040).

In other cases, a similar idea is expressed as a statement, for example Andrea comes from art background (drawing and painting) and had not used computer technology beyond basic office software, nor film-making or audio technology. For her, this was a steep learning curve, and an additional challenge, but as she explains in her first interview: "it is difficult for me as a student, but I also understand it is useful for my studies" (A1:016). Two years later, reflecting on several screencasts produced in the course of her degree studies, she evokes once again the notion of beneficial challenge: "At that point in time I just did not have the technical skills to make it exactly as I wanted, and there was not much technical support […] I did not know anything; I was completely inexperienced in such things. And it did force me to learn new skills with the software…. Yeah so I guess that was a benefit" (A2:016). In fact, one of the drawbacks of screencast for Andrea was that apart from technical aspects, it was too simple: "No one asked us to… explain… I don't know… Foucault's principle of Panopticon? Which would be… yeah, that would be something interesting to do, not just to make, but to think how would you approach something more difficult" (A2:044).

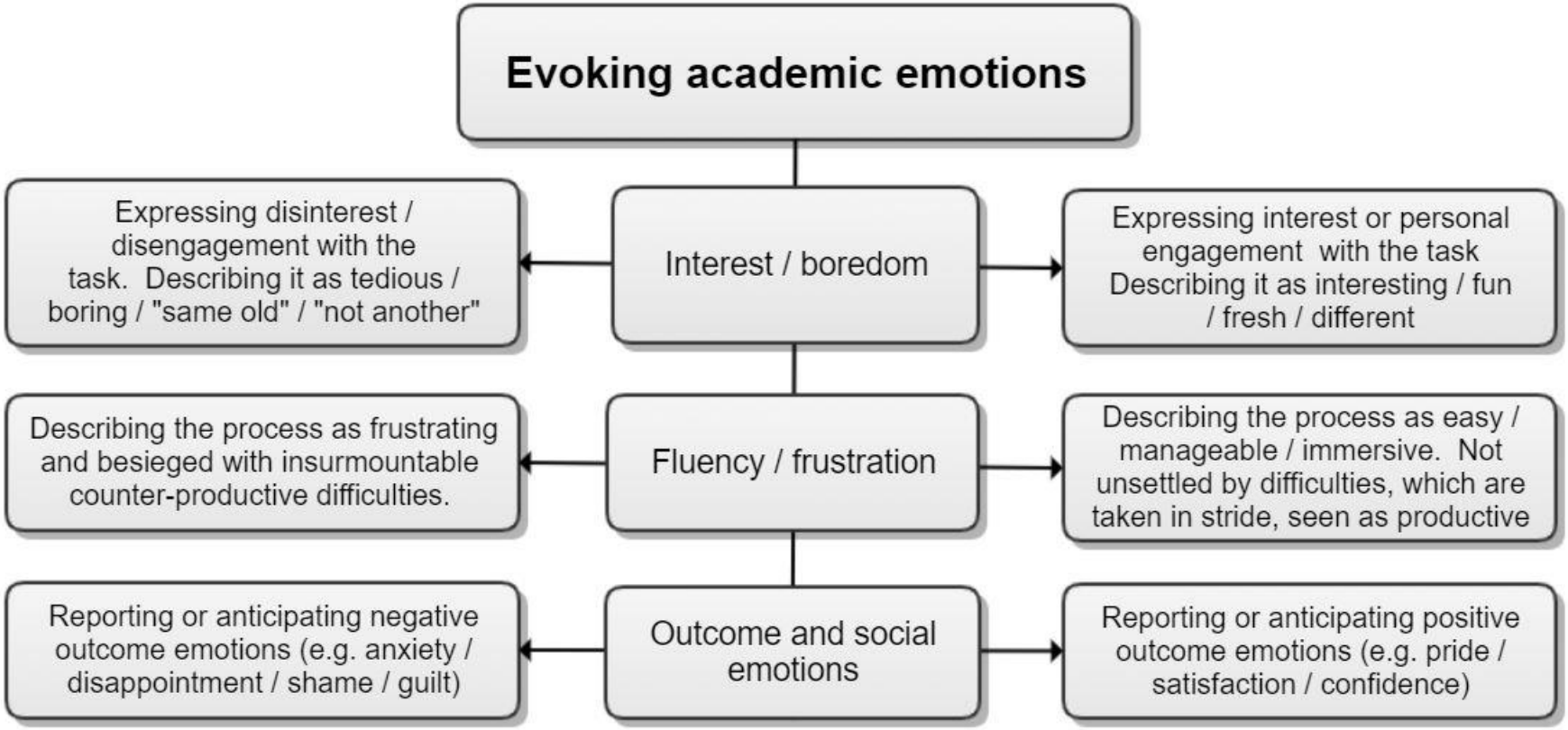
App 9.12 Codebook STV (Assessing Subjective Task Value)

STV-EMO	**Assessing Subjective Task Value (STV) – Evoking Academic Emotions**
STV-EMO-INT	Describing the task as interesting / fun / different, as opposed to tedious / boring / “same old” / “not another”
STV-EMO-FLOW	Describing the process as easy / enjoyable / immersive as opposed to difficult / frustrating
STV-EMO-OUT	Reporting or anticipating pride / satisfaction, or anxiety / disappointment as a result of engagement with the task
STV-REL	**Assessing Subjective Task Value (STV) – Evoking Relevance**
STV-REL-SIT	Explaining preference in terms of personal circumstances and/or exacerbating or removing specific barriers (e.g. I" am dyslexic, so writing is difficult, I wish all my assignments was screencasts" - "if you have childcare, you can’t spend 24/7 in a lab polishing your screencast, but you can write an essay anywhere")
STV-REL-ID	Describing the task in terms of its congruence with one's identity (e.g.- screencast is good for me because - "I am a visual person" / "we are creative people" / "I am an artist, not a writer")
STV-REL-SK	Describing the task benefits or drawbacks in relation to learning relevant skills, enhancing CV, preparing for future work or study
STV-REL-ACAD	Judging educational value of the task, relevance to the course / module.
STV-MAT	**Assessing Subjective Task Value (STV) – Evoking Materiality**
STV-MAT-MED	Considering benefits and barriers associated with working with the medium, i.e. perceptions of tangibility and shareability
STV-MAT-AV	Considering multimodality as beneficial or a hindrance for learning. Discussing ease or difficulties expressing oneself audio-visually. Modes as reinforcing and complimenting each other versus duplicating content / “busy work”.
STV-MAT-TECH	Discussing the benefits and challenges involved into screencast production as a technology heavy assignment
STV-MAT-INST	Referring to enabling or restricting details in the brief and /or learning environment.
STV-SELF	**Assessing Subjective Task Value (STV) – Evoking Self-regulation**
STV-SELF-EFFIC	Reporting outcome expectations and attributing success or failure, describing ability to cope and accessing support.
STV-SELF-REG	Monitoring or regulating own emotions, adapting behaviour.
STV-SELF-STRAT	Describing attitudes towards risk and challenge, goal setting.

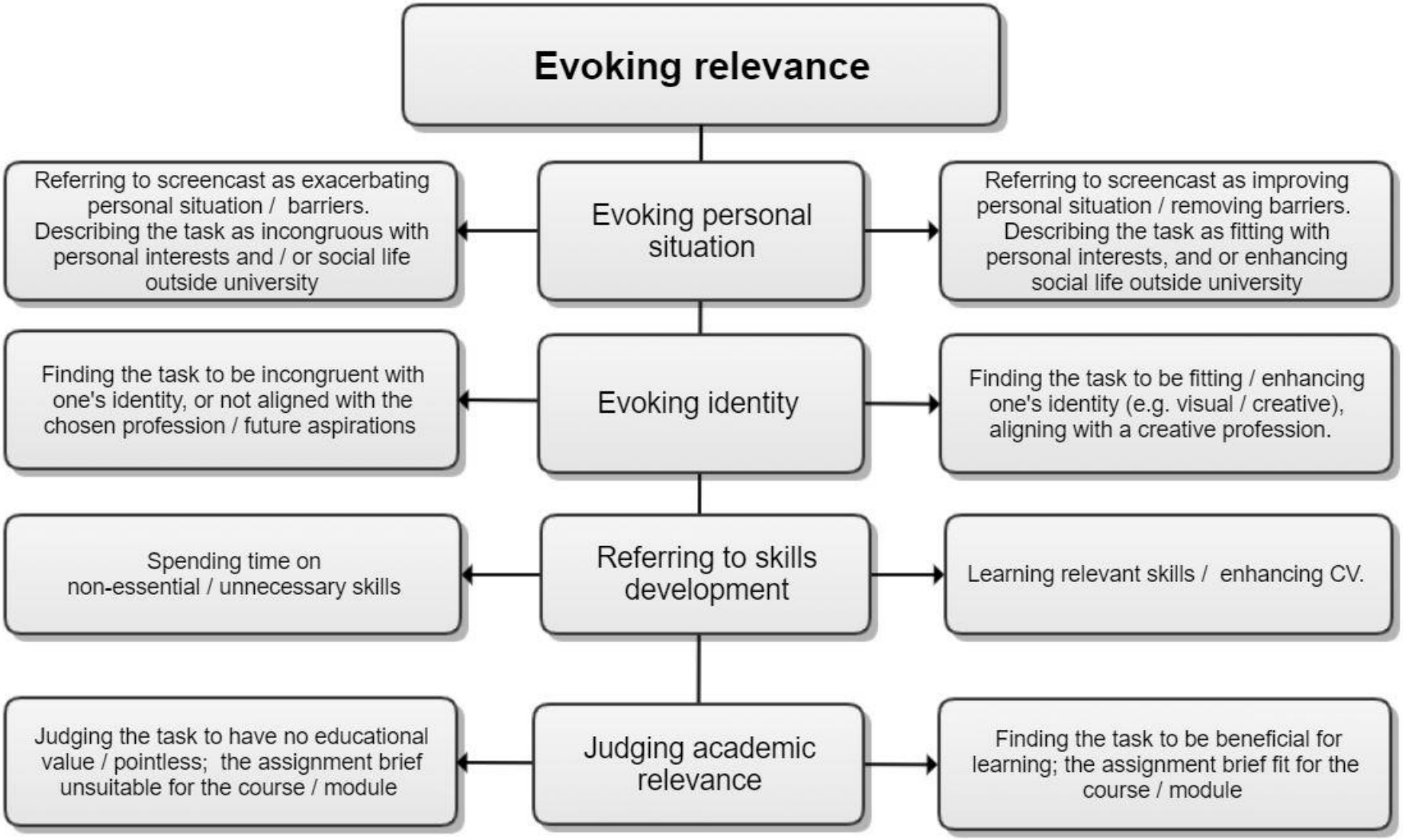
App 10.1: Model diagram: Assessing Subjective Task Value



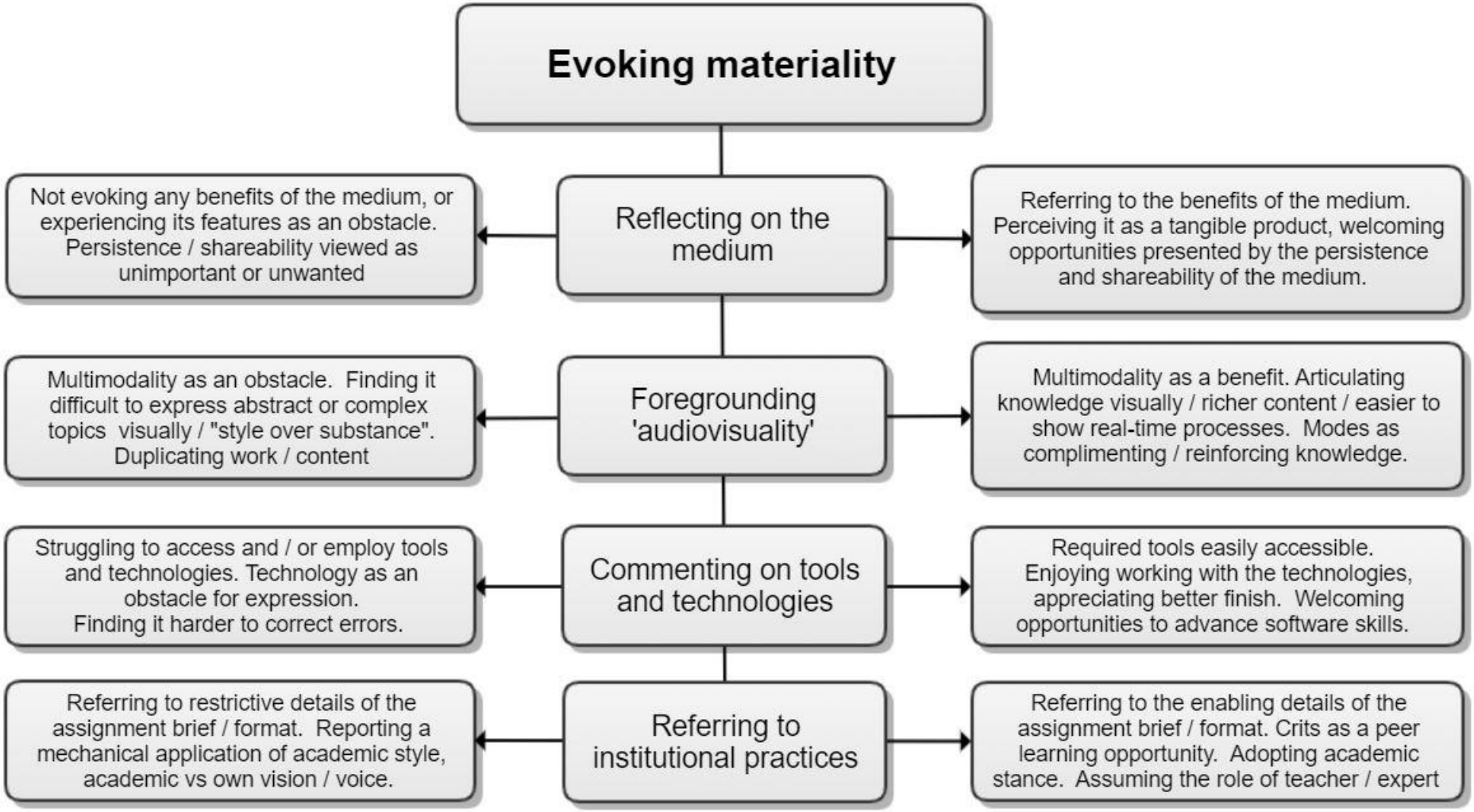
App 10.2: Model diagram: Evoking academic emotions



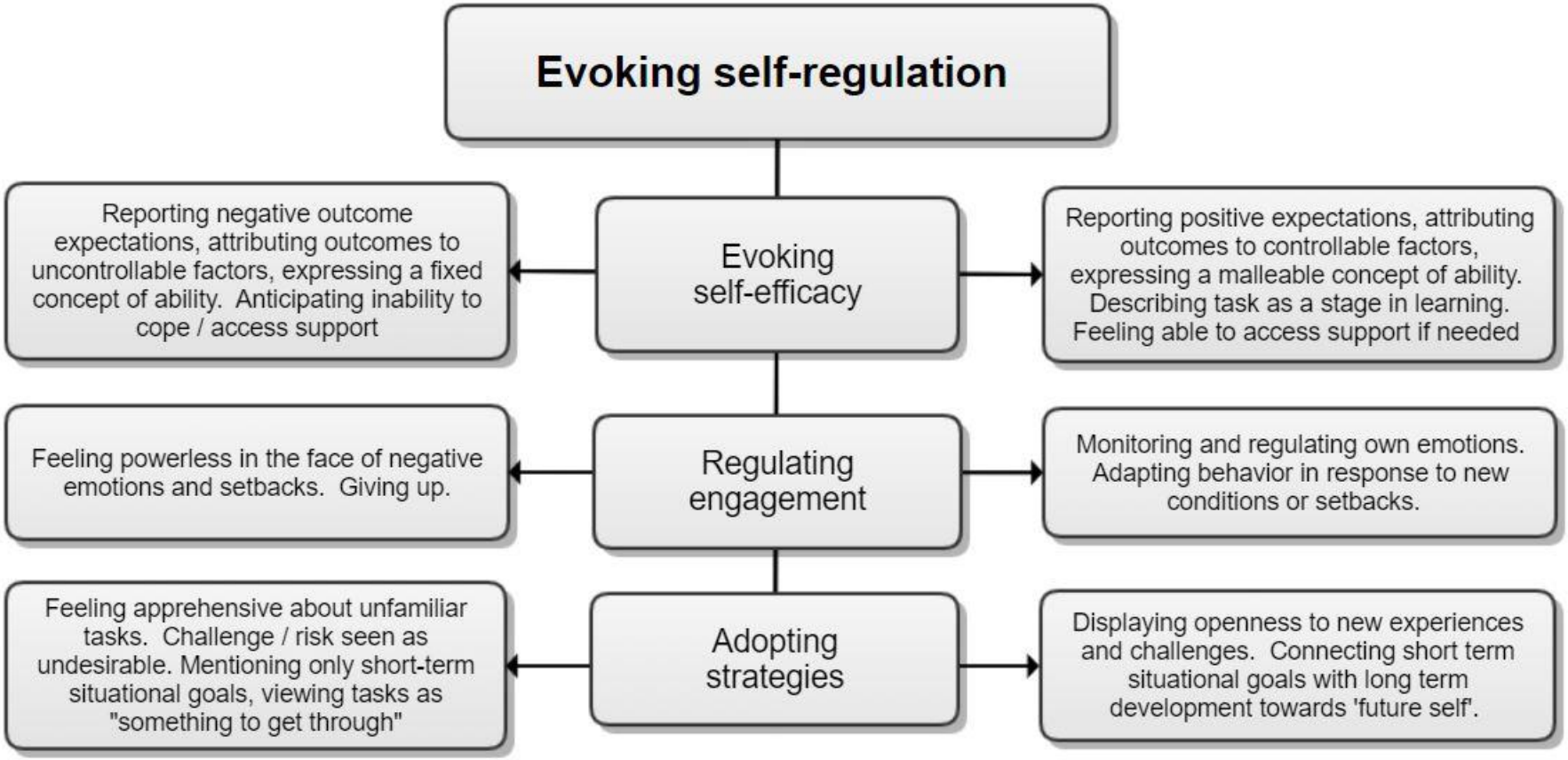
App 10.3: Model diagram: Evoking relevance



App 10.4: Model diagram: Evoking materiality



App 10.5: Model diagram: Evoking self-regulation



App 10.6 Representative quotes for the subcategory Evoking Academic Emotions

	Interest and enjoyment
1	"I remember thinking it would be fun to make, and I really enjoyed making [the] one we did"
2	"Yeah, that can be true. But then I like the aspect of doing a screencast, as I think it's more enjoyable and fun to do than just sitting and doing essays"
3	"I think it is more fun […] more engaging this way, than with other assignments"
4	"it is more fun than doing a PowerPoint presentation."
5	"I think it is more fun in a screencast, as opposed to a presentation."
6	"The time that I spent on the screencast, if I had done a very boring piece of writing that would have got me really annoyed, I could have got more information across… But I would have less fun on the project, so [laughs]"
7	"I definitely prefer doing a screencast over a presentation or a written assignment as it's a lot more fun, and you get to practice what you're going to say and you can listen to it over and over again so you can get it right."
8	"Yeah, but it's good to have a different mixture, it's a little bit of everything with screencast… I enjoyed that, I thought it was a good crack. It was more fun than a presentation as you could do it in different styles, and you could be more open minded about it."
9	"But the process of doing it […] I found it more enjoyable than writing an essay, because I don't think there is really any fun aspects about writing an essay"
10	"I don't get that much joy producing something for other people, making things clear for other people, because… what I want is to… add to my own knowledge, not someone else's knowledge. "
11	"I never enjoyed writing, so it is just… It is something I will do if I have to, but it is not a pleasurable thing."
12	"for me it is very enjoyable, actually."
13	"I really enjoyed making the screencast"
14	"it is more of a different format that I found more enjoyable to do"
15	"I enjoyed it more than I would have writing a presentation"
16	"And I really enjoyed doing it, I really enjoyed doing it, the whole process of it"
17	"Yeah, so I was really shocked with it [the grade], pleasantly surprised. Yeah, I mean I would enjoy doing more of this kind of thing."
18	"it is good to create something; I don't think I would have enjoyed the module if we did not create our own thing"
19	"I enjoy creating it, like, piecing it together"
20	"I enjoyed it, except for using Windows Movie Maker. My version was just being absolutely awful."
21	"in all honesty if we were to do it as a report, we would probably just do it to get us through it, and not do it because we enjoyed doing it"
22	"I really enjoyed making the screencast just because I have never really, back when I was in school, I never really was good essays and things, structuring an essay, I was not good at it, still to this day I do not think I can structure essays as well as I would like. But I just found it a lot easier. I think it is just… I did not even think too much about how I was going to structure it, to be honest, I just, it is just how I felt it to be right."

23	“It is not something I have done before, and I am enjoying it so far. I think that when it comes to hand in day it will be a little bit more stressful, but right now it is good to be researching and pulling the topic. Putting the images and all together.”
24	“I do enjoy working with video and stuff so…”
25	“I enjoyed it quite a lot, actually… it did take a lot of time. I had to record the audio over and over again… but I didn’t mind that.”
26	“When you watch, for example, if you want to break down a film, and then… make it as a screencast… ehm… when you looking, searching for the techniques in the scenes, what they used in the film… ehm… it is kind of searching, and you enjoy when you see that.”
27	“I suppose you can make a screencast just about everything, really, but it is about how effective it will be. How much you would enjoy actually doing it.”
28	“I enjoyed what I did for [Module 2A], because I had no client, which was beautiful, just .. ehm… yeah… Remember what I said about audience-oriented work. That was all just for myself. Did not need to think about anyone else. “
29	“Comparing with the first year, it was more interesting. But it’s because by that time I was more experienced in all of the areas, not just technical side. And I was enjoying my subject more… “
30	“I thought it was a good brief. In a kind of mixed learning ehh … got to create a statement about something. It was quite … to do something about a misunderstood subject as well, so that was quite enjoyable doing that, make a statement, get some information out.”
31	“In the beginning it was… it was good… The brief seemed really interesting, and we had quite a lot of creative freedom. The idea of working for a client, especially early on, seemed a bit hard… I don’t know…. Because there were quite a lot of issues that we came across with the client… which you don’t really experience in education based, sort of, area […] After the issues were dealt with it was really enjoyable… Yeah. Yeah. So over time… I really started to enjoy working on the project. ”
32	“First screencast was enough for me, and all others that… screencast work that I produced later, was already less enjoyable”
33	“Not many people enjoyed their screencast. I mean, they enjoyed it as a task, maybe they enjoyed the outcome as good enough to submit. But I don’t know or remember them appearing on YouTube or in emails. “
34	“Don’t mind watching them, but I did not enjoy making mine, not at all“
35	“I enjoyed the process, because in the first year I enjoyed pretty much everything because I did not have any expectations. And generally, because my whole experience turned out well, I think it helped me enjoy many things that I would not normally enjoy”
36	“it is a more interesting process rather than just planning an essay”
37	“It is more interesting than writing a report every single time”
38	“They are interesting, better than reading anyway, and more hands-on.”
39	“it kept me interested during the screencast as well because it’s more like a task than theory “
40	“Because there is a certain amount you do to make written work pretty, but at the end of the day it is still an essay. And everyone who have read an essay, have read an essay. It is not like it feels boring, per say, but it’s…. you got something to show people at the end, so watch this two and a half video and you can learn about greens screen, or whatever, but as read this two and a half word essay on greenscreen, it is just not as interesting for most people. Especially creative people.”

41	“Difficult… Interesting… exciting… I wish we had more of it during my first year”
42	“Comparing with the first year, it was more interesting. But it’s because by that time I was more experienced in all of the areas, not just technical side. “
43	“I think it is quite, you know, an interesting subject. A subject that needs to be talked about. But I have done work about depression before, so I continue now…”
44	“I mean, if it something I am really interested in in games, and I really enjoy the, sort of, subconscious effect that some of these things have on your as a player, things that you take for granted, like I talk about in creating the illusion that you run faster when you are not, and the focal point of the camera when, you know, carry out these moves and things. Just stuff you take as granted as a player, and the kind of subtle things that are in the games design, that people do not think about, are really the sort of… yeah, I really sort of…. like those things, really interested in that… and I would like to express more about it, if I could, but it is really not any room for it at this point in time in Uni.”
45	“If there is a visual aid it keeps me interested.”
46	“It is more engaging as well, you like, got something to look at, to keep your attention visually whilst you […] are taking in the audio.”
47	“I like it… rather than just have bullet points and bullet points of text on a page, I rather… it sometimes gets boring when you sit through lines and lines of text”
48	“it is more enthusiastic than “here is a PowerPoint, read these bullet points, go to these pages in our book”, whereas with screencast it is more like “watch this, take in what they are saying” and it is just more enthusiastic”
49	“It like, enables you to engage with the audience in different ways than just text slides, like a PowerPoint presentation. You can use different forms of media to get them interested in and getting the points across”
50	“I like screencasts more than written work, because they are visual and we don’t forget them […] image you can memorise better than when you read, when you read you easy forget… it sticks in your brain.”
51	““To be fair, I find revision quite tedious. I do it, but not because I want to, kind of thing. So, I rather watch a video and get all the information off a video like that”
52	“Theory can be quite tedious anyway, so you really need that spoonful of sugar [Evan sings: ‘helps the medicine go down’. Laughter]”
53	“[Theory is] just so mind-numbingly dull, all the topics that you do with theory are quite tedious”
54	“it wasn’t as boring as like an essay which is just like a block of text and it’s just like… urgghh… it gives me a headache and stuff you know”
55	“you are watching something mundane, as it were, as in "learning", but you are looking at a medium that is… not mundane”
56	“I think it is more interesting to make than a written report…”
57	“It is like, it is not something you have really done before, so it is doing something completely new”
58	“And it is something slightly different, because obviously it is not an essay.”
59	“I was just relieved I did not have to write another essay […] My writing was not as good back then”
60	“it is nice to not write an essay about everything.”
61	“Overall, I think it was good, because it was not another essay.”

62	“it is a different way of doing an assignment, so it is not writing an essay about bluescreen compositing, or whatever it is. You are doing something a little more interactive”
63	“I was thinking that this was not something I had done before, and that it might take longer time, and I was wondering If I would be able to get my points across… it was overall optimistic, I think… “
64	“I think they are pretty good… I would not like to have too many of them, though.”
65	“I think so, but not for absolutely everything, if every assignment were a screencast they would be… Yeah, I think it is good to have a mixture”
66	“If every assignment for theory modules and things had been just to make a screencast every single time, it would be like ‘oh no, not anther screencast. Can’t we just write something instead?’”
67	“When I watched people doing their screencast it made me want to do it, but I was scared”
68	“I prefer to have a proper lecture with discussions afterwards. Because I like to talk. And I get very excited by new concepts, and I want to discuss them immediately. “
	Fluency / frustration
69	“Well, with a screencast you are given the skeleton of what you’ve got to do, and then you’re free to do whatever you want with it, and it’s more relaxed with a better way of working … whereas with an essay you have to stick to a strict format. “
70	“Well for me it’s not the stress it’s just the fact that I’m disheartened by it [essay] and I don’t like doing it and I just don’t put 100% into it”
71	“So the screencast was done very quickly, and without struggling. “
72	“I really liked it, because I suppose it is an easier way to express a point you are trying to make.”
73	“I think that even if I do not like my own voice in them, I think I prefer to make a screencast then writing. Just because it is easier to, especially if you are talking about animation or film, it is easier to just show an example, a moving image”
74	“I always find it easier to speak about what you can see on screen, rather than writing it out, because you got it visually going there as well, and you can kind of watch it while you talk about it, which is what I did with the screencast, when viewing it you got basically […] what you want to talk about, but you can kind of watch as you are speaking as well.”
75	“I think the process of making it easier than an essay […]. I found it a lot easier than doing an essay because you can take your time doing it and each different section I record I can add my own opinions to it as well”
76	“You just put it off and put it off and when it gets to it you just can’t focus on it but with this screencast it was a lot easier to get started, and if it had been an essay I bet a lot of people would put it off a lot longer”
77	“it is easier for me... as a student anyway. I am a visual person”
78	“I would find an essay frustrating and I feel more relaxed doing a screencast as you’ve not got to think about a bulk of writing as you’re using visuals, so I prefer it over an essay.”
79	“Like giving a presentation, though, but it is there and you do not have the extra stress of delivering a presentation”
80	“I think that sometimes… with the screencast you are not directly there, you do not have the pressure of x amount of people watching you and… fully relying on everything you say, and may not pay much attention to the presentation, whereas with the screencast you have already worked,

	you have already worked out everything you said in it, but you are not as nervous standing up there, as you have already worked out what is in your presentation."
81	"So yeah I did prefer it and I'm not very good at writing reports either, so it was a lot easier as well."
82	"I really preferred it to doing a presentation, I'm not very good at doing presentations, so I would stand up there and prepare loads, but I always miss out loads of stuff and I get nervous. With screencast I felt I could just sit there and relax and get it done"
83	"I think that with a screencast you kind of get a momentum out of it, so you start off with a point and you know exactly what the point is that you are going to get."
84	"I think it's because I'm more comfortable at writing in length than I am speaking into a microphone."
84	"if I had written a short essay about it, I could have set it out better in my mind. Which does not make sense to me, because I really do not like writing, but writing helps me plan stuff"
86	"In the beginning it was kind of "Oh yeah, cool, this is a theory module, but this is some practical work", and it was kind of great… And in the beginning I think everyone was kind of excited, but when we got down to actually working on it, I think a lot of people realised it was harder than they thought it was going to be [laughs] "
87	"A lot of it is busy-work, though. With essay, even if you have to re-do it many times, this kind of clarifies your thinking, what you want to say, even just for yourself. With screencast it is manly annoying technical issues…."
88	"It is hard, because first I did not do anything like this before, so for me this is first experience, and working with new software is really challenging"
89	"I haven't done a screencast before and I found it a bit frustrating and hard. I do like watching other people's screencasts, I just don't like hearing myself talking and when I was recording my voice was a bit frustrating, and I had to keep recording it again and again."
90	"I was trying to do, like, using software to make it better, but it still did not come out very well. I am not very confident speaking […] and I found it more daunting, than other ways you have to hand in work"
91	"Constantly recording the same three or four lines and then you trip over a word in the last sentence and you get frustrated with yourself"
92	"It was good that the technical side was not assessed, because that would make the whole screencast making process more stressful. "
93	"My theme is colour, and it is extremely wide. At first when I was planning things, what I want to present, I realised it was too much, things I wanted to talk about, and also making all my ideas clear for all the people, not only those who already know a little about colour systems, and colour contrasts, I found it hard… "
94	"It was a bit daunting, for the fact that we were not given anything to go on except a student problem, so... eh… It was hard to narrow it down, something for me, and I had to really thing about what to base it on… ehm… other than that, once I got my idea it was just… making it into a story, and getting some pictures drawn up. It was alright. […] But the fact that we were told to do it on a student problem, you could narrow it down, into something you can actually think about, rather than saying you have to do it on certain student problem, such as dyslexia, or something. Because then you can make it to something you can relate to yourself. And that is always easier to write about."
96	"whilst I am making them, I really dislike them, it stresses me out, but by the time I have finished it, if I got something I am pleased with, then I do not mind them as such, I quite like it then."

97	“I kind of, in my script I got, like, little brackets of scenes and what I got of graphics that can go in the background, so it is nice to be writing it, but also to imagine it as it goes through the creative process. “
98	“And in some, it is just being theory or writing, and to me that’s less creative, as I just like to draw and make things rather than write.”
99	“But for more creative subjects, like I am doing, it spices up the learning a little bit”
100	“I am looking forward to actually doing some design work, because that’s what I did in college. I look forward to kind of getting back into that, and… kind of igniting my creative side”
101	“I think that the modules where you are creating something feel more creative”
102	“it was our first assignment at the Uni… and I like making things”
103	“I like creating my own stuff. I think there is more fulfilment in that”
104	“It was… I think it was a good process. Because I… It was nice to share my knowledge through a creative output”
105	“It is a lot more engaging, even if it is more work, when it is more hands-on people are more enthusiastic. If they know they are going to be sat in front of a computer for hours staring at text, then the motivation just disappears.”
106	“If they only got a report to write, they won’t really try, they will just do it to get through the year, so it’s nice to have something more practical. “
	Outcome
107	“Especially for my classmates, I hope my screencast will be useful for them. “
108	“If my screencast is good that will be great, but also if I fail with this work it would not influence my final degree that I will get after third year. […] I am not sure if my screencast will be good enough to use it, maybe after I get more experience with the software … I need to complete it first [laughs] and see how it works, and then maybe I will be able to decide am I satisfied with it or not.” “
109	“And to be fair, I really don’t think it was that good. But maybe it is just my own… not prejudice against screencast […] It is the same with essays. I can’t say I am proud of them, nor can I say that I am disappointed. I rather perceive them as a stage that I needed to go through to become better”
110	“Looking back at it, I think that we maybe could have done it a bit better? Improved it, kind of get that feeling of the other students across”
111	“but our final product, I was not very happy with it. I feel like we could have done better, because there is a lot of material we could have included, and I think we maybe chose the wrong kind”
112	“GP: what about that the product being possibly used later on C: For me it was intimidating [laughter] and I think if it was not the case, I would have been happier with what we ended up with. It is just the fact that it did not suit the client as much as it could have”
113	“I would be more inclined to re-use my written work, because it is not narrated by me [laughs] whereas the screencast is more embarrassing.”
114	“I don’t even think I was that proud of them at the time, anyway. I am never really happy with anything, I just hope it meets the criteria.”
115	“Yeah, I was happy with the product. I think it could have been a lot different… if it wasn’t for [Client 1]… it definitely changed because of [Client 1], and I think all for the better.”
117	“Yes. I was imagining not to do something wrong so they do not laugh at me”
118	“I knew that I can do well regardless if I have previous experience in editing or not. “

119	“Looking back at it, there are one or two that just look a bit… awkward… but the product itself, yeah, happy with it.”
120	“One of the proudest bits are the music, as I wanted some instrumental in the background that would help convey the emotions that were happening within the animatic. And I am not very good with mixing audio, but I had two different songs that I managed to synch in with each other quite well, so that I was happy with. I imagine most DJ’s could have done that in five seconds anyway, but happy with that bit. And I am happy with, because I am not the greatest of drawers, so I am happy with quite a few of the pictures, but there are a few that I think are quite… awkward. That I would change, anyway. But overall, yeah, I am happy with it.”

App 10.7 Representative quotes for the subcategory Evoking Relevance

	Personal Situation
1	“It’s not the case of what is better or worse, it’s that every student is different.”
2	“If you have childcare, you can’t spend 24/7 in a lab polishing your screencast, but you can write an essay anywhere”
3	“I have dyslexia, and I hate writing. That’s why a screencast is easier […] Writing, especially typing, is difficult”
4	“I have learning difficulties, I have dyslexia, so I sort of get bored of reading”
5	“I have done enough [essays] to say that I don’t like them. [laughs]. I am dyslexic. It is not… I have never been very good at… I’ve never got good marks for it, I never enjoyed writing, so it is just… It is something I will do if I have to, but it is not a pleasurable thing.”
6	“I was just relieved I did not have to write another essay. My writing was not as good back then”
7	“I really enjoyed making the screencast just because I have never really, back when I was in school, I never really was good at essays “
8	“Writing, it is not my thing”
9	“I am a foreign student […] If it was my first langue, I could talk on it and even give more information than the written work… because you can talk faster, and… […] you can talk as well for 5 minutes on your screencast and showing what you are talking about with images”
10	“And for me it is very enjoyable, actually. […] and in my country, we did not have these kinds of things, it is something new to me. “
11	“I did not see before, only first time in this course. This is why I came here, to make things like this; I could not make things like this at home.”
12	“I am not a native speaker, so for me it is difficult to joke”
13	“I always work better visually anyway”
14	“You can make it to something you can relate to yourself. And that is always easier to write about.”
15	“I chose it [the topic] because I have grown up around people who have suffered from depression for years, so I felt I had some insight”
16	“I did mine on budgeting. Which I think I am quite good at myself, but I lived with 5 other guys who graduated last year, but they were really bad at budgeting and got themselves into max overdraft and ended up getting credit cards when they were too embarrassed to talk to their parents about it. So I thought I should base it on that […] I saw the story of them spiralling out of control.”
17	“Now I am not at that stressful point … I feel we did a lot of work and that was a good thing […] But when you are at that point it is just stress”
18	“I have my old YouTube channel, but I want to start a new one with my own videos. I like watching game reviews and such like, always wondered how they do it. Now I know, I could give it a go.”
	Identity
19	“After slaving away with all this research, we would finally be able to start drawing and creating and being exactly who we want to be”
20	“We are on an animation course, we are creative people, we like doing things more than researching them”
21	“It fits the course better, doing something creative. Because we are, like... artists. “
22	“Being an animation student, I find a whole lot of people who don’t like writing much in animation”
23	“I think most students can claim it is not their field making screencast… because for me as an animation student it is useful at least understanding how film making and animation works”

24	“I am an artist, reading I forget very easy when I read something, but the images I don’t forget”
25	“I think especially in arty courses, I think that people are generally, not everybody, but generally worse at written things. So this is pretty good for people on our course. “
26	“I am just not a writer; it is as simple as that”
27	“Because I don’t want to be a writer, I am an animator… […] if I wanted to be a writer, I’d do journalism”
28	“Personally, I would prefer to do writing. I think I’m more inclined to be a writing person than a speaking person so that’s what I would rather do.”
29	“Because people like myself take information in a lot better visually”
30	“it is easier for me... as a student anyway. I am a visual person”
31	“But for what I am doing now, and hope to do in the future, it is not good enough. I am an artist, and it is completely not the thing I would like to do.”
	Skills development
32	“So that was useful, learning to use the software… I mean, I could’ve probably used something simpler, but I knew at the time that I needed to get to grips with Premier, so I thought I may as well try and use it.”
33	“the goal is to show that you can work to industry standards”
34	“Like if I go to work, if I work in the animation industry, it gets me ready for sort of the real life.”
35	“if there is a screencast option and that is going to get you through Uni and it’s going to get you a job”
36	“I used Adobe Premiere. I still had not got the hang of using the software, but now I use it often. I mean, I could’ve probably used something simpler, but I knew at the time that I needed to get to grips with Premier, so I thought I may as well try and use it. “
37	“If you do an assignment […] but you don’t feel it is relevant to your portfolio, then you are just going to do enough to get a first, or a pass, or whatever”
38	“If you know you will add it to your portfolio you will work hard”
39	“I reckon I will use it in my show reel. “
40	“The one for [Module P], because it was mainly animated, so I cut [bits] out of there and put it into my show reel”
41	“it was very important to A – get the experience, and B – have something to show for the experience”
42	“And there needs to be a certain amount of expertise in there, to kind of show the skills, as well as that you know what you are talking about”
43	“Used my own screencast? I think possibly once or twice, but not for anything… purely to show my creative skills and what kind of software I can do, not to get across any knowledge”
44	“I was… completely inexperienced in such things. And it did force me to learn new skills with the software”
45	“it was more of the excitement in the process of exploring new software and learning new skills”

46	“It’s all practical, I mean there is writing in it but it’s more like design writing and…You couldn’t just … send a bit from your essay to people, like ‘here is a good word I used, give me a writing job’, but you could send … I don’t know … a few seconds of animation, and they will know if you can animate or not”
47	“I hadn’t got a clue about [Adobe] Premier before, but I have now”
48	“making screencast is like making a film. […] I need a storyboard, I need to clearly understand what I want to say, also making a screencast gives an understanding of how to use timing, how to use new software…. It helps to clearly understand and produce what I want other people to learn.”
49	“I had never actually made an animatic before. We had done [a practice] one, which was how to piece one together, the technical side of it. But never to actually do one of our own. And we’ll have to do one this year, and in the industry, so it was quite good to learn how to make an animatic”
50	“In university, generally in university you are improving your technical skills, you are trying to be better at what you do. Whereas something like this … you are learning brand new skills you can’t usually get in university”
51	“and I can now use it to show that I can do this, I can work for a client, and produce something, and stuff like that”
52	“If I had to work for somebody who doesn’t know much about animation, I would now know how to approach it. “
53	“But I liked it, doing all that kind of stuff, but when I meet the client and got to know her a bit better, it was like “what have I got myself into”, kind of thing, because she was not very tech savvy. And it was kind of having to explain stuff to her, and being dropped into the deep end… But the we kind of got past all that, and it went really well… and the feedback was excellent.”
54	“It gives you something to strive for, to aim for and show that you can do the work for a client and show that you understand and can do these things.”
55	“[using internal / hypothetical client] […] the fact that it gives you links to other people, maybe, working for somebody, because then they can say this guy did a bit of work for me, and then you can get a bit more work from that… it is less thinking about what you want to do, you just sort of get told what they want, and you try to create what they want. “
56	“It was an interesting experience, my first taste of a professional experience.”
57	“I like the fact that it was fairly practical, I want to do as much practical work as possible [before graduating]”
58	“I think they [theory and practice] are both important but the technical skills will get you the job, doing this kind of thing will let you keep the job […]you need to know this stuff to be able to do it, so I imagine this kind of thing is more practical experience, is probably more important in the long run”
59	“It is nice to be able to have something that proves, something that is not an essay, that proves you know stuff. Because a lot of the time you come out of Uni with a portfolio of stuff, but it is all creative and technical kind of thing. Whereas it is nice to show someone something which is creative, but also shows that you know your stuff.”
60	“I’d say all these skills are equally important. When you think about someone doing animation, you don’t think ‘oh look at all the theory behind that’. But understanding composition and things, without the theory modules I would not understand them half as well as I do now. Which means I would not probably use them as much as I do now. If you look at anything I made before Uni, you would see I did not comprehend screen

	composition, or what it might help express, or whatever. So I suppose the written tasks do help you understand. The screencasts definitely do, because they are sort of an extension of the report, or they help you with your editing skills. “
61	“Ours was about fans and player communities and whatnot, and how the game industry uses them. Yeah, it was quite relevant, actually”
62	“I have my old YouTube channel, but I want to start a new one with my own videos. I like watching game reviews and such like, always wondered how they do it. Now I know, I could give it a go. But it won’t be this screencast. I would like to do game reviews, and maybe some software tutorials. Maybe some film reviews…”
63	“It just got to the point where I really didn’t see it as applicable…it is not something that I would use it in the future…”
64	“Standing up in front of people to talk is still a good skill to have”
65	“I think it is more important getting a good grade, you are working towards a good grade more than working towards that, sort of, commercial piece of work”
	Judging academic relevance
66	“It fits the course better, doing something creative”
67	“I think this is a different way of learning than just reading off a book”
68	“I think some more academic subjects... maybe something like English, something like History, would be a little bit… I think that the lecturers and students know how to read through a textbook and that’s their way of learning and how their subject is. But for more creative subjects, like I am doing, it spices up the learning a little bit.”
69	“For me as an animation student it is useful, at least understanding how film making and animation works, but maths and physics students, chemistry students… I do not think it will be very useful for them”
70	“I think most students can claim it is not their field making screencast… because for me as an animation student it is useful at least understanding how film making and animation works, but maths and physics students, chemistry students… I do not think it will be very useful for them.”
71	“Like people studying maths and things, are they making screencasts? But if they did, I don’t know if the video editing side would be of any use. But I don’t think they get anything extra in terms of video editing and things. Unless they want to learn that just out of interest. It depends on… it might come in handy eventually. They might end up deciding to do something different…”
72	“It depends on a course. For example, I think that in film and media production it could be useful… or in art, interior design, architecture, because these are courses that involve visuals, so… but not sure about courses which involve more abstract things, like sciences or maths or languages. Maybe, if the person is creative enough, she could make screencasts on everything”
73	“of course, all of them [*in any kind of course*], they can show, expand the technique or whatever, and then, for example… chemical things. If you just say water, you write water, you don’t show anything. But if you expand the water formula, [draws on scrap of paper] now H2O, the student can understand better. And again, you can expand it [draws] O+H+H, and then put together [draws], becoming this formula, and this formula it is water. You can open the subject if the students can see more visuals. [long pause] or the…. Design for a car. First show all the parts of the car separate [draws], and then put together [draws]… and when they are together, you can’t see the parts, and how is the engine, other things in the car, but you can show them all parts separate again, and then put all together. [long pause] But in written work you cannot do these things… on a screencast you can show them. “

74	“I think making a screencast is like a preparation for our assignments in the second and third year, and making a screencast now is a good experience because the marks that we get [in first year] are actually not important for our final degree”
75	“Because I am making this screencast not only for my classmates, or my tutor, but for myself. I understand this is important, because I know in third year, we will be required to produce our own film… and making screencast it is like making film. So for me it is just like a try for the final year project.”
76	“I mean, to be honest, our first year on the course was a lot to do with theory and… i have really enjoyed this module, and now, last year and this year, I mean now, it is all mainly, 3D design or making game levels, or things like that, there is really not much theory at all. I really enjoyed [theory] back then, and would like to do more of that kind of thing”
77	“I’d say all these skills are equally important. When you think about someone doing animation, you don’t think ‘oh look at all the theory behind that’. But understanding composition and things, without the theory modules I would not understand them half as well as I do now. Which means I would not probably use them as much as I do now. If you look at anything I made before Uni, you would see I did not comprehend screen composition, or what it might help express, or whatever. So I suppose the written tasks do help you understand. The screencasts definitely do, because they are sort of an extension of the report, or they help you with your editing skills. “
78	“Yeah, I think it is good to have a mixture, because I think if it was all essay it would not be very good either. So, screencast and essays and pitches and things like that, you get a more rounded experience”
79	“I think that with this module, theory, creative work, yeah…. Presentations… having a client, for example, getting that real-world experience in there, getting a good mix”
80	“it was… a practical bit in a theory module, and it does not happen often, so I thought I should take advantage of it”
81	“If every assignment for theory modules and things had been just to make a screencast every single time, it would be like ‘oh no, not another screencast'. Can’t we just write something instead?’. But I think it has been a good balance, with the screencasts and the written reports. “
82	“Definitely continue, there is too much emphasis on essay and it is nice to have a change.”
83	“it is a chance to apply your theoretical knowledge to practice and see if it works”
84	“I think, maybe, it is good to learn about the theory, but unless you use that theory in some practical work, then, you know, there is not much point, is there.”
85	“You are learning these things, and then you are implementing them, and it kind of strengthens what you have been learning. “
86	“you had to make sure you definitely understood what you are talking about in order to explain something […] it helps you understand it better, you have to make sure you understand it, well you don’t have to, but you should understand it”
87	“P: It is just, I am learning about the subject more, and how it actually relates F: It is like, you read all the information you need, then you have to rework it into your own words, and then you need to P: You need to give examples F: you need to know the information”

88	"[in essays] you tend to look... you look at what you are saying but not at how it sounds. More like you know what you are talking about, but as with the screencast, you make, even if you do not understand it as much, you still try to show everyone else and help them understand it, so by doing that it helps you a little bit."
89	"[*Couldn't the same be done in an essay?]* For something like the twelve principles of animation I'd say probably not. Because you have to do a lot, sort of, video-based research if you are creating a screencast. You might be less inclined to do that if it is written work, so you might not fully understand the principles"
90	"I think it's important to do a screencast over a report for a project like this because you need that video side of it when you're trying to explain a game or even movies as you need the video to back up your point because you can't just describe that sort of thing in words."
91	"I think by doing screencasts you actually build up the skills that will lead up to writing a report or an essay because although you don't really think you are writing, you are writing a script and so you are writing... It did end up in a report format as well, because we'd built upon the ideas."
92	"with the screencast you make, even if you do not understand it as much, you still try to show everyone else and help them understand it, so by doing that it helps you a little bit"
93	"You are learning about what you are writing about, as well."
94	"D: but if we had written ours as a report instead, I don't think I would remember anything, the theory stuff at all T: you would have forgotten everything"
95	"you learn more from doing it and seeing other people's videos gives you more ideas for your own, and like all the information in the videos – it is research"
96	"Other than it helped me learn the topic and helped me learn the software, I don't think there were any other benefits"
97	"It is more of a creative process involved in making a screencast […] Like, you have to figure out how you are going to show the information, what examples you are going to use, visually, and how appropriate they are to what they are saying"
98	"I think the process of actually making the screencast probably meant you learnt more than just writing an essay but then you have to compact all that down to more precise points"
99	"I think you can get more in an essay really. That was really hard, having to fit in so many points into such short space of time"
100	"It was hard to say everything I needed to say in order to get the mark within the time we were allowed."
101	"Again, it depends on the subject. If it is something really theoretical, or requires a lot of reading, then probably essay... which sort of doesn't rely on, you know, demonstration or whatever… I'd say the screencast is more for things that require visual aid."
102	"I think it is more interesting to make than a written report… But then again, written reports tend to be more in-depth. […] Because you are spending more on your time focusing on what's written, rather than everything else that surrounds it… "
103	"if I had written a short essay about it, I could have set it out better in my mind. Which does not make sense to me, because I really do not like writing, but writing helps me plan stuff"
104	"I find it really difficult to explain so much detail in only 5 or 6 minutes. "

105	“my essay is between 15 and 18 hundred words, and the screencast is 5 minutes, I think I wrote 800 words [for the script]. So maybe in my essay I will be able to talk about more things. “
106	“I think you can get a little more knowledge across in an essay […] not enough to make it, to do a screencast, to make a screencast not worth doing over an essay…”
107	“A long Wikipedia article is still a Wikipedia article… ehm… even if the screencast were longer, it would not change the nature of the screencast. There is still a certain limit to the extend you can go in-depth in a topic in a screencast”
108	“I would have personally preferred to have done a written report purely because I think you can go into more detail on certain aspects and unless you really need to have visual aids to support your point I don’t think you really need to do a screencast”
109	“It feels like I have to research more for an essay”
110	“In the essay you could fill a lot more content, and in the presentation, you are getting live feedback”
111	“I recon it would be less in-depth for a screencast. For an essay I would have…. You put together, like, long paragraphs of lots of information about what you are talking about. In a screencast you have to condense it down to a few sentences. “
112	“For me, I think I see a screencast as something equivalent of a Wikipedia article, maybe. Something that explains a principle in a simple way... Something which is appropriate for… getting an idea of something which you do not know or didn’t come across before. But it couldn’t serve as a reliable source of knowledge.”
113	“It simplifies things too much. And simplification mean that it tries to get rid of contradictions, and it doesn’t… give a full picture…Which is again good if you just want a basic understanding of something, but for me research is more than just basic understanding.”
114	“the points you could be making would be less fleshed out, I think, in a screencast. “
115	“The main purpose of a screencast is to make… things understandable for people who had not heard about them before. So it is very… audience orientated, I would say. And the more you try to generalise something for a wider audience, the more simplistic it becomes”
116	“When you stand up and do a presentation there are other influences that can sometimes distract you. But it also gives you the option at the end to ask questions and get feedback… And standing up in front of people to talk is still a good skill to have.”
117	“I suppose, in [Module 2P] it was a case where it could have been written, it could have done without the visual aid, seeing as all the visuals I made myself… it could easily have been just written, there was no need to have visual aid apart from making it… I don’t know… interesting or different, perhaps”
118	“We had to write a written report, as well, for [Module P], and that was much, much more useful. If we had just that, then we would have had more time on that, and it would have been more useful.”
119	“There is no educational basis in that, as you’re finding photos to fill a gap, whereas in a presentation or essay you don’t have to do that.”
120	“And from my written essays I did learn more than from making screencasts. Just because the whole process and purpose of making essays and screencast is different”
121	“The whole idea of screencast is that it is a learning resource. That it should be used by someone else. With essay I feel that it is more… it is more my thing. I can spend hours and hours on research, thinking through different concepts, which I can sometimes hardly explain to myself, and it is

	the joy of going through tons of different information and… still as an outcome of an essay I get more of that knowledge, than from making a screencast"
122	"the problem with screencast is not that it is not written. I mean, written reports I find as useless, even worse. It is just that in a screencast, comparing to an essay, it is just not enough room for myself. I think it still works good as a task for first year theoretical module…"
123	"But it is also very easy to cheat. […] When you first do something and then post hoc try to find some theoretical background to it and then make it look like you first did the theory and then based your practical work on it. And I know that in ninety percent of cases it happens. People first do something, and they try to explain, but they can't because they don't know."
124	"We were looking for gameplay to fit what we were saying, you sort of looking at gameplay more, don't you? As in, this is a challenge, this could work… you look at different games with similar ideas, you look at gameplay more, which is good as a game designer"
125	"I was looking through my old screencast files, I have them on my old USB stick and it is interesting to see the file sizes [laughs]. When I first did them, they were like one gig, now they are like a couple of hundred megabytes. And that's because I have understood how to export videos, the appropriate codex and things, whereas before I did not know, and they were just massive file sizes. But that is useful for now, especially when I have done all the client work, because if I had given them a couple of gigabyte files, it would not have been useful for them"
126	"Ensure that it is useful, and it is actually worth making. I suppose there is always going to be some kind of benefit with a visual media course, because you learn to edit and [other] things. But if the subject matter could be told better through a written report, then what's the point?"
127	"Some people are creative and may not be very good at essays, or may not be very good at standing in front of people explaining, so it makes it even and fair for everyone. I think especially in arty courses … I think that people are generally worse at written things. So this is pretty good for people on our course"
128	"I did not like making that one, to be honest. It was more like a self-interview, I had to film myself [talking about my chosen career]. And we had to interview someone in the industry and include this interview too. It was a 15-minute-long interview, plus self-interview, and I had to condense all that down to 4 minutes. I had to edit out any gaps … just to save like, half a second, just trying to fit it all in …. made it ridiculously time-consuming as well […] At the end of that, when I got my feedback for it, he was mentioning things that I hadn't included […] So that was sort of annoying, because I got worse marks because I did not include things, but I did not include them because I did not have enough time or space in the video to include them"
129	"Actually you build up the skills that will lead up to writing a report or an essay because although you don't really think you are writing, you are writing a script and so you are writing"

App 10.8 Representative quotes for the subcategory Evoking Materiality

	The medium
1	"It like, enables you to engage with the audience in different ways than just text slides, like a PowerPoint presentation. You can use different forms of media to get them interested in and getting the points across"
2	"It is, like, being there with the person explaining it to you, without having to be there with them, and you can refer back to it rather than just read text over and over"
3	"My screencast is on blue screen compositing, so I would take a film like, let's say King Kong, take a screenshot of the final film, and then one from behind the scenes with the green screen. And then that's the scene everyone has seen so you can compare them… in an essay I do not really think you can do that… or not as well"
4	"One student he made a very good thing, […] His screencast was about walking… walking techniques in animation, he started to draw images, how it goes up down up down, on the paper, what was showing looked like it was on the paper, and he just pulled it together and they became one and started walking. It was nice technique he used, in just one image how it goes up and down... before he showed in 12 images, one down, the second one goes up, then more up and a little bit down. […] It is good to see how the images goes together, in one. You cannot see the process of animation, but he planned it, he is showing the process, you have to actually draw ten images to show how a figure walking."
5	"I think it's important to do a screencast over a report for a project like this because you need that video side of it when you're trying to explain a game or even movies as you need the video to back up your point because you can't just describe that sort of thing in words."
6	"If you are talking about animation or film, it is easier to just show an example, a moving image, rather than just a still and then a paragraph explaining what you mean by what you can't show."
7	"For example, talking about specific technique, you can see the technique and how they use it in animation and whatever, and you can understand it easier"
8	"You… have to describe a lot less because you can just show here on this film, you can see the process being used"
9	"It was really useful for the game design people as with an essay you can't really get the games idea across unless a gamer is reading it. It's really hard to describe a game in words and you're going to waste unnecessary words whereas in a screencast you can say and show that in 10 seconds"
10	"I mean, in a report, I think I would be able to describe [the game], to an extent. But I do not think it would have the same impact, really. I think you can get your point across a lot better with a video, as people can see it there and then."
11	"I think that if you got it visually there, people will know exactly what you are talking about, in a same way as a presentation, but even more so, because you can plan ahead, and you can know exactly what you are talking about, and people can visually see, you know, in there when I say 'you pull the left trigger and the camera moves closer towards him', and you can slow it down afterwards and express it then and there, and they are aware what you mean."
12	"It would be really really difficult to get across the information that I speak about if I were to put that into an essay. Because it is just… Yeah, I think it would be impossible, really, well it would be very difficult, just because of explaining how the camera moves behind the character, and the ways

	in which it moves. You would have to describe the specific movements of the camera on screen as the character moves and sort of follows through with it, it would take a lot of text to try to describe that."
13	"But if it is written work, just the lecturer can see them, we don't see them"
14	"But screencast, actually, you can put on YouTube, as well, for other people use it, but essay I do not think [anyone] is interested to…"
15	"The more people see it the better, I think, because then you get feedback more, and for the next time you can input the feedback."
16	"And then that film is there, to be reused by anybody, to be uploaded to YouTube, everyone can have a look at it now it is made, it is out there. If people need, you know, for some strange reason, if someone needs something like that."
17	"So far I think I am aiming it towards the students. Or towards anyone who would be interested in the subject, who do not have any outside knowledge, because that's what I think it is for, it is not for the tutor, it is for showing to next year's students, showing to people who would like to know about it on the internet, kind of"
18	"It's good to see the end result, we were really excited about seeing ours on big screen "
19	"it was very important to A – get the experience, and B – have something to show for the experience"
20	"I was definitely checking everything a lot more as it was going to stay there, it is going to go on my YouTube channel now, so [I was?] making sure I did a lot more research."
21	"GP: what about that the product being possibly used later on C: For me it was intimidating [laughter] and I think if it was not the case, I would have been happier with what we ended up with."
22	"in a presentation you generally do not need to think so much about, like when you say it, it is gone, in 5 minutes it is gone, but this stay with you, so people can re-watch it so it matters more what you are saying and how you are saying it."
23	"You are showing yourself off. You want to show yourself off because people are going to see it, so you want it to look good and do a better job."
24	"You are making a product to show to people who don't know how to do this"
25	"But if you know that stuff is part of something more practical as well, I think you push yourself more to get on with it, to get to the point where you can turn it into something more"
26	GP: But you have not made it public, like uploading it to YouTube, or anything like this? T: No it is just for… something I can send out to people…
27	"I do not think people have enough time to sit and read my essay"
28	"And everyone who have read an essay, have read an essay. It is not like it feels boring, per say, but it's…. you got something to show people at the end, so watch this two and a half video and you can learn about green screen, or whatever, but 'read this two and a half thousand word essay on greenscreen', it is just not as interesting for most people. Especially creative people. "
29	"It is a good way to get feedback from people whom I am generally not talking to. So I can send it to someone in another country and they would be able to hopefully understand it and learn the basic principles of the topic I am discussing. GP: You could do the same thing with an essay? Post it online and…

	T: There is not the same feedback, and I do not think many people would want to read an essay about my topic. Whereas someone may want to watch a 7-minute video about it. And then write a comment "this is really good" or "some of the information is wrong" or something. So I think people are lot more willing to watch videos then they are to read 5 page essays."
30	"It's already on YouTube. I have a channel for all my stuff. Not sure if it will get any views, though"
31	"There are some likes and comments, but it is from people from the course. I don't think it's that exciting"
32	"it is kind of alright to put online, or something, but just who would watch it, if you know what I mean."
33	"I put it on YouTube in case it did not work on my memory stick, or something. And I think it is still on YouTube, I don't think it is private, it is public for everyone to see."
34	"I really never intended to show it to anyone else… and I probably won't…"
35	"I kept them all. But whether I got plans or intentions of using them, I don't think I would."
	Audio-visuality / multimodality
36	"I think that people learn better with visuals"
37	"It is commonly agreed that people learn better from seeing things, rather than being told something"
38	"I think it's more enjoyable than an essay as it's visual and people don't just learn in one way. I can't just listen and learn it, I got to read it as well, and see it."
39	"I always work better visually anyway"
40	"Because people like myself take information in a lot better visually"
41	"Images you can memorise better, when you read you easily forget… images stick in your brain."
42	"It is very useful, and if you are not quite as good at reading you will pick up a lot more from the imagery than the commentary"
43	"if I am watching a video, you know, a screencast, a documentary, whatever, I tend to pick up information a lot quicker. "
44	"I like screencasts more than written work, because they are visual and we don't forget them, the techniques, for example, when they are explained on a screencast you can see the images, and… but then you read something and you might not understand what they are taking about, on the screencast you can see what they are talking about."
45	"You give more information on the screencast… because it is talking and visual you can hear and see. But written work is just written, you won't see anything, you just have to imagine… and you could imagine wrongly [laughs]"
46	"If there is a visual aid it keeps me interested."
47	"you can see what they are talking about."
48	"I think is maybe better visually, sort of, you get a better idea if you see and hear and read of the screen, as opposed to doing only one, if you just watched, or just read an article, you would not get as much as from an screencast"
49	"P: No, but I still find it more appealing than… GP: appealing? P: Yeah, I think it is because someone is actually telling you rather than you reading it. "

50	“it is more enthusiastic than “here is a PowerPoint, read these bullet points, go to these pages in our book”, whereas with screencast it is more like “watch this, take in what they are saying” and it is just more enthusiastic”
51	“You get to see a lot of different media, sound images, video… It just seems like a PowerPoint presentation, but better. And it is sort of getting the students’ point of view…”
52	“I think that you can express a lot more than in just an essay, with actually showing it on a video and, you know, talking over with it.”
53	“You can write a lot about it and you can probably get into the habit of writing too much, whereas in a screencast, you can afford to chop out bits of irrelevant information, because you’ve got that edited visual side of it to help you explain”
54	“I found it distracting when there was text on the screen when she was talking, because you usually want to do one or the other.”
55	“If you are going to talk, then there is no point having the same information written, because you can just read it. It is a problem everyone has with PowerPoint presentations as well, instead of a couple of bullet-points they will have every word they are going to say and then just read off the screen. She said more than was written on the screen, which is quite distracting, you try to read one and then you just miss some of what she was talking about. “
56	“I was quite happy about doing it, because it wasn’t written”
57	“By using images and stuff you reinforce the ideas you put across.”
58	“I liked having pictures, it gives you something to talk about, and they highlight your point so you can mention it briefly by showing the picture and then that says it for you, and then you’re free to talk about something else. Also, if you are getting stuck you can just put the picture in and that’s something to talk about.”
59	“I think it is good, it is a way of getting information across quickly where you are not just looking at paragraphs of text all the time. “
60	“I think screencast is better to get a feeling of what you’re talking about as you can look and listen to it, whereas, in an essay you just make a statement. I say the final outcome in a screencast is much better with all the editing and looks a lot nicer. Because the time is short you really have to think about what you want to include which cuts quite a lot out, in essay you tend to waffle on but with a screencast you really have to be concise”
61	“If you’ve got a picture to look at, you can get your point across”
62	“If you are doing something where you are showing a lot of examples, then you could probably have less actual [verbal] content by showing it visually”
63	“One page you can read in 5 minutes, and you can talk as well for 5 minutes on your screencast and showing the… what you are talking about with images”
64	“I do think it is easy to get your point across when you can express it visually”
65	“I think it is easier to get your point across through images than an essay.”
66	“I think it is a lot clearer and a lot more concise to show it in a video”
67	“And all the stuff from books can be applied to visuals and have more depth to the information.”

68	“Of course, all of them, they can show, expand the technique or whatever, and then, for example… chemical things. If you just say water, you write water, you don’t show anything. But if you expand the water formula, [draws on scrap of paper] now H2O, the student can understand better. And again, you can expand it [draws] O+H+H, and then put together [draws], becoming this formula, and this formula it is water. You can open the subject if the students can see more visuals. [long pause] or the…. Design for a car. First show all the parts of the car separate [draws], and then put together [draws]… and when they are together, you can’t see the parts, and how is the engine, other things in the car, but you can show them all parts separate again, and then put all together. [long pause] But in written work you cannot do these things… on a screencast you can show them.”
69	“I think it’s important to do a screencast over a report for a project like this because you need that video side of it when you’re trying to explain a game or even movies as you need the video to back up your point because you can’t just describe that sort of thing in words”
70	“If you are talking about animation or film, it is easier to just show an example, a moving image, rather than just a still and then a paragraph explaining what you mean by what you can’t show.”
71	“For example, talking about specific technique, you can see the technique and how they use it in animation and whatever, and you can understand it easier”
72	“You… have to describe a lot less because you can just show here on this film, you can see the process being used”
73	“It was really useful for the game design people as with an essay you can’t really get the games idea across unless a gamer is reading it. It’s really hard to describe a game in words and you’re going to waste unnecessary words whereas in a screencast you can say and show that in 10 seconds”
74	“I mean, in a report, I think I would be able to describe [the game], to an extent. But I do not think it would have the same impact, really. I think you can get your point across a lot better with a video, as people can see it there and then.”
75	“I think that if you got it visually there, people will know exactly what you are talking about, in a same way as a presentation, but even more so, because you can plan ahead, and you can know exactly what you are talking about, and people can visually see, you know, in there when I say ‘you pull the left trigger and the camera moves closer towards him’ and you can express it there and then, and they are aware what you mean”
76	“It would be really really difficult to get across the information that I speak about if I were to put that into an essay. Because it is just… Yeah, I think it would be impossible, really, well it would be very difficult, just because of explaining how the camera moves behind the character, and the ways in which it moves. You would have to describe the specific movements of the camera on screen as the character moves and sort of follows through with it, it would take a lot of text to try to describe that.”
77	“you have to be really careful about what you write and how to put it with images, and you have all the technical skills involved in putting it into motion. You have to read it out as well, so in the end you remember it better”
78	“I thought doing a screencast was a good idea because you could show people how to use a social networking site rather than it being in written form”
79	“In written you can give more information in just one A4 paper, but a screencast you might need 20 minutes to do, in a film or images, to give the same information as one page.”
80	“I recon it would be less in-depth for a screencast. For an essay I would have…. You put together, like, long paragraphs of lots of information about what you are talking about. In a screencast you have to condense it down to a few sentences.”
81	“I couldn’t find the pictures to match it”

82	“I found it quite hard sometimes to put the images to things that I was saying”
83	“When I was on about the narrative concept, I couldn’t… there isn’t a picture you can actually correspond to it”
84	“Like theories and concepts, you can’t really put a picture to it”
85	“I had to keep searching for hours to get relevant photos … I discussed Jenkins a fair bit, but it is all quite abstract and it reached a point where I could no longer just use his photo so I had to try and look for more relevant stuff […]“For me it was just annoying having to spend time searching for all these photos to give it a variety.”
86	“When [Student X] talked about symbolism, he had a quote about signs, we honestly didn’t know what to put there so we just found some funny pictures of sign posts to be like a play on words and that was literally all we could think of “
87	“There is no educational basis in that, as you’re finding photos to fill a gap, whereas in a presentation or essay you don’t have to do that.”
88	“I think it varies subject to subject… some subjects are easier to get more relevant images. Sometimes relevant photos are not available for your subject, for some people it may take five minutes to find, for others it may take five hours because of relevance.”
89	“You can still reference imagery in essays”
90	“But I think I would rather just present just because I don’t have to listen to my own voice [laughs]”
91	“Everyone hate the sound of their own voice; I definitely hated the sound of my voice.”
92	“I just don’t like hearing myself talking”
93	“I always seem to be distracted by the superficial values of things, so I would much rather make something look nice than actually be useful [laughs] which I suppose is the wrong approach to take. It’s like, when I start a screencast it’s like ‘what can I do to make it nice’ rather than ‘what should I say?’”
94	“Yeah, because you don’t want to submit something that looks crap. You can make points that you think are 100% right, but as long as the looks are halfway there, that’s not something you give the lecturers”
95	“I suppose, because you do have to make the video, you have to record yourself, you have to collect all the material, you have to edit it all together, you have less time to do the research? Well, it depends on how you manage your time [laughs] But, say you spend equal amount of time on the screencast as you did on a written report, you will have less time on the content, you know, the actual written sections of the, because you have to write them before you can record your voice, so you have less time to do the research and things, within a screencast… in theory [laughs] It depends. Either you spend more time on the screencast, then what you would on a written report, or you will have less time on the actual content, you know, the written sections. Or you spend less time on the research or spend less time on the screencast, you know, focusing on the aesthetic, like I did.”
96	“I think it is more interesting to make than a written report… But then again, written reports tends to be more in-depth […] Because you are spending more on your time focusing on what’s written, rather than everything else that surrounds it… “
97	“I think I spent more time thinking about how it could look, and less time on the kind of formalities of the points I was trying to make. The time that I spent on the screencast, if I had done a very boring piece of writing that would have got me really annoyed, I could have got more information across… But I would have less fun on the project, so [laughs]”

98	“I would have personally preferred to have done a written report purely because I think you can go into more detail on certain aspects and unless you really need to have visual aids to support your point I don’t think you really need to do a screencast”
99	“Because you have the ability to have a lot more content in there, a lot more video and image, and more time trying to find suitable content for it, which makes it more time consuming”
100	“I thought it was dead time consuming to make, it really took a long time to make then, a lot more than if I were just making a slideshow presentation for the class”
101	“it is just much easier to write something about, and article instead of a screencast, it would just be much quicker and easier for me to just write about it, than find the actual footage, or capture the actual footage properly, and then work around it and do a voice over for it”
102	“it is a bit more work than making a presentation, we had to record gameplay, get a knowledge document and make a script for it, and record all the audio bits”
103	“I think a presentation is better because then you can […] you can butt in, as it were, and ask a question and then you get feedback from the tutor and then you can get back to the topic. Whereas a screencast is a little bit “talk about this and ask questions towards the end” or “watch this and then we will talk at the end”, which I do not think works quite as well as presentation”
104	“I think the same amount of work, but it goes in different sections, of the kind of, working process. “
105	“I mean, it is easier, I think it is easier to get your point across when you do have it like that, obviously it takes time to set everything up, and capture the footage.”
106	“Because it means you would need to write an essay… Yeah, for example if I wanted to make a screencast out of my dissertation, it means I would need to write my dissertation first. Finish it, polish it, submit it. And then think how to reduce it and simplify it… to make it suite the needs of a screencast. Maybe in that case, if the screencast does not stand before the essay, but after it it could become more challenging. But again, I can’t… I can’t imagine myself why I would decide to do that. [laughs] just because the reasons “why not” is not good enough. [laughs]”
107	“I feel a screencast is the in-between of a presentation and an essay, so to do all three felt like repetition.”
108	“I think in case of the written thing it is easier to leave it to the last minute. Because you are just writing what you want to say, and it depends less on the supplementary, sort of, material. Whereas if you leave something like a screencast to the last minute, I mean, the written part will take you just as long as, probably less words to write, but then you got the extra time of recording your voice, fining all the material, editing it all together. So I does take longer… I suppose you are writing something… you have to write something to produce… unless you are good at sort of adlibbing... So yeah, you write the report, then you read it out, then you turn it into a video. So I suppose it is like, twice as much work.”
109	“A – you find them after you have written everything, and B – they are easier to find and edit, rather than, you know, taking a bit of a film and analysing it and, you know what I mean, creating a visual representation of an analysis rather than just writing the analysis”
110	“Literally, the only useful thing was that I got something to show in my show reel. That was it. Because we had to write a written report, as well, for [Module P], and that was much much more useful. If we had just that, then we would have had more time on that, and it would have been useful. “
111	“Given the choice I’d sooner not do a screencast and just do a traditional presentation or a written hand in. I found with the screencast that you’re kind of trying to merge the two together, because you have to write a script, in which case you might as well write a report, and you may as well

	just submit the report rather than record yourself reading the report so you can mess it up and not read it as well as you would've done. Yeah I think it's because I'm more comfortable at writing in length than I am speaking into a microphone."
	Tools and technology
112	"What was difficult for me, was the technique. The computer technique [laughs]. But now I know how to do it."
113	"I knew what information I wanted and videos, but I couldn't capture them and a lot of them were low quality as well"
114	"It is hard, because first I did not do anything like this before, so for me this is first experience, and working with new software is really challenging."
115	"Because I wrote essays before, and with screencast it is first experience… I think in my case it is more technical problem. "
116	"[…] I said that I found essays much easier. Now I do not think it is easier, it is just… it is more familiar, and that's why it seemed easier… and with screencasts… just because it was something new to me, it appeared as a more complex task, but in reality it is not"
117	"I think we were allowed to use whatever we wanted. But most of us did not have a clue. I had only done things in 3D before. We were shown Movie Maker because it is free and pretty straight forward, so I thought I should stick to that."
118	"everyone obviously knew what they were doing. So there was no need to worry about people not understanding the technical side of things."
119	"But by that point in the year, we had already done, we should have already done some stuff on other modules. So we should have got the software skills, the majority of us did, but there might be one or two who kept asking classmates"
120	"Yeah, there was some little things here and there, some techniques that I had to google here and there, but apart from that [laughs] small technical skills"
121	"when recording gameplay from PC, you need good knowledge of all the settings you need to use to get, like, the right frame rates, the quality of the video as well. And once you record it all, there is a programme called Fraps which records it all but makes the video into quite high memory intensive, like, files, so you got to figure out how to condense it, beyond beginning to piece it all together. Then obviously compress it. The videos I did was up to 50 gig in size, then had to piece it together in Sony Vegas, and render it all out in lower quality, which kind of defeats the point of recording it in higher quality […]sending 50 gig files over the internet, I was waiting for hours and hours"
122	"I was looking through my old screencast files, I have them on my old USB stick and it is interesting to see the file sizes [laughs]. When I first did them, they were like one gig, now they are like a couple of hundred megabytes. And that's because I have understood how to export videos, the appropriate codex and things, whereas before I did not know, and they were just massive file sizes. But that is useful for now, especially when I have done all the client work, because if I had given them a couple of gigabyte files, it would not have been useful for them"
123	"Well I had some technical difficulties with the new microphone that I've got, as it kept distorting my voice randomly whilst I was talking. Constantly recording the same three or four lines and then you trip over a word in the last sentence and you get frustrated with yourself and then on the next one you go over the word before so you constantly go back and re-read it."
124	"I just don't like hearing myself talking and when I was recording my voice was a bit frustrating, and I had to keep recording it again and again. "
125	"I had to record the audio over and over again… but I didn't mind that"
126	"I had quite a few technical problems."

127	“Yeah definitely technical, I am out of my depth with technology, and Premier crashed on me about 6 times”
128	“Yes, with a report or essay you don’t have any technical problems”
129	“I captured the video for the screencast which took a while as I got it from the TV and it took 6 hours to convert.”
130	“F: It is not as accessible as making a presentation, you got to have different ways of getting the video to go with it. P: Yeah, and the same with the audio F: Yeah, if you are recording gameplay from computer you need special software, like Fraps or… and it costs money, so it is not as accessible making screencasts sometimes. “
131	“For the technical side it helps if you have certain things… like mixer and microphone… the sound on mine went really poor as I was using a webcam microphone so using decent equipment helps.”
132	“I suppose it is down to equipment, finding the footage that you need, if you can get it first hand, it is obviously much easier”
133	“Me and my partner both got Macs so it made it a bit difficult to record onto Windows Movie Maker because neither of us had got it and we also had to find a quiet place to record so we ended up having to borrow one of my friends computers to do it all on”
134	“I had a lot of compatibility issues with it as well using Windows Movie Maker at home. I did it with images and everything and brought it to Uni and tried to use Windows Movie Maker here and it didn’t accept it so I don’t think it should be restricted to movie maker.”
135	“I enjoyed it, except for using Windows Movie Maker. My version was just being absolutely awful. I had loads of moving images and clips from the games and movies to compare them, but I have had to revert to stills just because the moving images in it wouldn’t save. I had the images in and it worked fine but when it came to save the AVI or something it would get there and stop”
136	“I had proper files to put in as I could get them into Movie Maker it was just when it was saving the video and when it got to the first moving image it would just stop and crashed; it was probably just my computer but it was frustrating to keep doing it”
137	“It is not really fair that the content of the screencast depended on the type of equipment you had at home. So someone may just have a laptop and somebody else may have a high end game pc with all the software”
138	“if you know for example Photoshop and these things, it is very good. You can make better screencasts. If you use… eh… more techniques on your screencast, more… for example you want to show… a specific place on your image you can zoom into that and zoom out… or draw a line on that image… but I could do it on the image, the still image, but I could not do it on the film. When the film was moving, I could not draw a line around something, I could not do that. At the end of it, the software I have to use it… if somebody knows to do these things, the screencast will be more… ehm… be better to understand it”
140	“It is not as accessible to make, as a PowerPoint presentation. You need bits of different software” F – PF:163
141	“it is like, I got a […] capture card in high definition, and I captured 4 pieces of gameplay, and for the same time [Fred] recorded his, mine was about 2 gigabytes flat. So obviously there is big differences in file sizes, for what kind of software you are using for the recording… So the software… we did a lesson on Camtasia, to show us how to use and all that, but to actually use Camtasia you got to go to Uni anyway, because to buy the software, it is like 400 / 300 dollars [coughing] something like that, really, and we can only use it inside University anyway, there is lessons like 3D modelling with Autodesk, as students we can download it for free, instead of paying however much it is for a license. So, when you do

	something for University, you can take it […] … obviously, your video will look more professional with something like Camtasia, over something like Windows Movie Maker"
142	"And I think that by using different programs you lose some of the overall quality […] as it does not look like high enough professional standard. Windows Movie Maker does not seem to give as good a screencast as Camtasia does, or some other video software, it's got quite a few limitations on what you can actually do with it"
143	"P: I think that for me the bit that could do with a bit of improvement could be, like, actually been set, like, what software to exactly use, and like, capture cards and microphones and F: set like a technical standard, what format, what quality the video needs to be, and have the software, everyone would have to use that across the range, rather than having people find what is best for them, and not having much […] of the stuff on uni computers. We were told Camtasia is on the Uni computers, but obviously we had to work outside of uni […] so everyone ended up using different programs"
144	"I bought a capture card for Xbox so I could record footage of me Xbox, because I prefer to do console gaming over PC gaming, even though I do like PC gaming as well, so I bought a capture card, and some others did the same, I spent about a 100 pound or something, where they spent about 50, so mine was of a better quality, some of them faced issues like picture quality was all black and white. So obviously we were not told any information on capture cards, or things like that"
145	"a screencast is much like a presentation except you can redo it a thousand times until it is right."
146	"you get to practice what you're going to say, and you can listen to it over and over again so you can get it right."
147	"I say the final outcome in a screencast is much better with all the editing and looks a lot nicer"
148	"you can play it back to see if you've got it right but with a presentation you've only got one chance to get everything across but with a screencast you can make sure you've got everything in before you hand it in."
149	"There's more capacity to go wrong in an oral presentation, like forgetting points and technical difficulties [on the day]. With a screencast it's all there and you can make it look good"
150	"Like giving a presentation, though, but it is there and you do not have the extra stress of delivering a presentation, you know, you can take, you know, you time with it"
151	"I think that sometimes… with the screencast you are not directly there, you do not have the pressure of x amount of people watching you and… fully relying on everything you say, and may not pay much attention to the presentation, whereas with the screencast you have already worked, you have already worked out everything you said in it, but you are not as nervous standing up there, as you have already worked out what is in your presentation."
152	"You cannot really make mistakes, well you can make mistakes, but it is harder to make mistakes presenting the information, going back over what you have said, making sure it is all correct, but with the presentation you are up there "
153	"it was better than the presentation anyway, because we did the scripts as we thought out our ideas and then we were able to swap them around into a proper order so it made more sense and it flowed better and we've got everything that we wanted. If we'd been doing a presentation, we might have waffled and stalled and not got everything in the right order"
154	"It takes ages but you're controlling everything."

155	“I would have preferred an oral presentation than a screencast just because that way I chose what I want to say at that particular time”
156	“with the screencast it is much easier to change images, and revise and kind of show people to see if they understand this point, no?, change it in the week before hand in.”
157	“I had to record the audio over and over again… but I didn’t mind that”
158	“I know one thing that I find more difficult with screencasts over essays is making changes if you are not happy with how you worded something or if you finally got it down and want the structure to be slightly different, most of the times you have to re-record yourself. “
159	“I suppose with a screencast you have less opportunity to redo things.”
160	“once it is finalised it is not so easy to change around …”
161	“if I was to redo my written work, I would probably go into it and edit it, whereas with a screencast I am less likely to re-edit it. It takes a lot more effort”
162	“I know quite a few people I have spoken to like making screencasts. I think a fair majority of them don’t just because they don’t like working with video editing” (I:045)
	Institutional practices
163	“I made some changes and thought that I needed to include more research because it felt like I was doing an interview or quite journalistic compared to an academic report, so I just changed my style a bit”
164	“GP: Did you write a script? R: Not at first, no. But afterwards when I realised that it was not right, I did a script with some quotes and suchlike.”
165	“F: I…. I liked what we did, but I think we can learn from what they did P: yeah F: on how to improve ours. Working in actual references to the authors that we used, we have not got any texts. I do not think, I was not too keen on having so many text slides as they did, but I think P: yeah a few F: learn from what they did. Work into ours. P: We saw that we could have text slides like [student X] and actually give definitions on what we said in relation to the gameplay we were using.”
166	“See, with the screencast I made for [Module P] I misunderstood the brief. It was like almost fully animated. So I spent like, all these hours and hours working on it, and it did not really matter whether it was animated or not, obviously it was the content. So for that it was like ‘I really need the mark’, so I worked really hard, and I still got… It was an OK mark, but for the amount of work I had put in [laughs]. But I obviously misunderstood what the objective of what that screencast was. So never mind. But at least now I know not to do that [laughs].”
167	“I mean I… I was under the impression that the brief was solely for… I mean to reference games anyway… I mean, I wouldn’t have, I do not think we were supposed to reference anything but the games, in it, I don’t believe. As far as I am aware anyway, it was just subject to the games, so. Yeah, I supposed I could have referenced other media in it, and how it differs”
168	“I think we were allowed to use whatever we wanted. But most of us did not have a clue. I had only done things in 3D before. We were shown Movie Maker because it is free and pretty straight forward, so I thought I should stick to that.”

169	"GP: But there were no requirements in the brief having to use specific types of software? L: Oh, no, no. It was just as long as the output was a video complete with narration. It did not have much in which way you did it."
170	"I am aiming it towards the students. Or towards anyone who would be interested in the subject, who do not have any outside knowledge, because that's what I think it is for, it is not for the tutor, it is for showing to next year's students, showing to people who would like to know about it on the internet, kind of"
171	"T: Yeah, that you sound like you know what you are actually talking about. GP: So, you need to change your tone … T: Yeah, you need to… you need to sound like a teacher"
172	"I think that doing it for a teacher, you might take it a bit more of a serious note to it because obviously that is what they are expecting, more than if you were doing it for other people like our self you do not want stuff to be like exactly serious, you still want a serious note, but you want it to be more engaging."
173	"I don't really like having a time limit on it, because I ended up speaking really quickly trying to get everything in. I started off trying to get everything to last as long as possible to fit in with the time limit, but then I realised that for [Tutor 1]'s I had to stretch everything out, but for a screencast I did recently for [Module P2], there was a 4 minute time limit on that one, and it was nowhere near enough, so I had to speak really quickly and condense everything down to make all the points, and it was still over 20 seconds over the limit. So I did not find that helpful. I think that if you had a good time limit on it, or no time limit at all, it would be better, I would find it more useful then"
174	"I interviewed my cousin and it was a 15 minute long interview and I had to condense that down, and my own parts speaking down to 4 minutes, so it was just ridiculous, I had to edit out any part where I sort of mumbled, or take out a gap where you are saying nothing, just to save that like, half a second. Just trying to fit it all in just made it ridiculous. […] At the end of that, when I got my feedback for it, he was mentioning things that I had included, which I actually had, sort of, researched, and had got and mentioned in the interview, but I had not enough time to include. So that was sort of annoying, because I got worse marks because I did not include things, but I did not include them because I did not have enough time or space in the video to include them."
175	"Because it was quite short the whole screencast, and it was not much room for explaining different things. Difficult things. "
176	""And also, the theme we got from [the tutor], they are really wide. It is hard to explain about colour, or composition, or principles of animation when you have only 5 minutes. And especially for people how do not know about it […] I find it really difficult to explain so much detail in only 5 or 6 minutes."
178	"I think I show maybe slightly less, just slightly less understanding with the screencast, because I think more thought has gone into how it is going to look, how it is going to feel, than the script of it. Whereas with an essay you got… You kind of got so many words to show that you know your point. I think you can cram a lot more into 14 hundred 15 hundred words than into 7 minutes."
179	"I suppose the only difficulty was condensing it into 10 minutes, and make sure I could fit it in verbally, what I needed in the time frame. […] I suppose the only limitation you have is the timeframe on it, really"

180	“Because it is, like I said, if they give you ‘make anything you want’, you spend too much time, I think debating what direction to go, and in that sense you are wasting a lot of time and ending up too rushed, and probably making something not as good as if you made the decisions quicker […]If you give me a theme, I can easily get going, but if it is completely ‘write any story you want’ I will spend ages debating…”
181	“it was a bit daunting, for the fact that we were not given anything to go on except a student problem, so... eh… It was hard to narrow it down, something for me, and I had to really thing about what to base it on”
182	“In some ways that’s easier. Because you are just told what to do then. But I do quite like having the openness. I think it was good. If it was just create an animatic in general, then I would not have liked that. But the fact that we were told to do it on a student problem, you could narrow it down, into something you can actually think about, rather than saying you have to do it on certain student problem, such as dyslexia, or something. Because then you can make it to something you can relate to yourself. And that is always easier to write about.”
183	“See, with the screencast I made for [Module 2P] I misunderstood the brief. It was like almost fully animated. So I spent like, all these hours and hours working on it, and it did not really matter whether it was animated or not, obviously it was the content”
184	“GP: what about the screencast you did before, for [Module 2P]? C: That was not exactly a screencast, to be honest, it was more like an interview, and I had to film myself talking. But it was similar to a screencast, we overlaid images and things like that. So there would be like images popping up relating to what I talked about, I could still have, like my voice speaking and images. GP: Did you like making that one? C: I did not like making that one, to be honest. There were parts we had to interview someone in the industry, and we had to include this interview. It was a 15-minute long interview and I had to condense that down, and my own parts speaking, down to 4 minutes, so it was just ridiculous. I had to edit out any part where I sort of mumbled, or take out a gap where you are saying nothing, just to save like, half a second […] It made it ridiculously time consuming as well, I really did not like that. And at the end of that, when I got my feedback for it, he was mentioning things that I had not included… which I actually had researched, and got mentioned in the interview, but I had not enough [screen] time to include. So that’s annoying, because I got worse marks because I did not include things, but I did not include them because I did not have enough time or space in the video to include them.”
185	“I do like watching other people’s screencasts, I just don’t like hearing myself talking and when I was recording my voice was a bit frustrating, and I had to keep recording it again and again. Sometimes I had to improvise and sometimes I had to read the script, and when I watched people doing their screencast it made me want to do it”
186	“GP: But there were no requirements in the brief having to use specific types of software L: Oh, no, no. It was just as long as the output was a video complete with narration. It did not have much in which way you did it. “
187	“I had a lot of compatibility issues with it as well using Windows Movie Maker at home. I did it with images and everything and brought it to Uni and tried to use Windows Movie Maker here and it didn’t accept it so I don’t think it should be restricted to movie maker.”
188	“T: Not really, you are not allowed to install your own games, so I could not capture gameplay [on site]. The Uni should be capable of running any games, and something like Dazzle would be useful, and there needs to be the ability to install your own games. E: Yes, and then it depends on what you have at home. You can easily capture gameplay if it is PC game, but if it is Xbox or PlayStation…

	T: Exactly, I had a bit of trouble recording my screencast and i got around it by literally sticking a camera in front of the TV and recording it on the Xbox, but that's not as good quality but I did manage to get the really vital bits of video in. "
189	"She showed us two screencasts from previous year, which was good as I felt a bit lost before and I didn't think I was going in the right direction"
190	"I don't think I would have produced something the same if I had not seen these examples…But since doing that, I now see other videos that I watch online, or whatever…"
191	"We were shown some from previous year, I think. And then we were told to go and make one of our own on anything of interest. And I seem to remember every single person made one. And everyone pretty much understood what it was. But if it had not been for that, I would not been sure what it was, I would have been worried when I was doing the final one. But I think the examples were more helpful than us making one"
192	"J: basically we had to choose a topic from a list, and explain it with references and some quotes… and use examples from animated films. Mine was mostly Disney examples. I found some extracts which showed anticipation and overlapping action, and then talked over it. GP: did you have to do a lot of research for it? J: yeah, I had to look at a lot of films... It took some time getting all the extracts. GP: what about the explanations? J: I had some quotes and bullet points and such. Mostly from the BlackBoard books."
193	"L: it was a mixture of what we had already been taught, reading through, you know, the books that we had been suggested. I think the main source, where I got all my information from… ah…. Forgot the name of the book… but it is like the Disney animation book… I have forgotten what it was called"
194	"F: [Tutor 2] gave all of us a basic set reading, in the [book]. P: Yeah F: And he said that if you use that in your screencast, that will get you a pass. So we got the information we needed from that, and we researched on the library gateway with key-words relating to the topic, finding out different authors and studies being done on the topic of challenges and actions"
195	""F: [Tutor 1] gave us that starting book, there is that chapter, what you need to read and research. And through that we knew where we need to be looking at, how to build on it P: He gave us […] example, but it is not a very good one, it is better ones out there, so in a way you can use that one, but you can find better ones easily and make it more… better than what… "
196	"We were given some readings we had to use. But otherwise pretty much do your own thing."
197	"We had folders on BlackBoard with set reading for each topic. Mine was massive. And you had to find your own sources as well"
198	"T: Not really, you are not allowed to install your own games, so I could not capture gameplay [on site]. The Uni should be capable of running any games, and something like Dazzle would be useful, and there needs to be the ability to install your own games. E: Yes, and then it depends on what you have at home. You can easily capture gameplay if it is PC game, but if it is Xbox or PlayStation… T: Exactly, I had a bit of trouble recording my screencast and i got around it by literally sticking a camera in front of the TV and recording it on the Xbox, but that's not as good quality but I did manage to get the really vital bits of video in. "

199	"GP: How do you feel about your screencast, what you are making now – that it can be used next year for new students? T: It is a good thing, it is… I am hoping to have one with the same quality as that one [shown in class], because, as I said, it showed me a little bit, it showed me what a screencast it, what it should be like, what is a good product, and it taught me a little bit as well."

App 10.9 Representative quotes for the subcategory Evoking Self-regulation

	Self-efficacy
001	"I mean, I really enjoyed making the screencast just because […], back when I was in school, I never really was good at essays and things […] still to this day I do not think I can structure essays as well as I would like[…] It just seem to be that whenever I write an essay I tend to…. I always get told I have structured it wrong"
002	"I have done enough [essays] to kind of say that I don't like them. [laughter] […] I am dyslexic. It is not… I have never been very good at… I've never got good marks for it, I never enjoyed writing, so it is just… It is something I will do if I have to, but it is not a pleasurable thing"
003	"To be honest, I'm cack, or however you want to say it, at written modules, and it really brings my grades down. Like [Modules R1 and R2], I did appalling in them and I tried really hard. You know it's just depressing really as every time we get an essay I get 40 or 50% because I can't, you know, get my words across when I write it, and I lose track and I go all over the place and it doesn't flow."
004	"I knew that I can do well regardless if I have previous experience in editing or not."
005	"And because although we did not have technical support, because it is a theory module, but I had more than enough of theory help and advice from staff."
006	"Well, I didn't need support, and I can't remember there being support, but I am sure there would have been if I had asked. Because we did the first practice screencast, and everyone had managed to make one, it was pretty obvious, you know, technically everyone knew what they were doing."
007	"But by that point in the year, we had already done, we should have already done some stuff on other modules. So we should have got the software skills, the majority of us did, but there might be one or two who kept asking classmates…"
008	"I can remember being really stressed making [that] one, but that was because I left it really late; it did not really have anything to do with the work we had to do. More to do with leaving it to last minute."
009	"When I do something I try to, I can't do bits of things, when I start something, I want to finish it. Otherwise I worry that I will never finish it. Which is perhaps why I end up leaving things to last minute [laughs] […] The reports I have written before, I just tend to sit down and write then, and then it takes as many days as it takes… If it was up to me, I would just work on something until it was done…"
010	"I always seem to be distracted by the superficial values of things, so I would much rather make something look nice than actually be useful [laughs] which I suppose is the wrong approach to take."
011	"I am just not a writer, it is as simple as that"
012	"I did not know anything. I was… completely inexperienced in such things. And it did force me to learn new skills with the software"
013	"It's just like a new form of something that I'm not used to so it can be harder but I do feel like when you get used to it, it will become easier. "

014	“I hope, I have improved since the first year. But I guess that’s how it is with anything, if I made a screencast now and next year I would look back at it and it looks awful... I don’t even think I was that proud of them at the time, anyway. I am never really happy with anything, I just hope it meets the criteria.”
015	“Well I have never done anything like that before, because all I did before was a basic fine art course, which was just copying other artists, so it is not stuff I have been forced to think about until then.”
016	“Yes, I did none. I did five years of art, which was drawing. In school we did not have any media lectures, we had a little bit of computing, but it was introduction to Microsoft Office. And that’s why I came here without any previous experience in visual media at all… yeah so none [laughs]”
017	“I guess it depends on how much experience you have had.”
	Regulating engagement
018	“in the very beginning I tried to programme myself to enjoy everything, and that approach helps. Because if you … if you always try to approach everything in a positive way… you find it easier to enjoy them”
019	“But it was fine, a bit more stressful than you wanted it to be, but…. You got to learn how to deal with pressure”
020	“Feelings about my first screencast… Well I enjoyed the process, because in the first year I enjoyed pretty much everything because I did not have any expectations.”
021	“And generally, because my whole experience turned out well, I think it helped me enjoy many things that I would not normally enjoy”
022	“Since the very beginning I tried to programme myself to enjoy everything, and that approach helped”
023	“And because my whole experience turned out well, I think it helped me enjoy many things that I would not normally enjoy””
024	“Since it was my first year in the university, I was excited about everything I was doing. “
025	“You have to put yourself into a relaxed chilled out state but then speak informative and professional at the same time. The second it started going bad I just kind of left it and gave myself half an hour break because otherwise it would be a downward spiral and you’ve just got to kind of enjoy it and then I found it was better”
026	“For me it was intimidating [laughter] and I think if it was not the case, I would have been happier with what we ended up with. It is just the fact that it did not suit the client as much as it could have”
027	“Yeah, I don’t mind doing presentations. I know a lot of people that can get very shy doing them. But yeah, I don’t mind doing presentations, especially when I am happy with the work I produced. And doing it to people you don’t know as well, is sometimes better than people you do know, because you might not ever see these people again, so you might just go for it, and if it goes wrong it goes wrong, but you might never see them again, so you might as well go for it…”
028	“But yeah, I don’t mind doing presentations, especially when I am happy with the work I produced. And doing it to people you don’t know as well, is sometimes better than people you do know, because you might not ever see these people again, so you might just go for it, and if it goes wrong it goes wrong, but you might never see them again, so you might as well go for it…”
029	““You spend a lot of time doing something, like storyboards, to the best of your ability. And then [Client] would come in and go, “oh, I don’t like that” [laughs]. And we would go “Why? We’ve spent ages on it!”. And she would be like “no, start again” [laughs]. It was a bit disheartening […] But then I

	read in a book that storyboard artists always have to throw their work away, and it said to never get too precious with your work… and embrace change, and stuff like that, so yeah, I didn't mind doing that, after that. I think that was … something we had to overcome. And in the end [Client] became more open to our ideas and trusting us as well"
030	"I remember that I read somewhere, that to become a good artist you need to draw 100.000 pictures, drawings. It's a lot. And I believe it is everything, like that. The more you do something, the more… the more experience you get in doing that. And the better you become."
031	""Now I am thinking about it as just one of many other assignments. Done and forgotten. I mean, many of my works never appeared anywhere, because they needed to be done and at the time I was proud of them. But now it is not my level anymore. It is not… it was just a stage on my way to becoming… better artist, more creative… It is not enough time passed for me to perceive it with a nostalgic feeling, as it happens with my drawings when I was five … when you look at something and thinking "oh, so cute". But with screencast it was only two years ago, and… it was good enough for the task. There were many reasons why it was done the way it was done… But for what I am doing now, and hope to do in the future, it is not good enough. I am an artist, and it is completely not the thing I would like to do."
032	"What was difficult for me, was the technique. The computer technique [laughs]. But now I know how to do it." "
033	"and if you know for example Photoshop and these things, it is very good. You can make better screencasts. If you use… eh… more techniques on your screencast, more… for example you want to show… a specific place on your image you can zoom into that and zoom out… or draw a line on that image… but I could do it on the image, the still image, but I could not do it on the film. When the film was moving, I could not draw a line around something, I could not do that. At the end of it, the software I have to use it… if somebody knows to do these things, the screencast will be more… ehm… be better to understand it "
034	"I had a very very basic understanding of the area… I could draw, but that was pretty much it. And that's why, with my first screencast, I wasn't fully satisfied, because at that point in time I just did not have the technical skills to make it exactly as I wanted…"
035	"If I had the time, I would probably to it again. I would probably do much the same; it is just getting the visual parts better and getting the points across better, because now I know how to structure things better and how to pace myself better as well. I think it is a good reflection of the first year me, rather than me today"
036	"I used to do history at A level and all we ever did was essays all the time and my essays never got better"
037	"This is the second one that I've done, and I found doing one beforehand very first one helpful as I've improved it since the."
038	"It is hard, because I did not do anything like this before, so for me this is first experience, and working with new software is really challenging."
039	"You can maybe improve in the process, because the more you repeat something, the better you get in it…"
040	"I also hate having to submit things that aren't right."
041	"and also as a new experience… I always try to participate in something new…"
042	"I tend to only remember good things"
043	"Yeah, coming back to screencasts, it was something I had never done before, and that I wouldn't do on my own. So I needed to be forced to do that."

044	"I seem to be doing University work in all of my spare time. But back then, when you first start university, coming from school or college, you are not used to doing work, so [laughs] Whereas now I am feeling guilty if I am not doing work [laughs]."
	Strategies
045	"You just put it off and put it off and when it gets to it you just can't focus on it but with this screencast it was a lot easier to get started, and if it had been an essay I bet a lot of people would put it off a lot longer"
046	"If everyone is allowed to play to whatever strength they have, some of us may be better at writing, some of us may be better at presentations and some of us may be better at screencasts. But at least if we had a choice and could play to whatever we were strongest in, if you're playing to what you're strongest in you've got more passion and you'll put your best into it… like for Ryan you were writing an essay and you get so stressed you can't put all your effort into it so you are not really getting better" "
047	"T: I thought that looks pretty easy and I think a lot of people went for that one, because it is quite easy, and easy to visualise. And whereas with this one, I thought there was some simple visuals, but there were some more depth behind it, some more knowledge in the techniques they were using, kind of thing. GP: So why did you not choose the one which was easier to visualise? T: It was partly because I thought loads of others where going to choose it, so kind of do something a little bit different… and hopefully make it better than other peoples [laughs] And I thought it was more to play with, because the flow down from the brain to the pen is quite.. yeah, there is nothing really you can play with, creating it, but as with that one you can mess around with it a bit… and have different actions [laughs] a little bit more wiggle movement. GP: So you did not go for the easier option? T: well, it is… [sigh]… it is easier, but easier is not always the best."
048	"Well, my whole experience of coming here was a challenge [laughs] and I just generally think that as a person I enjoy a challenge… and universities are institutions to get new knowledge, which suggests challenge. Because if you only do what you know how to do, you don't learn anything new."
049	"And I don't think I would have changed anything… so for example, if I had to work for somebody who doesn't know much about animation, I would now know how to approach it. And hopefully, although it is kind of a weird thing to hope for, next time there will be something else to overcome. Because then it's something else to learn, something else to overcome… something else to get used to… yeah… no, I wouldn't change anything. It just has to be how it is."
050	"It is the same with essays. I can't say I am proud of them, nor can I say that I am disappointed. I rather perceive them as a stage that I needed to go through to become better […] Yes with screencasts it is the same. It is just… not quite that type of thing that I would… that… I would like to become better in. With essays, I can see future aspirations, I mean masters, other masters in theoretical subjects. With screencasts it's … even if I could go further, I wouldn't want to. Just because there are so many more interesting things to do."
051	"F: […] We showed it to [Tutor 2] without making any changes, and he said it was good enough P: Yeah F: but we still felt there were bits we could improve on, just to get higher marks."
052	"F: You do not really want to settle for the bare minimum

	P: yeah F: You obviously want get the best grade you possibly can. So you always want to improve on what you have done."
053	"Especially for my classmates, I hope my screencast will be useful for them. Because I am planning to talk about some new things we [haven't?] talked about in class before. So yes, for me it is important my screencast to be useful for my classmates."
054	"GP: So you had a specific audience in mind? F: yeah, the first years, that was the topic P: yeah… people in the same situation as us F: yeah. Sort of aim it towards us, but a few months earlier. GP: Are you actually aiming it towards them, or are you aiming it towards your tutor? P: I think we are aiming it more towards them F: Obviously we want to impress [Tutor 2], we need to get the content out. Getting the grade."
055	"Yeah… I think that doing it for a teacher, you might take it a bit more of a serous not to it because obviously that is what they are expecting, more than if you were doing it for other people like our self you do not want stuff to be like exactly serious, you still want a serious note, but you want it to be more engaging."
056	"T: So far I think I am aiming it towards the students. Or towards anyone who would be interested in the subject, who do not have any outside knowledge, because that's what I think it is for, it is not for the tutor, it is for showing to next year's students, showing to people who would like to know about it on the internet, kind of. GP: Would you have a different style or tone if you aimed it towards your tutor, do you think? T: I do not think so, no, I think I would keep it the same. GP: So you do not think there is a difference between T: Not in university, I think, maybe in a secondary school it would be a little bit different, because that's sort of [laughter] yeah. At this stage of education […] you probably should know what you are talking about."
057	"Yeah, that you sound like you know what you are actually talking about […] you need to sound like a teacher""
058	"I think you aim it more towards students, but you got to keep in mind all the facts that got to be behind it, because that is what the tutors are going to be marking. And there need to be a certain amount of expertise in there, to kind of show the skills, as well as that you know what you are talking about"
059	"Well, my whole experience of coming here was a challenge [laughs] and I just generally think that as a person I enjoy a challenge… and universities are institutions to get new knowledge, which suggests challenge. Because if you only do what you know how to do, you don't learn anything new."
060	"Talking specifically about theory modules… I wish it was… I wish it was harder, I wish it required more challenge. I wish I was forced to think more. Discuss more, analyse more, evaluate more… I mean, I still have the habit of reflecting on everything I do, but I would do more of it if I was forced during my modules. "
061	"it is difficult for me as a student, but I also understand it is useful for my studies,"

062	““The idea of working for a client, especially early on, seemed a bit hard… I don’t know…. Because there were quite a lot of issues that we came across with the client… which you don’t really experience in education based, sort of, area. So… GP: mmm… L: After the issues were dealt with it was really enjoyable… Yeah. Yeah. So over time… I really started to enjoy working on the project. “
063	“I think it’s better to just give something that they can try out and see what they can learn”
064	“It’s really about… what suits different people and if you can play a little bit more to your strengths…”
065	“I would made it optional, like a choice, as I said before. If people want to a screencast, that’s fine, but if they want to do an essay or presentation they should do that instead”
067	“I kind of find… being an animation student, I find a whole lot of people who don’t like writing much in animation [laughs]. So it was interesting to hear the perspective of someone who likes writing quite a lot, and gets quite a lot of enjoyment out of it. So it might be… like some animator talking about animation, they would the same kind of vibrant and be able to emphasis and explain it really really well.”
068	“It also depends on how much free time you got, and how much work you want to put in as well… “
070	“I understand this is important, because I know in third year we will be required to produce our own film… and making screencast it is like making film. So for me it is just like a try for the final project.”
071	“F: Obviously we want to impress [Tutor 1], we need to get the content out. Getting the grade. P: by getting the content out you are learning more about what you are trying to get other people, how other people learn about it.”
072	“So it was more excitement in the process of exploring new software and learning new skills, because I did it purely for myself. “
	“[About 2P] As it was a task, and I wanted a good mark, I needed to put effort into that. But couldn’t see the… benefits and outcomes of all that.”
073	“when I first came to University I was not thinking about employment. Off course I was thinking about employment, but it wasn’t my aim. I am not doing my degree just because… I want to get a good job. It is not connected that much in my mind. The main reason why I do this degree, and why I would do other degrees, is that I just enjoy the process of getting new knowledge and new experience. And it’s very much all done for the personal self-development, not for the… For other reasons as well, but not to the extent as for… the benefit for me becoming a better person….”
074	“Doing any presentation is always good for confidence building, so… the more of them I can do before I finish Uni, I think that will help me in the long run.”
075	“GP: Is it important knowing that it may be used? J: It is a nice incentive doing a good bit of work… but in terms of Uni, I think it is more important getting a good grade, you are working towards a good grade more than working towards that, sort of, commercial piece of work. That’s more important for me, anyway. Because I can look for commercial work when I have finished.”
076	“Create a screencast on, there was several things we could make it on, and the twelve principles was one of them, so I chose that because I thought it was most relevant to what I wanted to do.”
077	“I used Adobe Premiere. I still had not got the hang of using the software, but… now I use it often. The screencast was actually helpful for helping me learn the software. […] So that was useful, learning to use the software… I mean, I could’ve probably used something simpler, but I knew at the time that I needed to get to grips with Premier, so I thought I may as well try and use it.”

078	“Like if I go to work, if I work in the animation industry, it get me ready for sort of the real life. If I work for anyone, I got to be ready to take on all these things, like when [Client 1] said “oh, I don’t like that” [laughs].”
079	“This is university, and you want to get good grades”
080	“But if there is a screencast option and that is going to get you through Uni and it’s going to get you a job...a job like this it shouldn’t really matter, should it?”
081	“Because I am making this screencast not only for my classmates, or my tutor, but for myself.”
082	“I like the way it will be hopefully useful for my other studies… and also as a new experience… “
083	“The main purpose of screencast is to make… things understandable for people who had not heard about them before. So it is very… audience orientated, I would say. And the more you try to generalise something for a wider audience, the more simplistic it becomes”
084	“Because when you are doing something for an audience, or thinking about an audience, or for a client, it seems like you are making it for yourself, but actually you are not. Just because of the fact that the work is produced for someone else dictates a lot about how you need to approach it”
085	“A: […] yes, on the one hand it is for the tutor, but on the other hand… hmm… You know, with essays, I think it is more for myself. GP: And you cannot get this out of a screencast because?... it is a learning resource? A: You can in the screencast, but then… but then at the same time you don’t want to dig too deep, because then it would be harder to simplify it…”
086	“No. I mean, it is not some… I quite liked the topic, what I talk about with it, but I am not sure if it information that people are not already aware of, and ,yeah…. So it is kind of alright to put online, or something, but just who would watch it, if you know what I mean.”
087	“So I will be fine with that. I think it is who it is for, what it is designed for, so why should it not be used for students? “
088	“E: As I said, I have a YouTube channel and I get quite a bit of income from it, I have a good following, which I don’t want to compromise, so I won’t be adding this one GP: Compromise? E: Yeah, the topic is a bit… [laughter]. And the quality is not that great anyway… D: You can’t really monetize Uni work, can you? E: Harvard referencing [laughter]”
089	“The one for [2P], because it was mainly animated, so I cut [bits] out of there and put it into my show reel”
090	“T: used my own screencast? I think possibly once or twice, but not for anything… purely to show my creative skills and what kind of software I can do, not to get across any knowledge GP: but you have shown it as an example of your own work? T: yes, I have.”
091	“I reckon I will use it in my show reel. Because everyone creates a show reel showing off the work they have done at the end of third year to send around to studios. So… just to get it out on the internet to show people what you can do. And it will help get me a wider range, because I am primarily a 3D sort of guy, 3D animation, so having the hand drawn work would be good to show as well, I think … just to show I can storyboard and make animatics, because that is also a very useful process when creating something…. But individually, I don’t think I will use again [in full] …. but it is nice to have it.”

092	"But screencast, actually, you can put on YouTube, as well, for other people use it, but essay I do not think is interesting to… GP: Are you going to … M: Yes, of course, when I finish it I will put it on YouTube."
093	"GP: So it was software you had not used before? L: I had used it before, but I had not fully understood how to use it […] it was my own software GP: Did you make the screencast at home, or at uni? L: Yeah, I made it at home"
094	"GP: Do you remember which software you used? T: After Effects. GP: Did you have it yourself? T: Yes, I was on my home computer. GP: So you made it at home? T: Yeah, the majority of the time, yeah. GP: Do you think most of your classmates had software themselves? T: A lot of them, yeah GP: And do you think they were confident making the screencast? T: I got some questions about how to do certain things, yeah, but I think that was just on the software side of it, rather than "how would you cower this topic", for example. It was a little bit more [funny voice] "how do I keep from missing […]" GP: So you were familiar with the software? T: Yeah, I had used it for donkey years [laughs] It seems so, anyway. "
095	"GP: I was more thinking about where you got your information from, because you talk about a lot of things which are kind of physical properties, like how light travel faster when you are closer, where did you get all this information from K: Just from previous knowledge, I guess. It is not anything that I specifically looked up, because I, I know I go into too much detail about some things, and I might be wrong about some of it, but I think I might have… it is just stuff that is stuck in my head, I guess, you know, previous education."
096	"Just trying to remember… I think I worked nearly on all my projects at the university. I did, because I remember than when I was in high school we normally had forty hours of lectures a week and it was… it was spending time at school from eight to at least four. Then after that I had art school as well. That's why when I came here it was a big surprise to find out that we only have eight or ten hours of lectures a week."
097	"If I was going to do anything different with it, I kind of wanted to include a few more, like, diagrams with what I wanted to explain, in terms of in the beginning when the screen is black, have a bit of text on it and include a few more diagrams on there. I did not have the time to manage to do that."
098	"Since… since practical aspects are incorporated into all of the theory modules, I think technical support would be beneficial. On the other hand, since technical side is not assessed, it might be hard to incorporate it into the module. Also because during my first year… all the students on the course had different… level of expertise in using software, and… at that point I can imagine [Student] and [Student], for example, not needing it at all. But

	again… in a way I did not need an introduction to the library. Instead of that, and teaching me how to reference, and how to use library, I would have preferred to have had introduction, basic introduction, how to use After Effects, or Premier Pro. But it is hard to judge. Because I think that personally for me, the whole library thing, spending three hours of lecture time just to have someone coming and explaining how to use the library, seemed like a waste of time. But maybe it was needed for some other people."
099	"J: Yeah, it was in first semester, so we didn't get to use a lot of software [by then]… I think I used Windows Movie Maker GP: Was it a requirement? J: No, I don't think so. I think we were allowed to use whatever we wanted. But most of us did not have a clue. I had only done things in 3D before. We were shown Movie Maker because it is free and pretty straight forward, so I thought I should stick to that."
100	GP: Did you use Movie Maker again? J: No, it is quite crude… It was OK for the first one, but it does not look very good now, and you can't animate with it. I used Adobe Creative Suite, it got everything there, Premier, Aftereffects, Photoshop… and we used them on different modules, so I was getting the hang of it.
101	"I did not have the [….] recorder, I think I got that around Christmas times, but the assignment was set probably around October. So I was originally just looking online for videos, because I had a few ideas, but… I suppose it is down to equipment, finding the footage that you need, if you can get it first hand, it is obviously much easier. "
102	"I bought a capture card for Xbox so I could record footage of me Xbox, because I prefer to do console gaming over PC gaming, even though I do like PC gaming as well, so I bought a capture card, and some others did the same, I spent about a 100 pound or something, where they spent about 50, so mine was of a better quality, some of them faced issues like picture quality was all black and white. So obviously we were not told any information on capture cards, or things like that, but…"
103	"Me and my partner both got Macs so it made it a bit difficult to record onto Windows Movie Maker because neither of us had got it and we also had to find a quiet place to record so we ended up having to borrow one of my friends computers to do it all on" (D:049)
104	"But I watch a ton of YouTube videos and just draw on little points from each video, really. If I see something that I think will work really well in my own project, then I…. will use bits of that and try to figure out how they have done it and take it apart."
105	"I've not done a screencast before but I've been on YouTube when new games had come out and looked at game reviews, and it helped me a lot to see how they have visuals to what they are saying and seeing how concise and to the point they are. It meant that the first few times I recorded I ended up with an American accent"
106	"For example, I first watched the other students screencast, I learned something from them, and then I went home and checked on YouTube a screencast, and then I start to pick up from the feelings and pictures"
107	Although what Evan said about not liking to find images, for us it was different. When we were looking for a really particular image to get our point across and we'd suddenly found a website that had that image on, but it would give it just one example so then you could find all these other examples of stuff that kind of got your point across as well. So we found a lot of websites through looking for images.
108	"I had to keep searching for hours to get relevant photos … I discussed Jenkins a fair bit, but it is all quite abstract and it reached a point where I could no longer just use his photo so I had to try and look for more relevant stuff."
109	"There wasn't much background research that I could do with mine [screencast] so it was hard to fill in what I had to do for the screencast"

110	"I had a lot of compatibility issues with it as well using Windows Movie Maker at home. I did it with images and everything and brought it to Uni and tried to use Windows Movie Maker here and it didn't accept it so I don't think it should be restricted to movie maker."

App 10.10 Extract from Tony, David and Evan discussing student examples

021	GP: Have you seen other student's screencast?
022	E: Yeah, we were shown some past examples, I think in the first week
023	D: We also had draft presentations, like rough work in progress, and that was good, as we could sort of pull ideas from what other people had done as we were not that sure we had got it spot on.
024	T: And then when I saw what other people had done, it kind of clued it together and the one I done now is much better than the one I done before.
025	E: The one which was basically a Zero Punctuation rip off I would say was the least educational, because you are too wrapped up in all the jokes
026	D: yeah, that's the one I enjoyed the most
027	E: we did enjoy that one the most, but at the same time, just because he mimicked someone else's style of YouTube, you are just kind of distracted by it too much
028	T: but there are elements of the humour like, the humour does, you will remember it, and the humour will make you remember the information, because of the jokes
029	D: yeah, it sticks in your mind more
030	GP: OK
031	E: but I think that because he was mimicking that style, and that style was to talk really fast it was harder to digest, wasn't it?
032	D: yeah
033	E: but the problem is that if you slow it down it loses the whole idea, why it is funny, because it all happens so, [like that], but… I do not know how you would remedy that, I think it is just, the style is nice, but I do not think it works well enough and I think that if you change it into something more informative then it loses all of its humour
034	E: The one on Lion King was very nice and her voice worked very well, it was the information you could digest, she was not talking too fast
035	D: the actual visuals lacked a little on screen, it felt like she could have done it as a PowerPoint and been in front of the class
036	T: and played the videos separately
037	D: yeah, it felt like she could have done that instead of doing the screencast
038	E: I found it distracting when there was text on the screen when she was talking, because you usually want to do one or the other.

039	T: Yes, which is why we had hardly any text on ours
040	E: yeah, if you are going to talk, then there is no point having the same information written, because you can just read it. It is a problem everyone has with PowerPoint presentations as well, instead of a couple of bullet-points they will have every word they are going to say and then just read off the screen. She said more than was written on the screen, which is quite distracting, you try to read one and then you just miss some of what she was talking about.
041	D: But the information was good, that she used
042	T: If she kind of taken out some of the text and instead of talked for a while and then playing video clips of all the examples in one go, it would work better, if each time she mentioned something she showed a visual of it while she was talking, then you could absorb what she was saying better.
043	T: When she reeled off some of the examples said, like, “in Lion King Simba will be doing this, Scar will be doing this or the other”. Instead of just saying these are the shots and then having the visuals, and not necessarily saying which on is which, and the audience then have to identify them themselves. Almost like a test, like a practice , you can see the image, she does not need to tell you exactly what it is, because she has just told you, and then you could go like “oh, that looks like a close-up”, I think that would be quite beneficial.
044	GP: is it almost like it is too much lecturing?
045	D: yeah, a little bit.
046	E: or use a freeze frame
047	D: yeah, just give you the few seconds to absorb it, rather than here-are-all-the-examples-in-one-and-see-if-you-miss-it.

App 12.1: Enacting affordances presented is a circle diagram