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Audio Feedback: Timely Media Interventions

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Abstract Audio feedback involves the use of distributed digital audio to provide formative messages to students helping them to develop knowledge and the way they learn. This paper presents several case studies by drawing upon interviews with academic staff and student focus groups. Ongoing research with these stakeholders identifies why audio feedback models, of which there are many, can be attractive and why they need to be carefully designed and integrated into the curriculum. The paper presents some early findings about the effective design of audio feedback and considers whether the interest in audio feedback may signal greater interest in designing constructivist media interventions.

Introduction

The tutor's spoken word can support learning in ways that are not possible through writing alone, yet this has not generally permeated practice in our virtual learning environments. These learning environments, and our developing understanding of how to use them, are now enabling academic staff to innovate by using digital media in their curriculum design. Audio feedback is one approach where the benefits appear clear, whilst the technological hurdles are relatively low.

This paper discusses how audio feedback is being used to address two challenges that can adversely affect learning: the burden upon tutors of assessing student work effectively and the need for formative, meaningful feedback.

Audio feedback can be defined as formative messages, recorded and distributed as digital audio given to individual students or student groups in response to both ongoing and submitted work, allowing each student to develop their knowledge and the way they learn. This paper examines five approaches and considers how they impact upon the academic workload and the aim to enhance the quality of student-tutor engagement and student learning. Issues that arise in relation to the practicalities and the pedagogic value of giving audio feedback are considered and some common characteristics affecting the design of audio feedback are identified.

Finally, this paper suggests that audio feedback can be understood as exigent, constructive media intervention and identifies characteristics that might inform other methods of media intervention in order to challenge and direct the learner.

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[1] Middleton, A. (2008). *Audio feedback: timely media interventions*. Third International Blended Learning Conference, "Enhancing the Student Experience", University of Hertfordshire, UK, Wednesday 18th - Thursday 19th June 2008.

Background

Lombardi (2008) notes that the literature on assessment has been critical of the methods used for testing students and the inadequacy and superficiality of student feedback. Gibbs (1999) says that heavy assessment loads and the other commitments faced by tutors may lead to "perfunctory feedback" even though the connection between formative assessment feedback and student improvement is understood. Feedback has several purposes including the motivation of students, informing them of their progress, and showing them how they can improve. Gibbs offers some principles of effective assessment that include the provision by academics of "meaningful, timely feedback" and these are echoed by Brown (2001) and others.

Middleton and Nortcliffe (2008) suggest that meaningfulness can be enhanced by the significance implied by the tutor's selection of points to address and through their tone of voice. They also propose that timeliness is about feedback being available whenever the learner is ready and engaged and means more than just 'quick'. This requires that the feedback is in a form that is highly engaging, meaningful, under user control and accessible, whether that is this week, next year or any other time. They say the appropriate selection of media is important and suggest that using a combination of feedback techniques may be better: audio, for example, may be most effective in drawing the student's attention to a key point for improvement, whilst an objective marking grid or marks made on a submitted paper may be best used to cover the breadth of feedback. They also posit that audio feedback is best understood and designed as a component within a blended learning strategy where its use is a balanced part of changed academic practice, so ensuring that it does not become an addition to the academic burden and they challenge the perception that audio feedback is a one-way channel (Takemoto 1987) both with reference to their personal conversation model (discussed later) and also by understanding audio feedback as part of a broader learning conversation within a blended context.

Surridge (2006) singled out feedback as being weak in the National Student Survey 2005, which otherwise noted high levels of student satisfaction with teaching quality, and suggests there is a need for improvement in the promptness, clarity and detail of feedback given.

Turning marking and meaningful written feedback around whilst the student is still engaged with the assignment can be impossible for the academic with responsibility for more than a few students. Rust (2001), recommending approaches that can reduce the assessment burden whilst raising the opportunity for effective feedback, suggests: giving general feedback to the whole class rather than individual feedback; using feedback forms; using peer feedback; using statement banks; and using audio feedback. He says that, "While reducing the time you spend this may actually increase rather than reduce the amount of feedback given."

Rotheram (2007), whilst advocating the use of audio feedback, notes there are some small obstacles to overcome for most academics including learning how to use digital audio technologies, speaking confidently into recording devices, ensuring that audio files are sent to the right students, and having access to the technology. He says that, once these have been dealt with, audio feedback becomes a time-saver for the academic and that students like the personal touch, appreciate being able to replay the feedback, and in some cases prefer it to face-to-face encounters. His students said it allows them to take criticism more easily and one student noted, "There's a lot more here than I think you would have written!"

The level of detail possible with audio feedback is discussed by Ribchester et al. (2007) who regard the opportunity to give more comprehensive commentaries as a key driver in their work, recognising that you can speak faster than you can type, whilst flagging up the danger of making feedback that is too long. They also note that the personal touch is emphasised by the inadvertent recording of the sound of page-turning, which has the psychological effect of inviting the student into the marking process itself.

Methodology

The five models discussed here are aggregated from practice across the curriculum at Sheffield Hallam University. Each of these initiatives is breaking new ground for their subject groups with specific implementations continuing to develop in response to ongoing evaluation. The models described here offer a synthesis of this work.

The author, an educational developer involved in investigating innovative applications of digital media to enhance LTA, has sought to encourage academics to openly reflect upon their practice. In the process of this sharing several individual and group interviews have been conducted with the academics and their students. The scope of these interviews has been wide-ranging. However, the topics of educational requirement, processes and benefits have been common to all discussions.

Models

Model 1 - Personal tutor monologue

This model is used in a marking process in which the tutor works through many submitted assignments that may take many forms. Prior to audio feedback, the tutor feedback options would have included assessment statement grids, marginalia, comments written in or at the end of a text or on a separate feedback sheet.

The main challenge for tutors in this situation is in getting through all of the submissions whilst making meaningful, legible comments, and assigning fair marks in the case of summative assessments in a timely fashion so that students can 'feed forward' advice to improve future work.

The tutor needs to find an optimum balance between processing the submissions and offering formative advice to each student. The tutor must attempt to make the marking process manageable, fair, meaningful and useful.

In this model one or two significant points are identified for each student and these are presented to the student in a 2-5 minutes audio file, though some commentators (e.g. Ribchester et al., 2007) believe that feedback should be extensive. A variation on this model involves marking numbers on the student's text and referencing these in the audio commentary and on the objective feedback forms (Rust, 2001).

Model 2 - Personal feedback conversations

This model comes from ongoing work in the Software Engineering laboratory (Nortcliffe and Middleton, 2008) though is applicable to any formative situation involving conversation between student and tutor. It is particularly useful where the tutor is offering feedback on work-in-progress.

Feedback conversations in the lab or studio crit are often rich discussions, but they can be daunting to students who feel anxious about discussing their work. The formative opportunity can be lost, however, if the student does not make mental or written

notes and plan to take action as a result. Such spoken conversations relate to Laurillard's Conversational Framework (1993), where 'conversation' has a broader meaning; they are intentionally designed to be part of an iterative approach that is "discursive, adaptive, interactive and reflective" focussed on the current topic and related activity. To get the most out these opportunities the student needs to focus on the conversation and upon making concurrent notes, but this can be difficult. By recording what is said the student and the tutor can concentrate on a constructive dialogue, with the recording becoming an artefact from the event enabling later reflection upon the points made and their reasoning.

The model recognises that tutor intervention can be timely and decisive. By recording the conversation the benefits of timeliness are extended beyond the transient moment to whenever the student wishes to re-engage. In this way the student's metacognitive view of the learning progress is also facilitated.

Model 3 - Broadcast feedback

Broadcast feedback involves the tutor reflecting upon class activity and recording a single summary message. Broadcast feedback is also referred to as generic feedback, yet recognises that the same message is intended to encourage personal development amongst its many listeners. By explaining what the class has done and how the class could improve, each listener can position themselves in relation to their peers. This method of positioning can be valuable for a number of reasons: the student is not singled out, yet has the opportunity to be self critical and self directed; they can be reassured that they were not alone in finding something difficult or easy; they may be able to compare their response to alternative solutions.

Broadcast feedback has several advantages: it is relatively quick to produce; it can be distributed through the virtual learning environment without concern over privacy; it can be used to prepare subsequent cohorts.

However, broadcast feedback is not useful when each listener cannot see its relevance to them. Therefore the personal appeal in the broadcast message needs to be emphasised by recognising each listener will consider the feedback in their own way.

Model 4 - Peer audio feedback

Peer audio feedback has been used in the Sport subject area as a group exercise at Sheffield Hallam. It is as valuable as much for the person giving it as it is for the recipient. The model recognises that offering constructive feedback is challenging and Gibbs (1999) notes that the social dimension makes students engage in ways that less personal and confidential marking does not. There are potential hazards though, where the quality and consistency of the feedback may be disputed, and where there may be rivalries within the cohort. The notion of 'critical friendship' is generally desirable as a graduate attribute and this can provide background to a peer assessment exercise.

Peer audio feedback works well within this context as the feedback cannot be anonymised and encourages students to be constructive, professional and articulate.

Model 5 – Tutor conversations

Recorded tutor conversations can be effective at various points offering a way of integrating the tutor voice without it being intimidating. This approach can also be used to model dialogue and alternative perspectives on a topic. Two examples of

audio feedback tutor conversations have informed this model: one which needed to demonstrate consistent marking and thinking amongst the teaching team; the other generating feedback given during a field trip where the excitement and authenticity of the trip was not only evident in the student's work, but in the tutor's reflection upon it too.

Findings

Reasons for using audio feedback

When asked why they had used audio feedback academic staff focused on its use as an effective communications tool. In particular many discussed how it supports their engagement with students due to its capacity to convey nuances in the spoken word that aren't easily achieved in the written word,

> "[It's] easier to more clearly indicate what has been good or bad about their work." (tutor R)

> "Writing and typing up feedback so that it is very individual for each student takes an awful lot of time. You can use all the different types of grids and standard ways of doing it to reduce your time, but that feels really impersonal and it's very difficult to make it individual to the student..." (tutor H)

> "[The use of voice has] been a huge driver for me because a lot of my teaching is Distance Learning… It can be faceless and very cold... [with audio feedback] they can tell that... you're trying to support them and it's not as critical as perhaps it is as when it's written in black and white." (tutor H)

> "You are aware of the fact that the tone of your voice can actually indicate whether or not you think this is "really, really good" or "maybe there's some room for improvement here." (tutor P)

> "We're finding that the feedback is fresh. It's feedback that is alive rather than something that is dead on paper. As a tutor it enables you to react to what you've seen or heard or a response that's been given from a student. And the feedback, I think, is more accurate, albeit sometimes a little bit woolly around the edges." (tutor J)

> "It's not a formal report - it's a chance to hear us talking about what we're observing… Once it gets written it looks much more formal." (tutor M)

> "If I'm sending someone a difficult email I have to think very hard how to word it and reword it… Your tone of voice conveys so much about how you interpret." (tutor M)

> "I think you can get some of the kindness that we intend in this particular assessment into how you talk about it." (tutor M)

Students also value the spoken word, but also note that the media is convenient, and in some cases preferable,

> "Although he didn't give a list of what would be most important, from his voice you could tell that." (student J)

"Suppose she had emphasised that bit, I would see the importance of that... At least I know that if I'm going to have something like that in the future I can apply that." (student I)

"I listen more when someone is talking to me than if I'm reading it." (student I)

"Because the feedback was there I used it. You know, I'm a busy guy. Most of the time I haven't got half an hour to come around the university looking for lecturers and trying to ask for help unless it's really necessary... It's just there on your computer - at home, at university. Anywhere, any time." (student G)

There were other reasons academics decided to use this medium,

"Avoiding the feedback going 'in one ear and out the other' - I walk out the door and forget what I've said to the students!" (tutor A2)

"It records their voice as well - their thought process. They're often thinking things through with you." (tutor A2, model 2)

Reflecting on the process

The academics in the study appreciate that it is not realistic to edit their messages beyond judicious use of the Pause button during recording,

"I don't edit it. You can hear the clicking on and off of the pause button and I leave it in that very raw format because I just don't have the time to make it nice and snazzy. Students haven't really reported that that's a problem." (tutor H)

"I wanted this lot to be fairly short, sharp and precise. [Simple editing] is quite effective particularly if you are wanting to highlight a couple of things out of some complex material, if there are two or three things that you particularly want to get out of it... I just found it very easy." (tutor A1, m1)

Similarly scripting is neither realistic, nor useful,

"When I first started doing it I wrote it all down like a script and that took forever and then I thought that just doesn't sound natural. In the end I just went back to looking at their script and annotating on the audio as I was going through. It was much more natural." (tutor H)

"It wasn't too much of a burden for me because I was following the structured criteria that the students actually had so there was a plan which the students knew." (tutor P)

Once methods were established all noted that producing the feedback was straightforward,

"The first few that I did took quite a while, but then it became very quick." (tutor R)

> “The students had about 10 minutes instruction on how to use Audacity with a USB headset. They did a little trial run to check they knew how to record.” (tutor P, Peer feedback)

> “We used SPSS… and had loads of lessons on it and people picked up that quite alright. For what’s needed to record a podcast it’s not a lot – just plug it in, detect the device, record and edit – that’s it. Our students seemed to do that fine.” (student J, Peer feedback)

> "We have these discussions anyway. It's ever so easy to record. I've done it with my little MP3 audio recorder but actually my mobile phone is a very good MP3 recorder and I've always got it with me." (tutor M)

Students generally appreciated the audio feedback they received, but indicated that its design needs to be carefully considered,

> "I thought it was strange at first. What are you doing recording me while you're talking to me?!" (student G)

> "It has to be short enough for people to engage in it. A lot of people would skip through it if it were longer as they would be getting feedback that they already know." (student B)

> "I don’t think it will stand as a single method of feedback, it’s got to be given with other forms." (student B)

On timeliness

It is important for feedback to be given whilst students are still engaged in the work being discussed,

> “In a conversation you're actually recording more feedback in a shorter time than you would ever be able to type or write without necessarily having to be so grammatically correct because your voice can convey information… But the advantage was the students still got the feedback sooner.” (tutor A2)

> “This is a student who has dipped, and dipped badly. Do we really want to wait 'til June to tell him?... He needs obviously to look at the written feedback as well because that has the detail." (tutor A1)

> "As soon as I read that [problem] portfolio [I realised]... that we weren't going to be giving extensive written feedback there, I wanted to give an audio file... It's not about doing both, but it is also about ensuring that there is timely feedback." (tutor A1)

> “We got the feedback back really quick – I was surprised by that.” (student J)

Feedback needs to be available for whenever students are ready to address points being made,

> “I haven't really been able to turn round the feedback in time [in the past] to get it back to the students. Whereas with the audio feedback I was able

to, for a group of around 25 students, to turn around the feedback within about 3 to 4 days." (tutor P, m1)

"A week later, two weeks later, I'm sitting down to do a bit more work on this assignment project. I'm thinking "What did she say?" and I thought, "Oh. It's on the Internet. Right there. Press it. Brilliant!" Everything she'd said, all the suggestions she made, were right there. Well, you'd be stupid to ignore them... A bit of advice here and there and "Shuzzam! You've got a miles better mark!" (student G)

"Feedback is only effective when it can be applied" [to the next task] (tutor A2)

"I had the intention of doing some more work that week but didn't get round to it. It's handy to go back to it 3, 4 or 5 weeks later... If you're trying to do stuff that you haven't done for five weeks and you listen to the audio feedback it just refreshes your memory and, again, inspires you with your own ideas." (student H)

Discussion

As noted earlier, there are many models and adaptations that are not included here. Ribchester et al. (2007), for example, discuss a model in which a broadcast stem is appended by a message targeted at individuals.

Designing effective audio feedback

A common question is, "How much audio feedback do I give and in what combination?" A driver for many staff is the challenge of finding a way to provide meaningful feedback in any form, so it would be understandable if tutors took the attitude that "anything is better than nothing", and left it there. Many respondents, however, have noted that audio feedback can be characterised by the value found in the voice: intonation, evidence of personal interest and engagement, and the conveyance of personal care in the recordings; freshness and liveliness are also noted. This value can be lost if the messages are too long because it is difficult to sustain interest, especially with monologues.

Digitally recorded audio creates reusable artefacts that can be accessed in various ways and at various times as determined by the student, whereas hand-written marginalia, and other forms of paper-based notes, are less accessible and less semantically transferable, being fixed in the physical domain. Well-designed digital feedback, on the other hand, can be more easily used beyond its original context. This potential for student reuse signals a transferable, feed forward learning potential. Effective feedback should be carefully designed, and possibly expressed in a way that recognises its potential separation from the original context and evidence. Again, this suggests that audio feedback may work particularly well when it has a selective focus concerned with developing the learner, rather than their specific comprehension of a topic.

As audio designers it is important for us to consider how the students will listen; undoubtedly they will be faced with distractions, whether they are at a computer or mobile. Listening to audio feedback cannot be compared to listening to music, a reference point for all the students spoken to. It is suggested therefore that audio feedback is likely to be most effective when it is selective and used to highlight points

where personal intervention is particularly important and provided with feedback in other forms such as simple annotations.

Media intervention in a blended curriculum

This paper suggests that audio feedback offers accessible, digital methods that support constructive timely intervention in academic work helping students to progress by being appropriately challenged and empowered.

Audio feedback is characterised by its: availability for timely intervention; capacity to convey the nuances found in the human voice and spoken language; simple production; brevity; ease of deployment; potential for reuse; and repeatability.

Media interventions (Bradley et al., 2005), developed by staff or students, can drive engagement and understanding. The attributes noted here, and others, can be applied to other teaching needs where student engagement benefits from an extended, blended, learning environment using various forms of digital media.

This offers some insight to a future of blended learning where online learning and the traditional classroom are not mutually exclusive and where "the best education comes from the integration of the strengths of each" using "a Hybrid Model that is pedagogically sound, cost effective and adoption-friendly" (Dempf et al., 2000).

Conclusions

Audio feedback designers must recognise the need to change pedagogies, not just add to them; the danger in introducing audio feedback is that it adds another layer to the assessment burden.

Further work is needed to consider how tutors can set expectations for how the student uses and responds to their feedback.

The examples referenced in this study have found various ways of distributing the feedback files to the student, but this work has highlighted a need for institutional distribution systems.

This paper has described 5 audio feedback models, but each implementation has its own context. Implementations should carefully consider these conditions and understand how students will listen and use the feedback over time.

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