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The Development and Transfer of Undergraduate Group Work Skills

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A thesis submitted in partial fulfilment of the requirements of Sheffield Hallam University for the degree of Doctor of Philosophy

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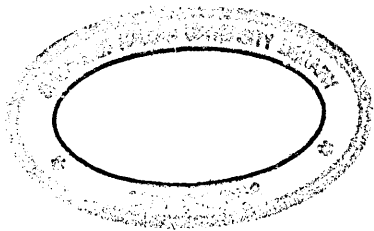
Abstract

This research concentrates on the experiences of a cohort of undergraduate students as they took part in two assessed group projects. The research concentrates on the following key question:

In what ways were students becoming more or less able to participate effectively in group projects because of their experience of similar projects?

The literature review features an extensive overview of transfer research and experiential learning, in addition to charting the rise of skills-based initiatives in Higher Education. It also reviews the available literature on experiential learning in group situations revealing a dearth of research into the specific dynamics of students groups in Higher Education.

After an initial design based on quasi-experimentation, the researcher adopted a more interpretive position. A significant feature of the methodology is a reflective account of the process of social science research as experienced by the researcher.

The results section describes the key dynamics around which the students made sense of group work and in turn how they framed it in terms of a learning experience. In brief, the students' accounts of group work were characterised by several main themes: the issue of control and influence over others (which the role of 'student' was perceived to limit); the reciprocal nature of group work with its potential to influence grades; the public nature of group work through which the students presented themselves to others and the discrepancies which were revealed in group work between different ways of working.

The discussion places the student firmly within the learning milieu that they create as students on a particular degree course. In doing so it provides a socio-interpretive explanation of development and transfer.

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Contents

Tables and figures

Results

Discussion

1.0 Introduction

This introductory section outlines the major sections of the thesis.

1.1 Literature Review

The literature review is divided into four sections which discuss published articles written on the subjects of; Transferable Skills in Higher Education, the Study of Transfer, Experiential Learning and Experiential Learning in Groups.

The first section, Transferable Skills in Higher Education (HE), discusses the rise of skills based initiatives in HE and introduces the fundamental assumption of these initiatives that skills developed in HE (such as group work) are transferable to industry and the professions. However, the assumptions underlying the concepts of *transfer* and *skill* are questioned. An argument is presented that there are dangers associated with a narrow definition of skill when used to refer to personal and interpersonal abilities. Furthermore, there is a call for research to examine the mechanisms by which such skills are transferred. The transfer of skills, then, is a huge assumption and became a prime area of focus for the present research.

Transfer research (section two) has a long history in psychology but its findings have not been in great evidence in the skills debate within HE. In addition to presenting a variety of theoretical perspectives, this section shows that studies of transfer are typically experimentally based and rely on cognitive problem solving exercises.

Studies investigating the transfer of complex interpersonal skills are rare, as are transfer studies in natural settings. When these issues have been studied, it has tended to be in relation to the transfer of organisational training. Training research in organisations relies on well-established criteria for its evaluation. The call from this area of the literature is for more research, and for research to include behavioural observations rather than relying on trainee's initial reactions.

The initial quasi-experimental design of this study involved an attempt to evaluate the transfer of group work training given to students using behavioural observations of their meetings. The logical progression of this early design from the literature so far should be clear. Practical difficulties, however, led to the cancellation of the training component. Moreover, there followed a transitional stage of critically questioning the appropriateness of this literature-led design.

Students in HE do not typically receive training in group work. Rather, they are left to (and assumed to) learn from experience. A more realistic and appropriate design, therefore, was to concentrate on what students were learning themselves from experience and whether the experience of one group helped them to learn in their next group. In terms of the literature review, this means that two further sections are included; Experiential Learning and Experiential Learning in Groups.

The Experiential Learning section outlines the key elements of a variety of experiential learning theories. The notion of transfer is less clear in such work, most commonly seen as an integral part of a learning cycle. The dialectical relationship between *action* and *reflection* also appears repeatedly. What distinguishes the theories are the extent to which they are influenced by cognitive and/or developmental perspectives and the extent to which they place the learner in a socio-cultural (organisational) context. It is also worth noting that not all experiential learning theories assume that learning is always taking place.

In the final section (Experiential Learning in Groups) the most telling feature of the review is that the majority of research on learning in groups has been carried out on specially created training (T) groups. These groups have very specific dynamics which are argued to be crucial for personal learning to occur.

3

In contrast, there is very little research on learning in student groups which have very different dynamics. When research has been done, it tends to be superficial and based solely on questionnaire responses, which are often part of a more general course evaluation.

The question of context emerges as a key feature of this research. The fact that these groups are comprised of students in HE is significant in terms of the learning experience and this section introduces the important concept of the *learning milieu*.

1.2 Methodology

The methods used in this research were questionnaires, structured and unstructured observations, and individual interviews. In terms of analysis it is important to point out at this stage that the interview data was given priority.

The research concentrates on the experiences of students on a Building Surveying degree course at Sheffield Hallam University. In their second year, the students took part in two assessed group projects, one in each semester. These are referred to in the research as the SEM1 and SEM2 projects.

The focus of the study is on transfer and development within HE, rather than from HE to industry. Furthermore, the emphasis is on interpreting the sense that students made of their group experiences. It is perhaps worth reiterating the following two points.

1. So little is known at present about the nature of student group work that the present research needed to be more exploratory and student-centred.

2. Until the research community knows more about what it is like to be in a student group, we cannot afford to make grand claims about developing skills which transfer to the workplace.

The research therefore concentrates on the following question:

In what ways were students becoming more (or less) able to participate effectively in group projects because of their experience of similar projects?

A significant feature of the methodology section is how the research was influenced by two major social science paradigms.

Mainstream Organisational Psychology strongly influenced the early basic design. The intention was to conduct a quasi-experiment in which I would observe group interaction behaviours in two cohorts of students on the same degree course, provide feedback and training for one cohort and measure the outcomes of this in a real-life setting. It was ambitious, structured, and met the requirements called for by the training evaluation literature.

However, there were practical difficulties involved in providing training. Moreover, I was also learning a great deal about the nature of student groups. This increased understanding led to a critical re-examination of the appropriateness of the quasi-experimental approach. My assumptions about what students would be learning (i.e. quite specific interactive / group meeting skills) were not necessarily what was important as far as the students were concerned.

5

In light of this argument, it began to feel quite inappropriate to work with skills from a pre-determined (imposed) checklist which did not necessarily capture what was important about group work as far as the students were concerned. For example, much of what seemed important for the students in group work occurred outside the observed meetings (in terms of producing work on time or being reliable, for example).

1.3 Results

Though all results are presented in this section, the priority in terms of the thesis is given to interviews with seven of the students.

In brief, the Interviews show that:

Students clearly had reservations about group work and a tendency to prefer individual assignments to group-based work. The differences they saw between individual and group-based work are crucial in understanding their experience of group work and the challenges and problems they faced in it.

The students' accounts of group work were characterised by the following main themes; the issue of control and influence over others (which the role of 'student' was perceived to limit); the reciprocal nature of group work with its potential to influence grades; the public nature of group work through which the students present themselves to others; the discrepancies which were revealed in group work between different ways of working.

The development of group roles is crucial in shaping the interpersonal experience of group members. Students interact from a position of influence within the group which influences the interactive behaviours they display.

6

1.4 Discussion

To account for the development of group skills and the transfer of learning involved in that process, the discussion situates the individual student within their socio-cultural milieu. In doing so, it strongly supports the *socio-interpretive* accounts of learning and transfer provided in the literature review. It also supports those theories of experiential learning which see the learner as always being learner-in-social context. The present research builds on this work by providing empirical examples of how development and transfer are shaped socially.

The student environment offers complex and occasionally conflicting demands for attention. The sense that students make of this position strongly shapes their motivation in group work. Motivation is a crucial issue. To reach a conclusion about development and transfer it is important to understand what the students valued, what they saw as being worthwhile putting effort into - their priorities in terms of learning. By adopting a student perspective and a more in-depth approach than the available literature on student groups, the present research offers a significant contribution to this understanding.

Students were helped by three key learning areas. The first of these; 'learning about specific others', shows that students felt they were helped by learning specific knowledge about other students rather than any sense of generalised rules about working in a group. The second; 'learning about the requirements of the task', supports the argument that the interpretation of identical or similar features (both on an individual and group level) facilitates the transfer of learning. The final learning area; 'learning strategies to overcome difficulties' is important theoretically as it further demonstrates that development and transfer

are socio-interpretive phenomenon. It is argued that the real 'success' of a transfer depends on making a socially determined value judgement.

The students in this research clearly experienced problems and discrepancies resulting from their need to work with others. Their thoughts and feelings about this experience, however, were not, as a matter of course, made explicit to the others in the group or the unit tutor. In effect, the students' implicit schemas about group work, their working assumptions about the other group members, their concerns and biases were not challenged. As a result, it can be stated with confidence that the students were learning *about* group work, but with less confidence that they were learning *how to* work in groups more effectively.

2.0 Literature Review

2.1 Transferable skills in Higher Education

Introduction

This section begins by discussing the rise of skills-based initiatives in Higher Education (HE) and in doing so puts the current research into context. Definitions of transferable skills are then provided, alongside their fundamental assumptions. The ability to work in groups is consistently present in models of transferable skills and some classifications of them are described.

Following this, attention is then paid to the literature from HE practitioners which evaluates the epistemological basis of skills-based approaches. Specific criticisms raised are that they are atomistic, prescriptive, include inappropriate notions of levels, are overly individualistic, static and based on a psychologically dubious learning theory. In addition, use of the two key words *skill* and *transferable* is problematic. In particular it is argued that the assumptions of transfer are not yet firmly substantiated by research - a point which was instrumental for the focus of the present study.

2.1.1 The current emphasis on transferable skills

In a significant review of Higher Education (HE), The Dearing report (Dearing, 1997) calls for more attention to be given to the key skills of communication, information technology, numeracy and learning to learn. Throughout the report there is an emphasis on the importance of students gaining work experience. In doing so, it continues the trend towards vocationalising HE which was amplified by the Robbins report (Robbins, 1963) thirty years previously. The debate about the role of HE in society goes back much further than this (reviews by Tate and Thompson, 1994, Woollard, 1995, for example, find their starting point with Newman's 1853 attempt to define the characteristics of a graduate) but for the purposes of this review, attention will be paid to developments in the last decade.

The trend continued by Dearing, has been an increase in the influence of both state and vocational interest groups on Higher Education. In terms of the 'Great Debate' over the role of HE this has meant an increasing basis of support to policies and initiatives which are based on an 'economic utility model' of education (Bailey, 1984). In the mid-to-late 1990s, Higher Education is seen by many policy makers to have a crucial role in helping to solve particular, present-day economic needs.

Of particular economic significance to this debate are changes in technology and in patterns of employment. The increasing reliance on service industries has highlighted the dynamic relationship between economic prosperity and the need to understand and exploit rapidly-developing new technologies. Combined with this there has been a move away from traditional long-term career patterns to more short-term, contract-based employment. Together, these trends have created the need for a more adaptable and more flexible workforce. It is with this emphasis on adaptability and flexibility that the notion of transferable skills becomes particularly appealing to policy makers. A key assumption then, which underlies the present drive towards skills-based initiatives, is that current economic needs can be served by the development of skills at the level of the individual and that Higher Education has an obligatory role to play in this developmental process.

This acceptance is illustrated in a statement by the (then) joint National Advisory Body/University Grants Council which argues that:

> *The abilities most valued in industrial, commercial and professional life, as well as in public and social administration, are the transferable intellectual and personal skills....A higher education system which provides its students with these things is serving its society well.*
> (NAB/UGC, 1984 in Tate and Thompson, 1994, p127)

More recently, the trend towards skills development can be seen in the aims of the Enterprise in Higher Education (EHE) initiative which was launched with government funding in 1987. EHE encourages the introduction of programmes

which have as a central aim the development of those skills which are seen to have relevance to employment. The 'enterprising' student should:

> *.... have developed transferable skills, be more realistically informed about employment opportunities, aims and challenges and make better career choices, be better prepared to take responsibility in their professional and working lives.* (Training Agency 1990 in Drew 1998 p35)

EHE has been an important agent of change - with 56 establishments having received funding from the Employment Department to help implement institutional initiatives (Kemp and Seagrave, 1995). In turn, there is no shortage of support for skills development from employing bodies. An appropriately responsive HE system is an essential part of the 'Skills Revolution' - the term used by the CBI (1989) to describe the changes they argue are needed for a successful British economy. Employers' implicit acceptance of the development and transfer of skills from HE to the workplace can be seen in the widespread practice of advertising for graduates on a non-specific degree basis (Bradshaw, 1992). Whilst there is some evidence to suggest that employers find it difficult to specify the skills they need (Birmingham Polytechnic, 1990) the general consensus has been that many British graduates are deficient in key skill areas and the call for HE to play its part has been consistent.

It would be wrong, however, to present a picture of employers, funding agencies and HE institutions working together harmoniously as if the concept of transferable skills had been an organic development. It is important to chart the rise of skills-based initiatives, but their prominence in the 1990s should be seen essentially as the result of negotiation between different interest groups. Indeed, Barnett (1992) has described this process as a 'battleground of contending forces'.

The influence of EHE (in terms of numbers funded) has been mentioned, but in general little is known about the scope and nature of skills education in HE. A survey in 1990 could find no overall picture up to then of the attitudes and

activities relating to transferable skills on a national level (Birmingham Polytechnic, 1990) and also 'relatively little' literature on the teaching of such skills. The publication of books on the subject has certainly increased since 1990, with some individual institutions now producing their own materials and models. Furthermore, a number of institutions are working towards the separate recording and certification of transferable skills for all their students through skills-based programmes (Hodgkinson, 1996). Whilst there are clear signs of uptake in HE, the approaches to teaching and learning are still not clear. A study of a single institution recently found a picture of an incoherent approach to the development of transferable skills by lecturers (Kemp and Seagrave, 1995). Given a general lack of expertise and tradition of teaching and assessing skills development, it would not be surprising if this finding were reflected at a national level.

2.1.2 Definitions used in skills based initiatives

So far this review has used the term transferable skills, and whilst this tends to be the favoured term in HE it is by no means the only one available in a discussion of contemporary skills education. The variety of terms and classifications is confusing, though it is clear that there is much common ground in terms of the broad areas of skills that they refer to. It is possible that the situation in HE may become clearer after initiatives such as that by the Higher Education Quality Council (HEQC) which is attempting to define those skills and abilities associated with the concept of 'graduateness'.

It is the purpose of this section then, to provide definitions of the major skills initiatives and to indicate the type of skills that form them. The review is selective, Oates (1990), for example, examined a total of nineteen different models in his review. A critical discussion of the definitions and the assumptions that underpin them will follow.

The skills based initiatives in the last decade or so have come from the different bodies representing various interest groups within education. Whilst they share the fact that they are the product of the debate described in the first section, it

13

is perhaps not surprising to find that there are differences in the terminology they use. Alongside transferable skills (which can also have the word 'personal' attached to the front or middle of it) one can also find enterprise skills, key skills, core skills, common skills and the more umbrella terms of Capability and Competence.

Capability comes from the Education for Capability manifesto produced in 1978 by the Royal Society for the encouragement of Arts, Manufacture and Commerce (RSA). Whilst concerned with graduate skills development 'Capability' is a broader term encompassing experience and interests as well as skills. Likewise, *competence* has been used as another umbrella term but its use is more common and has been defined as:

> *.... a wide concept which embodies the ability to transfer skills and knowledge to new situations within the occupational area.* (Guidance Note 1 Training Agency 1988 in Drew 1998 p 34)

> *.... the possession and development of sufficient skills, knowledge, appropriate attitudes and experience for performance in life roles.* (Further Education Unit, 1984 in Ashworth and Saxton 1990 p5)

The term *Common skills* is associated with the Business and Technology Education Council (BTEC) who offer a framework of 18 skills in 7 different groups for courses in both further and higher education. *Enterprise skills* is the term most closely associated with EHE initiatives.

The term *Core skills* has tended to be favoured outside of higher education (Bradshaw, 1992) through initiatives such as the Youth Training Scheme (YTS), the Technical and Vocational Education Initiative (TVEI) and the Certificate of Pre-Vocational Education. It is also used by the National Council for Vocational Qualifications (NCVQ) whose higher level core skills are being increasingly considered in terms of their use in higher education.

The term *transferable skills* has no particular educational body attached to it. The difficulty in finding a precise definition reflects the breadth of use of the term. Sustaining clear distinctions between *transferable skills* and other skills labels is not easy. As it is the term which will be used in the present research, several definitions are provided:

> ....*skills and abilities which are considered applicable in more than one context.* (Kemp and Seagrave, 1995, p315)

> .... *essential work skills which are not specific to any subject or profession, and which, though learned in one context, may be successfully transferred to and applied in many other contexts.* (Birmingham Polytechnic, 1990, p1)

Although these definitions cover both cognitive and social domains there has been a tendency by some to emphasise the social nature of transferable skills particularly when the word 'personal' is added:

> *Transferable personal skills (TPS) are a set of social behaviours and skills that you can learn to help you interact with other people in a variety of different situations. These social behaviours and skills are personal to you, although they do not necessarily come naturally, and once mastered can be applied in a variety of different situations, hence they are transferable.* (Hind, 1994, p1)

> ....*'transferable skills' tends to be preferred when people are talking about the application of skills across different social contexts. Skills in interpersonal communication, management skills and collaborative group working are all perhaps examples of this kind.* (Bridges, 1993, p45)

Bridges goes on to state two assumptions that are inherent in the above definitions: that skills developed within higher education will transfer outside to the world of employment; and that the skills will transfer from one context to

another within the world of employment itself. Typically, transferable skills classifications include: written and verbal communication, numeracy, problem solving, information technology, interpersonal and team work skills. Some models might also include self management and foreign language skills.

2.1.3 Classifications of group work skills

The ability to work co-operatively with others in small teams is consistently present in models of transferable skills. Indeed, the disposition to co-operate with others constructively and with reflection has been described in terms of being a requirement of the age (Barnett, 1992). Not surprisingly then, it is one of the skill areas most frequently requested by employers - a study of recruitment advertisements aimed at graduates saw 'team work' ranked second (after oral communication) in terms of the frequency of its occurrence (Green, 1990). The assumptions underlying this demand are in evidence in the following extract from a representative of ICL:

> ....the experience of having been part of a learning group at university can help the new entrant into employment to become part of a working team more quickly than would otherwise be the case. (Ann Allen of ICL, in Thorley and Gregory, 1994, p22)

Attempts at producing taxonomies, lists or definitions of group work skills have come from all agencies involved in the arena of graduate skills. Probably the most influential of these comes from the NCVQ, so this will be the first example before moving on to look at those produced by employers and HE institutions themselves.

At present General NVQs are established for 16-19 year olds up to level 3 but the possible introduction of them at level 4 (as discussed in a consultation document by the NCVQ, 1995) would bring them into the realm of Higher Education. In 1993 the NCVQ first produced its element list for *personal skills - working with others* (NCVQ, 1993). The list creates performance criteria and indicative ranges for performance at five levels. The difference in levels can be

16

seen by comparing key words (underlined) in the statements from level one and level five:

> *Level 1.1 <u>Work</u> to given collective goals and responsibilities*
>
> *1.2 <u>Use</u> given working methods in fulfilling own responsibilities ...*

> *Level 5.1 <u>Lead</u> the process of determining collective goals and allocating individuals' responsibilities*
>
> *5.2 <u>Agree</u> working methods and use them, and <u>monitor</u> overall progress of own and colleagues' work*

Larger employers have also made attempts to specify what they require in terms of their employees' ability to work with others. Bradshaw (1992) reports two of these attempts, from Procter and Gamble and from the Polymers Group of ICI. Alongside 'setting and achieving objectives', 'solving problems and setting priorities' and 'generating new and better ways' the Procter and Gamble list of qualities also includes the following:

> *'Communicating with and influencing others' - organises thoughts and presents ideas clearly and convincingly, wins support and co-operation from other people, generates enthusiasm*

> *'Leadership/working with others' - works well with other people, assumes leadership/takes responsibility where appropriate, brings out the best in other people, builds effective team work (pp.41-2)*

The list from ICI is more complex and correspondingly less typical of employers' stated requirements. As part of their job competency analysis, ICI produced a list of competences which were seen to distinguish superior from competent performers. Alongside 'getting results' and 'thinking styles' is 'working with others' which is seen in itself to have four major competences:

- *interpersonal awareness (an ability to sense and take account of other people's concerns)*
- *concern with impact upon other people*
- *assertiveness: ability to take strong positions in ways that did not alienate people whose co-operation would be needed*
- *concern to influence strategic thinking (p.42)*

Classifications of group work skills generated by, and for use within, Higher Education are harder to come by. The work of the Personal Skills Unit of Sheffield University is a noticeable exception. As part of a developmental model of transferable skills this project included a working definition of 'teamwork':

> *.... the skills required to work harmoniously and productively in a group of people to achieve a goal; with explicit recognition of the contributions, positive and negative, of each team member* (PSU, University of Sheffield, 1991, p19)

The definition does not specify or prescribe what these skills might be, but the conceptual model has team work closely linked to collaborating, facilitating, leading, delegating, supervising and mentoring. It is the exception rather than the rule for HE institutions to work with accepted models or definitions of group work. Reported case studies of the use of groups within HE (see Thorley, 1994 and Jaques, 1994) often have skills development as a part of their educational aims but reference is rarely made to a model or schema about what group skills these might be.

Despite the differences in complexity and terminology, the basic assumption underpinning all the above classifications is the same. The assumption is that there are certain aspects of working collaboratively with others that are fundamental in nature. These aspects are fundamental because they are needed for effective performance in collaborative settings in a wide range of professional areas. Furthermore, these fundamental, generalisable or core

aspects can be identified, made explicit, and learnt by individuals to make them more effective.

2.1.4 Critique of the concept of transferable skills

Having provided an account of the rise of skills based initiatives in HE together with some main definitions, attention will now be paid to reviewing the literature which evaluates the notion of transferable skills. The focus of this section is particularly on those evaluations which have come from practitioners within HE itself. A point which emerges clearly from a review of the literature in this area is that the few detailed critiques in existence are, (as Hyland, 1994 describes) 'completely overshadowed' by the large scale public relations exercise mounted by bodies like the NCVQ in order to convince educational institutions of their merit.

This section then, considers two major charges which emerge against modern skills-based initiatives. The first of these is that their logical, psychological and epistemological bases are insufficiently conceived (points made in detail by both Ashworth and Saxton, 1990, and Hyland, 1994). The second is that the bodies responsible for them have largely ignored empirical work on the transfer of skills from one context to another. Indeed, Harvey (1991) suggests that the size of investment in such initiatives has both politically and financially motivated them to do so.

2.1.4.1 A problem of definition or an under theorised concept?

In his review of models and classifications of transferable skills, Bradshaw (1992) points out that there is no agreed vocabulary for their discussion or definition. This somewhat confusing position has been noticed elsewhere. BTEC (1986) for example, have acknowledged that their use of the term 'skill' is necessarily a broad one and that their lists are not definitive. The FEU (1986) has also agreed that 'defining is not an exact science'. Moreover, Oates (1992)

writing as NCVQ Research Fellow, argued that there has been a tendency to label skills without the necessary reflection:

> Many of the ways we group skills derive not from any real relation between them but because it is (socially, economically) useful to cluster them in a particular way. (Oates, 1992, p233)

It may be tempting to conclude that this situation could be rectified by some academic re-working of the definitions: after all, there are considerable similarities in many of the skills models. However, other literature challenges this superficial assumption, arguing that differences in terminology are significant and symptomatic of an under-researched and under-theorised concept.

In perhaps the most documented of these critical articles, Ashworth and Saxton (1992) argue that the notion of competence (though this could equally apply to lists of transferable skills) is essentially atomistic in nature. The problem as they see it then, is that in specifying the elements of a given competence, the elements are seen as if they are somehow discrete and capable of being separated from the whole or *gestalt*. Contrary to an atomistic position they argue that:

> Any behaviour is a meaningful Gestalt; a whole in which the individual elements affect each other in a manner which changes their nature. (p12)

Applying this argument to the case of group work then, would mean that it makes little sense to treat 'listening to others', 'checking own understanding' (and so on) as if by combining them together in the technical manner in which they are listed one would end up with a representation of being effective in group work. Listing skills in this way does not shed light on the process of combining and manipulating them to produce effective performance. It should be noted that the designers of skills-based approaches are generally under no illusion as to the complexity of the abilities they are seeking to define. To

20

Ashworth and Saxton however, whilst any emphasis on complexity is useful, the problem of atomism still remains.

It is possible that the problem of atomism might be seen as one of expression. Those responsible for producing classifications of skills would argue that the types of skills to which they refer have to be made explicit, that it is not good enough simply to say that one knows what effective group work is on an intuitive level. In the educational domain the question of assessment, and therefore of assessment criteria has to be addressed. Smith (1992) implicitly suggests that the solution to this problem might be to strive for a sense of balance between assessment on the one hand and personal development on the other. The danger for Smith is that the pressure to implement skills initiatives will result in a move towards over-prescription at the expense of knowledge, understanding and personal development.

Barnett (1992) sees another danger in making classifications of transferable skills. He argues that such classifications, perhaps unwittingly, give rise to the notion of pre-defined responses. That is, they give the impression that human action, and specifically action in professional life, is a matter of responding from a limited range of prescribed behaviours to pre-defined situations. As Barnett argues, though:

> *neither a genuine higher learning nor the heart of professional life is like that. A defining characteristic of both lies in an open-endedness, in the infinite etceterations of response that they invite, and in the opportunities for continuing redefinition of the presenting problems. The task for a higher learning oriented towards professional fields lies not so much in developing pre-defined responses but in enabling the graduates to cope with uncertainty. It is the student's ability to form adequate strategies for coping with such open-endedness, her ability to put such strategies into effect, and her ability to evaluate them that matter. (p160)*

Eraut (1989) adds to the debate about the impression created by classifications of skills. Writing specifically about the GNVQ, he criticises the use of 'levels' within the framework. The danger with the concept of 'levels' he argues, is that it gives rise to the idea that once a level has been reached, then the individual

21

accredited with reaching that level may ignore the need for future development. Such an idea obviously runs counter to the current trend for promoting 'life-long learning'.

Ashworth and Saxton (1992) make another general criticism of competence which might usefully be applied to the specific case of group work. The point they make is that the notion of competence is overly individualistic. The emphasis is on *individuals* achieving the skills that they will need to cope effectively with everyday life. Yet, as they argue:

> *In the world of serious and fateful action, the upshot of human activity is very typically not the result of the behaviour of any one individual, or even of a team whose separate contributions are identifiable, but of a group as such.* (p13)

The purpose of working as a group as opposed to individually, is that groups can be more creative and tend to outperform individuals on a wide variety of tasks. They do this precisely because of their collaborative nature. Members of a small working group can draw on each others' strengths and compensate for each others' weaknesses. Ashworth and Saxton draw upon the work of Belbin (1981) whose theory of team building has been influential in the field of organisational psychology and management training. Effectiveness according to Belbin is more to do with learning to work with a diversity of styles than it is to do with prescribing one set of skills for all. Indeed, it is a *collective* blend of *different* styles which helps to produce the most effective teams.

The reply to the charge of excessive individualism is that even with different preferences and different styles of working, *individuals* still have to take responsibility for their actions and for their input to the group. It is individuals who have to be skilled at interacting even though the setting may be a collaborative one. It is individuals who suggest plans and disagree, individuals who freeload or are tactless. In reifying the group, one denies the importance of individual action and responsibility.

The debate in the preceding paragraphs mirrors a trend noted by Worchel (1994) that in social psychology the dynamic of the 'group' has become lost at

22

the expense of studying individual behaviours or effects. To play down the importance of the group as a dynamic entity, is to undermine much classical work in the early study of groups (particularly those theories concerned with stages of group development). Again the solution offered comes in the form of a balance - to recognise individuals and individual acts but to place them in a changing, developing, dynamic group.

From this perspective, the static classifications of skill presented so far ignore the *developmental* nature of groups. There have been many theories of group development (Jaques, 1994 provides a usefully concise overview), which would suggest that the skills needed by the group may be different in nature depending on the stage the group is at in its history. Early on for example, groups typically are in a 'forming' stage (Tuckman and Jensen, 1977) where the skills associated with establishing oneself in the group and forming relationships with others may be heightened. Only in later stages of the group are productivity and 'performance' characteristic objectives.

Emerging from the criticisms so far then are the implications, if not the dangers, of a static, individualistic and prescriptive approach to personal development. In his critique of NCVQs, Hyland (1994) continues this theme and sees such inadequacies as being the inevitable consequence of the approach's behaviourist roots. A behaviourist epistemology/theoretical basis underpins the UK's current skills initiatives and creates the emphasis on observable behaviours, performance criteria, measurement and the aim of objective national standards. While for many these are laudable aims, Hyland's critique rests on what he describes as the 'well documented' limitations and shortcomings of behaviourist learning programmes.

Briefly, the case made against such programmes is that they tend to stifle creativity, gloss over individual differences between learners and encourage a mechanical 'teaching to test' approach to education. Hyland goes on to contrast this 'psychologically dubious' learning theory with the more humanist, experiential approaches which will be considered later in this review.

The argument being made in the critical literature is not one against the personal development of students, but rather that the way in which transferable

skills like 'working with others' have been formulated, presents a limited (and limiting) perspective of human learning. The issue is more than one of academic re-working of definitions, the language used is representative of an inappropriate response to the needs of student development. The creation and use of the terminology are therefore crucially important, and nowhere is this more the case than in the two key words 'transferable' and 'skill'.

2.1.4.2 The use of the term 'skill'

In the case of 'skill', we have seen that definitions of it vary and that in the more elaborate explanations of skills approaches (as with the case of BTEC cited above) it is used to mean something very broad. However, the use of the word 'skill' without such precursory explanations is ubiquitous, and as argued above, the terminology carries with it certain assumptions and implications. As Barnett (1992) writes:

> There is a taken for granted assumption that activities in the world of work are adequately captured by the description of 'skills'. (p.164)

Barrow (1987) provides the most comprehensive critique of what he calls 'skills talk' and this section draws heavily on his work. Barrow's concern is that the word 'skill' is being used too often in the dictionary sense of the word to refer to phenomena which are not usefully understood in such a way. The dictionary sense of the word 'skill' has the term bound up with notions of physicality and training, of perfection through practice and also as being minimally involved with understanding.

The principal dangers of over-using the dictionary sense of skill are as follows. Firstly, that the term is used indiscriminately to refer to very different types of skill (motor skills and social skills for example). Secondly, that some skills are more discrete, more easily disentangled than others, and the blanket use of the term skill does not make these distinctions clear. Furthermore, 'skills talk' does not differentiate the conditions most likely to foster the development of different types of skill nor does it distinguish the various means by which they are acquired. Again, Barrow argues that a blanket use of the term fails to highlight the various complexities of different skills. Finally, he argues that little account

is given to the roles of understanding, values, disposition or emotional maturity in the acquisition of skills.

On this last point it may now be useful to apply Barrow's argument to the specific case of group work. According to this view then, a student considered to be effective in collaborative group work is not ritualistically adhering to a set of rules or skills. Such a student is effective in that situation because they are a person of a certain character and disposition with an understanding of the particular people and situation they are in. Lists of group skills are therefore inadequate. Barrow accepts that there might be certain techniques involved in interpersonal communication (such as establishing eye contact, or remaining silent whilst others speak) and that these might usefully be called 'communication skills' but that these are not in themselves sufficient to characterise someone we think of as a good communicator. The notion of social skills then, remains 'peculiarly bizarre' for Barrow.

Smith (1987), provides a further explanation for the current obsession with 'skills', arguing that it is a politically useful way of avoiding talk of personal qualities and aspects of character. To talk of skills and not qualities or character is, for Smith, a symptom of our 'discomfort with aspects of our humanity'. Its appeal is summarised below:

- *talk of character and virtues sounds old fashioned and priggish*

- *talk of qualities seems to involve value judgement and we prefer to shy away from these*

- *certain personal qualities now smell dangerously of elitism. We are wary of 'cleverness' or 'depth of understanding' so subsume it under the democratic title of skill*

- *we think it unfair that one person has qualities that another lacks. So characteristics like gentleness or tolerance become social skills.* (adapted from Smith 1987, p.197)

Following this line of argument then, one might talk of the qualities of an effective group worker. In this way, talk of the *qualities* of the student who thrives in group work, would involve discussing the student's commitment to what they are doing, their investment to it on a more personal level. To talk of that student as performing 'effective group skills' is to distance the student's *being* from what they are *doing*. Taken to its extreme, the student is no longer immersed in a trusting, yet vulnerable relationship with others, but has become detached, as if practising a technique. The danger of an over emphasis on skills therefore is that it separates the skill from the student. It creates a dualistic understanding of personal development which is taken further still, by the notion that crucial group skills are 'transferable'.

2.1.4.3 The use of the term 'transferable'

The notion that some skills are 'transferable' can easily imply that the skill is separable not only from the individual but from the context in which it is used. The skill in itself becomes portable, transferable. This point has been argued by Ashworth and Saxton (1992) for example, who in parallel with their view of behaviour as a gestalt, argue that any skill has to be seen as part of a person's 'lived world'. The skill is not an isolated mental capacity but gains part of its meaning from the context in which it is used, the 'lived environment' of the person. The theme of implicit dualism is also taken up by Wolf (1991) who writes that:

> *The point is not that core skills do not exist: or that statements about people's ability are intrinsically meaningless. It is rather that these skills are by definition inseparable from the contexts in which they are developed and displayed, and that they only make sense (or, rather, the same sense) to those who have the same recognition and understanding of those contexts.* (p.194).

Her argument suggests then, that simply making the similarities between different professional domains explicit does not give the construct of 'group work skill' an independent, measurable life.

Bridges (1993) takes this one step further when he claims that to make the notion of transferable skills intelligible (let alone applicable) one would need a theory of social domains. Such a theory would have to be able to indicate what makes one social context so different from another that it might constitute a threat to the transfer of skills. Only then could a student who demonstrated learning acquired from a different setting say that they had mastered a skill which was truly transferable.

Here again, an uncritical acceptance of the language of skills initiatives, in this case of the portable nature of skills, has implications for curriculum development. Oates (1992) warns against such acceptance particularly in the light of what he calls an 'endemic misunderstanding' of the term transferable skills. The term taken without reflection, he argues, implies that some skills are transferable and others are not. Furthermore, that it is a very static view of skills; skills are learnt in context A and then the student 'simply redeploys' them in context B. Indeed, taken to its logical conclusion, Allen (1991) argues that such an approach would inevitably lead to inflexible and 'unskilled' behaviour. Echoing the argument so far then, she argues that:

> *There is a danger that the language of transfer will produce the impression that behaviour can be independent of context.* (p.15).

In addition to what might be called the conceptual criticisms of transfer, authors have also pointed to the empirically unproven, under-researched nature of the transferability of skills. Atkins (1993 and in Knight, 1995), concludes with the point that the assumptions about transfer which underpin much HE development are not yet 'firmly substantiated' by research. Awareness of this lack of clear and supportive research is evident in the literature of those developing the NCVQ model. Jessup (1991) for example (see also Oates referred to above), admits that some of the assumptions made about transfer are indeed 'not well founded'. Elsewhere, Woollard (1995), reflecting upon the evidence of transfer, sums up this position by stating that whilst it exists on a common sense level it does not yet exist on a rigorous or provable level.

The importance of context and the lack of supportive research emerge from the literature as clear and consistent criticisms of the notion of transferable skills. The *implications* of these criticisms are more variable depending on the interests of the author involved. For some, the answer comes in the form of a rejection of the idea of transferable skills, others argue that more research is needed to underpin the concept, a third suggestion not yet discussed is an argument for the development of not transferable skills but *transfer skills*. That is to say that the problems of context and transfer could be usefully served by making more explicit to students the need to adapt one's skills to suit the particular context.

> *An issue for development is not only named skills but also 'transfer skills', that is the awareness within the individual of how to apply skills in different contexts. We live in contexts, we learn in contexts, we work in contexts and no two contexts are exactly the same. Our ability to contextualise skills is as important as the skills themselves.* (Kemp and Seagrave, 1995, p316).

The notion of transfer skills has been aligned to the notion of meta-cognition and to meta-cognitive skills (Annett, 1989) or put simply, 'thinking about thinking'. In the age of competence based education it is perhaps not surprising that the term *meta-competence* has also been coined (see for example Fleming, 1991). Fleming uses this admittedly unwieldy term to refer to that which allows a student to cope with change, to be critical, adaptable and be able to manipulate their existing competences. The broad argument here then, is to recognise that skill development on its own is not sufficient without developing transfer skills or meta-competences to enable the student to adapt their skills appropriately.

Given that simply naming a process does not tell us what is involved in it, Bridges (1993) calls for greater attention to be paid to the identification of what is involved in the process of transferring skills. The next section of this review therefore focuses on the findings from transfer research.

2.1.5 Summary

- A key assumption which underlies the present drive towards skills based initiatives is that current economic needs can be served by the development of skills at the level of the individual and that Higher Education has an obligatory role to play in this developmental process.

- Definitions of transferable skills vary but share two basic assumptions: that skills developed within higher education will transfer outside to the world of employment; and that the skills will transfer from one context to another within the world of employment itself.

- The ability to work co-operatively with others in small teams is consistently present in models of transferable skills.

- Despite differences in classifications of group work skills, the assumption is that there are certain aspects of working collaboratively with others that are fundamental in nature. Furthermore, these fundamental, generalisable or core aspects can be identified, made explicit, and learnt by individuals to make them more effective.

- A major charge against modern skills-based initiatives is that their logical, psychological and epistemological basis are insufficiently conceived. Specifically it has been argued that they are atomistic, prescriptive, have innappropriate notions of attainable 'levels', are overly individualistic, static and based on a 'psychologically dubious learning theory'.

- The appropriateness of the term 'skill' has been brought into question as being: too closely associated with physicality and minimal understanding, indiscriminate of different types of skill and used to avoid acknowledging the more personal role of values, character and emotional maturity.

- Use of the term 'transferable' is questioned as it gives rise to the dualistic notion that skills are separable from the individual and also from the context in which they are used.

- The under-pinning assumptions about transfer which inform much HE development are argued to be not yet 'firmly substantiated' by research. Specifically, the call is made for greater understanding of what is involved in transfer and transferring skills.

2.2 The Study of Transfer

Introduction

The previous section of this review discussed the notion of transferable skills in Higher Education. One of its main conclusions was that the assumptions regarding the transfer of core skills were in need of further examination. Identifying what is involved in the process of transferring skills was also seen to be a crucial issue. Furthermore, one of the key aims of the present research is to shed light on the transfer process as it relates to undergraduate group work skills. For these reasons, the literature concerning transfer as a psychological concept is reviewed below.

Several accounts of transfer are discussed in the section, which move from the early behaviourist approaches, to information processing and then socio-interpretive accounts. Finally, the transfer of organisational training is examined. This supports the overall tendency for transfer research to use positivistic methods, in which the researcher aims to control the conditions of learning, the subjects taking part and the material to be learnt. Naturalistic, in-situ studies of transfer are rare, as are studies which concentrate on the transfer of complex interpersonal skills.

As will be shown, the major debate in transfer research has been between a view of transfer as a broad and general phenomenon and transfer as a narrow and domain-specific phenomenon. A review of the literature shows that despite the appeal of general transfer, most research supports the need for the use of well organised, domain-specific knowledge.

2.2.1 Definitions used in the study of transfer

A useful starting point will be to clarify what transfer means in research terms

as opposed to its more common-sense usage, for as Larkin (1989) quite rightly points out:

> *Everyone believes in transfer. We believe that through experience in learning we get better at learning. The second language you learn (human or computer) is supposed to be easier than the first .... all these common beliefs reflect the sensible idea that, when one has acquired knowledge in one setting, it should save time and perhaps increase effectiveness for future learning in related settings.* (p.283)

In a trivial sense it could be thought that all repeated behaviour must have been transferred. Time alone changes each context and therefore demands transfer on multiple levels. However, in psychological research, concern is rarely given to such near-identical situations, rather, the interest is in situations which are sufficiently different to require new learning to occur. In fact this is sometimes given as the difference between learning and transfer (Detterman, 1993) . Where situations are nearly identical and differ only by a short time interval then the interest is said to be in learning. Where two situations clearly differ in some important way but require similar behaviour, then the interest is said to be in transfer.

To this end, two terms are often used in transfer research. *Near transfer* is used to indicate that the two situations are very similar but with a few important differences. *Far transfer* is used to indicate that there are more substantial differences between the two situations. A further continuum is that between *specific and general transfer* (often referred to as narrow and broad). Specific transfer relates to transfer within a domain, whereas general transfer occurs across domains (this can be seen in the case of strategies for problem solving, for example). In research terms, and in educational programmes, most interest is in far / general transfer rather than near / specific transfer.

Oates (1992) provides three common indicators used in transfer research to show that transfer has occurred. These are:

1) the reduction in time taken to learn a new task/skill or adapt an existing skill to a new context,

2) the achievement to a higher level of performance than normally shown by a learner on an unfamiliar task,

3) the solution of problems in new tasks without the provision of specific training.

In addition to positive transfer, of course, we also need to know when and why transfer does not occur, particularly as this seems to be often the case. As an introductory definition then, Singley and Anderson's (1989) account is usefully to the point:

> *The study of transfer is the study of how knowledge acquired in one situation applies (or fails to apply) in other situations.* (p.1)

2.2.2 Broad and narrow transfer

Historically, the major debate in the literature has been between a view of transfer as a broad and general phenomenon and the view of transfer as being a more limited and narrow phenomenon. The former view in its early stages is often referred to as the doctrine of *formal discipline.* Put simply, the doctrine claimed that studying classical subjects such as Latin and Geometry served to discipline the mind, to strengthen it as if it were a muscle being exercised. The crucial point here is that the precise subject material being learnt mattered less than the exercise itself (the value of Latin and Geometry is that they were seen to be usefully exerting topics). It was argued that the mind would benefit from such exertion because its general faculties such as observation, reasoning and attention would become more able to solve problems in new and quite different domains. Hence, this view sees transfer as a broad and general phenomenon.

At the turn of this century, Thorndike (Thorndike and Woodworth, 1901) started a series of experimental transfer studies which showed that when transfer occurred it was on a much narrower scope than predicted by the formal discipline approach. For example, in his first series of studies he found no

correlation between memory for numbers and memory for words, and likewise, no correlation between accuracy of spelling and accuracy in arithmetic. Throughout his research he dismissed the strong claims of formal discipline and developed the hugely influential *theory of identical elements*. In this theory, instruction in one subject domain will transfer to another domain only if the two situations share common or identical elements. Tuition in Latin is likely to help learning French he argued, not because of a strengthening of the mind, but because there are many shared elements in learning a language.

Thorndike's view of human activity is essentially an associationist one; the mind, in so far as it exists at all, is a collection of specific habits and associations rather than of general faculties as in the broader view of transfer.

> *....the mind is so specialised into a multitude of independent capacities that we alter human nature only in small spots, and any special school training has a much narrower influence upon the mind as a whole than has commonly been supposed.* (1906, p.246)

Thorndike's empirical work has been criticised in that a number of his studies do show more transfer than his theory of identical elements would suggest (again, the comprehensive review by Singley and Anderson provides further details). The theory of identical elements also came under increasing attack as Larkin (1989) illustrates, because neither Thorndike nor the psychology of the time, had any means for specifying what an element might be or in what ways they needed to be identical. There was little room in Thorndike's view of habitual behaviour to account for the adaptation and reconstruction of learning that was subsequently given weight by cognitive and information processing theories. Nonetheless, whilst the various psychologies of the mind have developed since Thorndike, his challenge to the notion of broad transfer has generated much research and set the scene for empirical research this century.

Most schools of psychological thought have since offered a fresh way of understanding transfer. This review will focus on recent developments within the last decade. Suffice it to say at this point that the crude debate between

broad and narrow transfer has moved on, with most current psychological research concentrating on the more productive middle ground between these positions. Studies in the last ten years for example, have provided convincing evidence for the well organised and flexible use of domain-specific knowledge in problem solving rather than the more general, broad skills (DeCorte, 1989).

Despite this more recent evidence, it is easy to get confused in the transfer literature. Such is the allure of broad transfer that despite the move towards centre ground, some still claim that it exists and can be developed. See for example the claims made by DeBono (1976) and Feuerstein et al. (1980) on their thinking skills programmes, and the claims about the benefits of computer programming from Papert (1980).

On this count we must be sensitive to the excessive promotionalism of some academics and researchers, for as Singley (1989) argues:

> *One reason why the notion of general transfer keeps rising from the grave is that it is such an attractive proposition for psychologists and educationalists alike. It is the one effect that, if discovered and engineered, could liberate students and teachers from the shackles of narrow, disciplinary education. Sustaining these longings is the fact that it is very difficult to prove that something does not exist. There is always another manipulation in the psychologists toolbox to try.* (p25)

2.2.3 The traditional transfer paradigm

The experimental model shown below is typical of many transfer studies and can be seen as the traditional transfer paradigm (Pea, 1989).

Table L1: An experimental model of transfer research

	Source situation	Target situation
Experimental group	Learn A	Learn B
Control group	Do not learn A	Learn B

Differences between the two groups' performances in learning B are taken as a measure of the transfer of learning from the source situation to the target situation.

Many transfer studies in this paradigm have used isomorphic problems in their experimental tasks. An isomorphic problem has an underlying logical solution which can be made explicit and used in many puzzles or problems simply by altering the surface features of the problem. In this classical design then, the researcher has control over the conditions of learning, the subjects taking part and the material to be learnt.

Research conducted within this traditional paradigm has generally shown that whilst there is some evidence for near transfer, the same cannot be said for general transfer. Indeed, there are a substantial number of studies showing that general transfer does not occur (see reviews by Singley and Anderson, 1989 and Detterman, 1993). Similarly, Larkin (1989) concludes that there are no outstanding cases of instruction in general problem solving which produce noticeable gains in learning. Research investigating the instructional programmes mentioned above has also failed to show general cognitive improvements (see Hunter-Grundin, 1985 on DeBono and Blagg, 1991 on Feuerstein).

2.2.4 The case against transfer

Detterman (1993) called his lively review of transfer experiments 'The Case Against Transfer' and in it he strongly rejects the existence of general transfer. His work is important because it highlights some of the difficulties inherent in the traditional research paradigm. One of Detterman's main conclusions is that when a study claims to have shown transfer, the transfer involved has not been spontaneously produced by the subjects but has been achieved by explicitly prompting or instructing them. For example, subjects in the experimental groups are often prompted about the similarity between the source and target situations. Detterman dismissively refers to these as 'tricks' of one sort or another.

An example of what Detterman means here can be seen by using Judd's (1908) classic transfer experiment in which he claimed to have shown transfer in a task involving throwing darts at an underwater target. The experimental group were given instruction in the principles of light refraction and were told that this would be useful for them in the task. The control group were allowed to practice throwing the darts but were given no tuition. The experimental group were subsequently more successful when the underwater target was lowered to different depths in the water. Judd claimed that transfer had been achieved, the experimental group transferred their understanding of light refraction when they applied it to the new target positions.

Detterman argues that the transfer in Judd's experiment is not the true, spontaneous transfer that is of interest to psychologists. Judd's experiments instead of showing transfer, merely show that subjects followed instructions which were given to them in the same context in which they were told to apply them. Had the subjects learned the principles in a vastly different setting and used them successfully without instruction, then this would be closer to the far transfer of deep structures that is of interest. As it stands, telling people to use a principle is simply asking them to follow instructions.

The case of Judd is given in detail here because it is typical of Detterman's argument about the use of tricks and instructions in transfer research. Some of the other examples he uses in his article are fascinating simply because of the subjects' failure to transfer despite the overwhelming similarity of source and target situations.

The missionaries and cannibals problem, for example, was given to a group of American college students by Reed et al. (1974). Briefly, the problem to solve is how five missionaries and five cannibals can share a boat which only holds three people. Both groups need to cross opposite banks of a river without the number of cannibals ever outweighing the number of missionaries, who would, of course, be eaten. After completing this and being told of the correct solution, the subjects were then given the same problem except that husbands and

jealous wives replaced missionaries and cannibals. Despite the similarities between these problems, no significant transfer was found between them. Some transfer did occur however when the problems were given in reverse order and the subjects were given hints as to their similarity.

Detterman provides other examples to support his conclusion that spontaneous transfer is rare. He can find nothing to contradict Thorndike's identical elements theory and argues that the research shows us to be creatures of habit, learning essentially what we are taught:

> *The lessons learned from studies of transfer is that, if you want people to learn something, teach it to them. Don't teach them something else and expect them to figure out what you really want them to do.* (Detterman, 1993, p.21).

The majority of transfer researchers would agree with Detterman up to a point. Only those with a vested interest in selling general transfer programmes present transfer as a common and uncomplicated phenomenon. However, few go as far as Detterman in attacking transfer and some such as Voss (1989) provide reasons why Detterman's case is too severe.

2.2.5 Information processing views of transfer

Detterman's argument rests on empirical research largely carried out within the traditional transfer paradigm. Voss suggests that the paradigm in itself is flawed and that as a result its experiments will not produce transfer. To explain this further it is necessary to examine the conceptualisation of transfer that Voss provides. Voss argues that learning, the retention of learning and the transfer of learning have historically been treated as separate though obviously related concepts. His approach is to treat learning and retention as subordinate to the overarching concept of transfer.

Transfer is the superordinate concept because in any learning situation an individual brings to it their existing experiences, intelligence, prior knowledge

and attitude towards the situation. Learning, therefore, always involves the transfer of abilities, experience and prior knowledge. Likewise, testing for the retention of learning is simply another transfer situation. The significance of this for our discussion is that it reveals a flaw in the traditional Learn A - Learn B experimental paradigm (seen earlier in figure 1).

Rarely in such experiments are the subjects' prior knowledge, attitudes and abilities taken into account when they approach the learning A situation. Therefore, one has no idea how much of a help learning A will be when the subject approaches the new situation of learning B. Furthermore, the control group (who do not learn A) cannot be said to be a control group as such because their prior knowledge is also not examined. When comparing results between the two groups there is no guarantee that the learning of A will significantly add anything to the experimental group's existing knowledge as they approach learning B.

For this reason, positive transfer in problem solving studies is hard to obtain. The principal argument provided by Voss is that:

> .... to develop a reasonable idea of the nature of learning, the concept of learning should be viewed as transfer because how readily we acquire new information is so profoundly influenced by what we already know and can do. (1989 p. 620)

Voss goes on to propose a conceptualisation of transfer as problem solving, based on an information processing model. Within this view, two basic assumptions are made. First, that individuals have the goal of interpreting the external environment and to do this they use what they already know about it. Second, that they are motivated to reduce uncertainty both in terms of an unambiguous interpretation of the environment and in terms of an unambiguous response to it. The reduction of uncertainty and production of responses to it can be seen as problem solving and because this involves the use of existing information it can also be seen as transfer.

Voss argues that the process of problem solving, and therefore of transfer, is one of pattern matching, in which the individual attempts to match the stimulus pattern with a solution pattern that already exists in their memory. When situations are highly familiar the pattern matching process is virtually automatic (a greeting of 'hello' for example). Alternatively the process of interpretation and response can be much less familiar, and therefore much less automatic.

Voss uses the example of two diplomats negotiating an arms agreement, but it seems that more everyday examples such as negotiation in group work might also usefully serve the case. In these more complex situations, well defined responses are not available because they are social situations and are likely to show considerable variation from setting to setting. Nonetheless individuals will still have some information about the setting, about the principles of negotiation about their own goals and so on. So, whilst there may be no precise pattern match, the individual is still motivated to transfer knowledge to solve the current problem. When implemented, the solution can be stored in memory and whilst in theory this could help generate a pattern for future problems it is highly unlikely that exactly the same problem will be faced again.

Voss presents a model clearly placed within an information-processing perspective: transfer is more likely when the search space for the problem is small and the individual has clear cues from the environment. Unlike Thorndike's associationist account though, this model involves the active use of cognitive processes like the organisation of memory, the use of operators to limit search space, identifying appropriate information and so on. The model can help to explain why transfer fails to occur in many studies but is in itself in need of further research to help identify how existing knowledge is related to acquiring new knowledge.

A similar information processing view is presented by Sternberg and Frensch (1993) who present four 'mechanisms' of transfer. Very briefly, the degree of transfer depends on these four mechanisms with the implication that teachers should take them into account when planning their courses.

Encoding specificity - states that the recall of an item depends on how an item was initially encoded. Here it is extended to transfer such that the likelihood of transfer will depend on how the item was encoded (we may learn information for a test, but not with the intention of applying it).

Organisation - the organisation of old information can both facilitate or inhibit transfer from occurring. One of the reasons for inflexible behaviour, or negative transfer, is that once an organisation of knowledge is automatic it becomes very difficult to change. It is suggested further that once processing has started according to the old organisation of information it cannot be readily stopped by conscious control.

Discrimination - this mechanism concerns whether or not an item is highlighted as being relevant or irrelevant information for a new situation. We may feel for example that what we have learnt in one group will be of use in the next one, but this is only the case if we can discriminate between the useful and the less useful information. Bassok and Holyoak (1993) call this the *pragmatic relevance* of information and students in their mathematics -based research showed more transfer when they were able to discriminate between the relevant and irrelevant problem cues.

Set - this mechanisms draws on the concept of a mental set which relates to how a person sees or approaches a problem. The concept of functional fixedness for example is well documented and refers to an inability to see a different function for an object than the one routinely associated with it. An individual may therefore have a way (mental set) of seeing a particular situation that transfers to other situations where it may or may not be appropriate.

Further insight into the information processing involved in transfer comes from the work by Salomon and Globerson (1989). Again, their starting point is to acknowledge that

> *The painful truth is that more often than not individuals do not make good use of what they know and master.* (p.623)

41

Rather than dismissing the notion of transfer as Detterman does, they attempt instead to account for its rarity. If the models from Voss and Sternberg and Frensch seem straightforward, Salomon and Globerson are keen to point out that an individual's information processing is subject to all manner of biases, pet theories and attention to irrelevant and superficial cues.

Salomon and Globerson introduce the continuum-based construct of 'mindfulness' to help account for the failure of individuals to operate in a truly cognitive fashion. Mindfulness is defined as:

> *the volitional, metacognitively guided employment of non-automatic, usually effort demanding processes. It is a mid-level construct that entails motivational, attitudinal and cognitive factors.* (p. 625)

At the other end of the dimension therefore is mindlessness - characterised by the routine automatic responses that were mentioned in the preceding section. Such automatic responses are mindless in the sense that they are controlled more by external cues (a bottom up or data driven view), they are faster because they have been well rehearsed or over learned and are associated with passive processing. Mindful responses on the other hand are slower, more controlled by the individual, demand more effort, are available to analytic reflection and are associated with more active processing.

There are individual differences in sources of mindfulness. Salomon and Globerson point to the research by Cacioppo and Petty (1982) which suggest that some individuals may prefer to engage in effortful cognitive activity whilst others may generally prefer to minimise effort when handling incoming information. Likewise, an individual's motivation and sense of self competence will affect mindfulness. There are also socio-cultural factors such as intellectual climate, common ways of perceiving a situation, shared habits, schemas, intuitions and so on. Generally, they argue that the more these implicit notions are shared the more likely they are to give rise to mindlessness.

In terms of transfer, Salomon's earlier work on high road and low road learning are used (Salomon and Perkins, 1988). High road learning is more mindful, the result of deduction and comprehension and can lead to the generation of principles and strategies which have been de-contextualised from their initial context. Low road learning is more experientially based, and can be seen in tacit knowledge, skills, habits and beliefs.

Likewise the terms *high-road transfer* and *low-road transfer* are used. In low road transfer, the transfer almost takes care of itself because it is triggered automatically from external cues. This is useful to the individual as it reduces potential overload - implementing habitual responses frees us to deal with unknown and unfamiliar environmental cues. Indeed it would require very mindful control to avoid low road transfer in certain settings (driving on the other side of the road on the continent for example). To encourage low road transfer Perkins and Salomon (1988) recommend a process they call *hugging* which involves the teacher demonstrating links and examples when applicable. High road transfer is more the result of mindful abstraction, it is more deliberate and involves the de-contextualising of features of a situation. To encourage this Salomon and Perkins recommend a process of *bridging* which involves the teacher mediating the students' need to make connections by encouraging them to make generalisations and principles.

2.2.6 Socio - interpretive views of transfer

In addition to the information processing views of transfer, and the earlier associationist views, Pea (1989) presents an interpretive account of transfer. For Pea, transfer is always selective, and judgements about it are socially as well as individually determined. For example, when psychologists refer to negative or inappropriate transfer they use it to mean that a subject has not transferred when they should have or alternatively that the subject has transferred something that they shouldn't have. Pea argues that the decision about appropriateness of transfer is not a natural one but one defined by individual and cultural value systems. Cultural sets of conventions determine

43

whether transfer is positive or negative - the transfer itself is never intrinsically appropriate.

A couple of examples will serve to illustrate this approach. When a child over-generalises the word 'doggy' to refer to all four legged animals this is appropriate for the child because the animals share common elements. To an adult however, the child's utterance causes amusement because it is inappropriate. The executive who was a team leader in the rigidly hierarchical organisation may find that the same approach is not welcomed by the more democratic organisation which sees the transfer of approach as negative.

If this view is accepted, it reveals that transfer involves more than the cognitive processing of information, in an isolated and individual way. Transfer involves making crucial decisions about what will work in a situation, and also whether it is worth the effort to transfer. Since the desired transfer in these situations is always selective, looking at transfer in terms of the prior knowledge state of the individual is not sufficient, as these decisions are rooted more deeply at a socio-cultural level.

Pea's second major argument concerns the notion of common elements. Information processing models of transfer still make use of common elements. Here again, the commonality between elements is not a given entity in problem solving, but is something that individuals read in a situation according to their culturally-influenced categorisation of problem types. One of the reasons why research has failed to show transfer could be because the researchers' definition of what is identical in their studies is not shared by the subjects, who have their own reading of the situation.

The social emphasis on transfer provided by Pea is shared by Greeno et al. (1993) who argue that learning and transfer are essentially *situated*. Rather than considering knowledge as the invariant property of an individual, they argue that the term *knowing* is more useful as it suggests a property that is more relative to specific situations. Within this situated view of transfer, it

makes little sense to talk of a person's knowledge state in isolation from the situation in which the person is engaged.

The emphasis on the social as well as the cognitive can be seen in their definition of transfer:

> *The question of transfer then, is to understand how learning to participate in an activity in one situation can influence (positively or negatively) one's ability to participate in another activity in a different situation. The answer must lie in the nature of the situations, in the way that the person learns to interact in one situation, and in the kind of interaction in the second situation that would make the activity there successful.* (p. 100)

Within this social view of transfer we can then look to the ways in which situations are defined by their participants and how in turn these definitions can encourage or discourage learning and transfer. Greeno et al. argue that each situation creates support for particular activities which they call *affordances*. In turn, each agent (a term that creates a more active role than 'subject') in the situation has certain *abilities* that enable them to engage in the activity.

Note that Greeno et al. are still concerned with perception and use of prior knowledge. In their view however, the focus is given to what the situation affords (encourages, permits, constrains). Transfer from this position depends more on the physical and social structure of the situation than it does on the mental structure of the individual.

Finally, an interesting perspective is offered by Engeström et al (1995). Their work on the acquisition of expertise argues that in addition to a vertical view of skill acquisition there should also be a horizontal view. By this they mean that experts often work in, and move between multiple and parallel work contexts. These different contexts demand different approaches because the activities within them are created by different 'communities of practice'. Here we see a

similarity between the social construction of situations emphasised in the two approaches above.

An example of a community of practice could be a factory floor, where the language, rules and social relations will be different when compared to a boardroom or design office. The differences can be seen in terms of boundaries with experts having to become effective at *boundary crossing.* Boundary crossing essentially involves encountering difference, entering territory which is unfamiliar and therefore requires new concepts and responses to be formulated. Although Engeström et al. do not use the term transfer, the links between the concept of boundary crossing and transfer are clear.

Their work is at an exploratory stage but has the advantage over other novice to expert studies in that it does not limit the expertise to one domain (in this sense, expert studies typically focus on near transfer) but concentrates on how individuals manage to cross domain boundaries. They point to research by Phelan et al. (1991) which studied adolescents' social worlds and found that the ability to cross boundaries (or borders) was an important aspect of psychological well-being. The borders here were between peer groups, family groups and school groups but the concept of boundaries could be used for any cognitive and/or social domain (individual work and group work, the tutorial and lecture for example). In the Phelan study four positions were found which could be applicable to other boundaries:

- congruent world / smooth transitions
- different worlds / border crossings managed
- different worlds / border crossings difficult
- different worlds / border crossing resisted

2.2.7 The transfer of organisational training

When training transfer has been studied, the results are perhaps not surprising given the picture of transfer presented so far. Indeed, one estimation

(Georgenson, 1982) suggests that in the USA only ten percent of the one hundred billion dollars spent on training results in actual transfer on the job. Baldwin and Ford's 1988 review showed three main areas of research focus; the design of the training, characteristics of the trainee and environmental characteristics. All three are proposed to influence the learning and retention of the training and its subsequent generalisation and maintenance.

In terms of training design, the majority of research reviewed by Baldwin and Ford has concentrated on short-term simple motor skills and the identical elements between training design and actual job activities. More recently, Gist et al. (1990) argues that there has been a move away from emphasis on the content of training to looking at the processes of facilitating the transfer of training. In her research, two approaches are discussed and evaluated for transfer, these being *self-management* and *goal setting*. These approaches were also suggested by Pea (1989) earlier in this review. Process approaches such as these, focus less on the content of material and more on encouraging the individual trainee to maintain and generalise their learning, the premise being that self-directed behaviour is a means to encourage transfer.

Gist's work is less typical of training research both because it explicitly addresses the issue of transfer and because it is based on complex interpersonal skills (the training was conducted in negotiation skills). In Gist et al's study the self management condition out-performed the goal setting condition. The more typical aspect of this work however was that it was laboratory based (and with MBA students as subjects) and was therefore not conducted in the field. In general, complex social skills have received much less attention but even so it is considered to be 'notoriously difficult' to obtain transfer (Bramley, 1991).

In terms of trainee attributes, Baldwin and Ford (1988) show that most work has aimed at matching trainees' personality variables with different forms of instruction. They argue that there is a lack of a theoretical model guiding research and that more work needs to be done in identifying the most salient characteristics. Noe (1986) showed that trainee attributes were a neglected

influence in training effectiveness and suggested the following factors which are likely to be significant in determining an individual's *motivation to transfer*,

- confidence in using the skills
- awareness of work situations where demonstrating the skill is appropriate
- perception that job performance will improve as a result of application
- belief that training material will be helpful in solving everyday work problems.

In terms of the environmental component of the model, most of the work available has been conducted on the constructs of organisational climate and supervisory support, which were both seen to be positively related to transfer (Baldwin and Ford 1988). Tannenbaum and Yukl (1992) in their review of organisational training summarise the need to examine environmental as well as individual factors in studying transfer:

> *.... the degree to which intentions are converted into acts and products is partially determined by various inhibiting and facilitating factors. The personal skills, ability, and willpower that trainees possess at the conclusion of training are potential determinants of transfer. In addition, elements of the post-training environment can encourage (e.g. rewards, job aids) discourage (e.g. ridicule from peers) or actually prohibit the application of new skills and knowledge on the job (e.g. lack of necessary equipment).* (p. 420)

Tannenbaum and Yukl also point to research concerning team training. They suggest that though there were few empirical studies of team training available to them, studies of team building have generally shown positive effects on participants' attitudes towards their team members. When these studies included behavioural change however, the results were more equivocal.

Though there are well established criteria for evaluating training effectiveness (Kirkpatrick's 1979 model is widely cited) few studies using them manage to use the higher level criteria of behavioural, on-the-job change with most stopping at the level of participants' reaction to the training. Part of the reason

for this lies in the tremendous practical and methodological difficulties involved in studying transfer in situ.

Research into training transfer and research conducted within the traditional transfer paradigm share crucial similarities. The overwhelming tendency has been to follow positivist epistemologies with the aim of identifying and measuring cause and effect laws governing transfer. Moreover, the theoretical developments have been based on experiments in which the topic of learning has been imposed, and the conditions artificially controlled by the researcher. In situ transfer research is extremely rare as are studies involving the transfer of complex interpersonal skills. For this reason, whilst the theoretical contributions need to be included in this review, attention also needs to be paid to the less-defined and un-imposed learning which occurs through personal experiences outside the laboratory. The next section then, provides a review of experiential learning.

2.2.8 Summary

- The study of transfer has been defined as the study of how knowledge acquired in one situation applies (or fails to apply) in other situations.

- Historically, the major debate in the literature has been between a view of transfer as a broad and general phenomenon and the view of transfer as being a more limited and narrow phenomenon.

- Thorndike's behaviourist experiments set the scene for transfer research this century. His work showed that when transfer occurred it was on a much narrower scope than previously believed. He predicted that for transfer to occur, situations must share *identical elements*.

- Views of the mind have developed since Thorndike but the tendency has still been to move away from broad, general transfer. Studies in the last ten years have provided convincing evidence for the well organised and flexible use of domain-specific knowledge in problem solving.

- The traditional transfer research paradigm is positivist in nature. The researcher usually has control over the conditions of learning, the subjects taking part and the material to be learnt.

- Detterman claimed that studies claiming to show transfer within the traditional paradigm are more likely to show that a subject has followed instructions rather than spontaneously transferred learning. Voss shows that the paradigm itself is flawed because it fails to take into account the learning which subjects bring to the experiment.

- Information processing approaches stress that transfer does not always occur automatically with the presence of identically perceived elements. It involves a more active process of selecting appropriate cues, retrieving well organised knowledge and is subject to biases, pet theories and the individual's motivation.

- Socio - interpretive accounts see transfer as always being selective, with judgements about it being socially as well as individually determined. Situations are socially constructed and defined by their participants. In turn these definitions can encourage or discourage learning and transfer.

- The transfer of organisational training has tended to focus on motor skills rather than social skills. Naturalistic, in-situ transfer research into interpersonal behaviour is extremely rare.

2.3 Experiential learning

Introduction

The previous section showed that naturalistic studies of transfer are rare and that the topic of learning tends to be imposed by the researcher. Students in HE rarely get explicit tuition or training in group work, so whilst the transfer literature is useful, it is not in itself sufficient to explain the transfer of learning which is gained through experience rather than instruction. Moreover, a focus just on the transfer literature would make the possibly unjustified assumption that some learning has occurred in group work in the first place.

For this reason, the literature on experiential learning is now reviewed. Several accounts are provided in which it is shown that experiential theories rely less on the controlled experimental work that has characterised transfer research. Transfer from an experiential perspective is less likely to be treated as a separate construct and more likely to be seen as part of a learning cycle or as a part of the way the developing individual characteristically approaches a situation. As with the socio-interpretive theories of transfer, some accounts of experiential learning stress the importance of placing the individual within a social context, with the work-place organisation having particular emphasis. These views are included to illustrate the point that a university is like any other work-place with its own cultural values and practices.

2.3.1 Definitions used in experiential learning

Research into transfer can be seen as 'niche' research (Oates, 1992) because it appears in the literature as a distinct research topic. Work on experiential learning, however, is more likely to treat transfer as part of a learning cycle rather than as a separate construct but has much to offer the discussion here. Moreover, experiential learning has been influential in HE over the last twenty

years and is particularly favoured by practitioners involved in transferable skills work. In many case studies of group-based learning for example, the intention is that students will learn about working with others because they are experiencing what it is like to work in groups rather than group work skills being taught as a unit in its own right.

As is perhaps to be expected, the term *experiential learning* is in need of further definition for, as Werner-Weil and McGill (1989) argue, the term refers to a 'spectrum of meanings, practices and ideologies'. They go on to describe four different clusters (or *villages*) of people working with the term which will help to clarify its use in this review.

> Village one: Those involved with the assessment and accreditation of 'prior' experiential learning (APEL).
> Village two: Those emphasising experiential learning as a means of change in higher / continuing education.
> Village three: Those emphasising experiential learning as a means of wider social change.
> Village four: Those emphasising experiential learning as a means of encouraging personal growth, therapy and development.

Of these villages, village two is of most concern here. In village two the emphasis is on experiential learning both as a technique for teaching and learning and as a philosophy for justifying learner centred approaches in post-school education. Though the emphasis is on individual development (including professional development) collaborative group work is often a feature of courses which are based on an experiential learning philosophy. Typical examples of the aims of such courses include: reframing the way we perceive and respond to particular situations, becoming more self aware in our approach to our professional work and a better understanding of how theory relates to actual practice. Student involvement, student control and a correspondence between the learning task and the world at large are central aims of any experiential learning task (Boud and Pascoe, 1978).

It is also worth noting at this point the relevance of village four. In village four we get closer to therapeutic change, change at a deeper, more fundamentally personal level. Again, groups are often used as a setting, with the emphasis on 'here and now' experiencing as well reflecting on prior experiences. In this village, interpersonal experiencing is emphasised as the basis for insight and change.

The two villages discussed above, have much in common in that practitioners espousing experiential learning in HE draw heavily on humanist theories which also influence the work of those concerned with personal growth (the work of Carl Rogers for example). However, the institutions and frameworks in which HE practitioners live and work might not be so conducive to the implementation of such theories. The processes of personal growth may not be well served by content-based syllabi, a transmission approach to teaching and learning and traditional methods of assessment. Such a concern needs to be borne in mind.

2.3.2 Early theories of experiential learning

One of the early influential experiential learning theories comes from the work of Lewin (though his work has become confused with that of Kolb who later expanded on Lewin's work). Lewin saw learning as a four stage cycle in which *concrete experience* is the basis for subsequent observation and reflection. These observations then form the basis of generalisations and abstract concepts, a personally formed 'theory' from which new implications or guides for future action can be drawn. The cycle is complete when the new implications are tested in concrete experience. It can be seen here then, that immediate 'here and now' experiencing is an essential part of learning but that learning does not occur without reflection. Lewin's work has been particularly influential in terms of training (influences in laboratory training and T groups) where the concept of *feedback* is also a crucial determinant in helping the individual learner balance the processes of action and observation. Lewin's model is shown below:

concrete
experience

↗   ↘

testing   observations
implications of   and
concepts in new   reflections
situations

↖   ↙

formation of
abstract concepts
and
generalisations
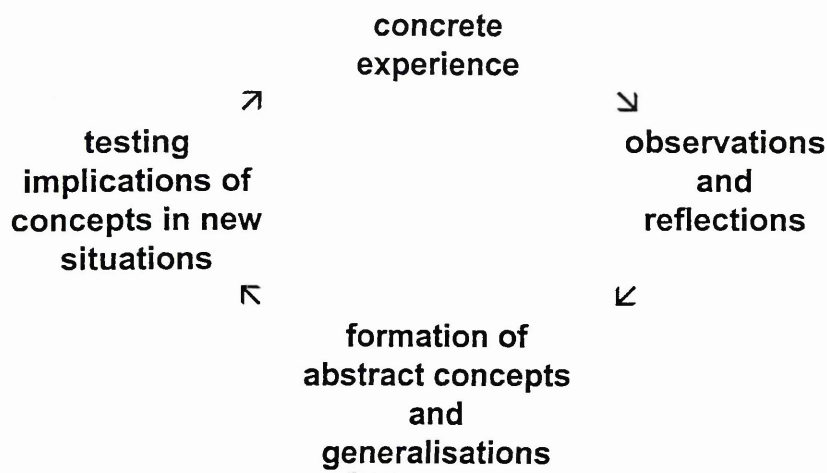
Figure L1: Lewin's experiential learning model

The themes of action and observation can also be seen in the work of Dewey (1938). Here again the dialectic forces of action and observation create a dynamic force from which the individual can learn. One of Dewey's key concepts was that of *reflective thought* which forms the starting point for learning. Reflective thought itself starts with the perception of an ambiguous situation, a situation which in some way presents a dilemma to the individual, a *felt difficulty*. From this, the individual defines the problem which leads to a consideration of solutions; note here that the definition of the problem is likely to be influenced by the transfer or utilisation of previous learning. Based on the solutions generated, the final stage in this sequence is observation and experimentation with the decision being made whether to act on the suggestions or not.

Both Dewey and Lewin's work (along with Piaget and Jung) were particularly influential on Kolb's (1976) theory of experiential learning which is arguably the best known and is certainly very widely used. In brief, Kolb accepts Lewin's model of learning as a four stage cycle. He argues that whilst we need abilities in each of the four stages, over time the *dialectic tensions* between the dimensions of the cycle are resolved in ways which become characteristic of us. These become our characteristic learning styles, so that people *apprehend* and then *transform* their experiences in different ways.

Some people, he argues, have a tendency to apprehend through *concrete experience*, others through *abstract conceptualisation*. Likewise, some tend to transform through *reflective observation* and others through *active experimentation*. In terms of transfer then, it could be argued that it is the characteristic learning style that transfers to different situations. Furthermore, the gap between theory and practice could then be potentially explained by the initial learning situation favouring one learning style with the practice situation favouring another.

2.3.3 Jarvis: learning and non-learning responses

Kolb's work has been criticised for being too simplistic (Jarvis, 1995). One could make a case for arguing that the simplicity of the learning cycle is also the reason for its widespread use. Jarvis tested Kolb's model with a number of adult learners and produced his own model, which whilst more accurate in its complexity is less well known. Jarvis is concerned with adult education and sees it as vital to place the learner (their self-concept and physical self) in a socio-cultural milieu, stressing this aspect much more than Kolb.

Jarvis provides a useful discussion of the term *experience* in which transfer can be seen from an experiential perspective:

> *Experiencing, then, may be conceptualised, on one level, as the subjective awareness of a present situation. However, that awareness occurs only in the light of previous experiences, and consequently the subjectivity is determined by individuals' past biographies and the socio-cultural milieu in which they experience situations. People bring to every new situation their own past, although the extent to which they themselves are aware of this is a point that Freud's researches have illustrated.* (p.66)

From this perspective, transfer could be seen as a much broader phenomenon incorporating not only the individual's knowledge but also their sense of self, their unique biography and cultural values. However, transfer itself is not used

as a term in Jarvis's work. He finds the term misleading, arguing that what was referred to in the previous section as the transfer setting (or target setting) is actually in itself a new learning situation in its own right. Entering a practical situation for the first time for example, is entering a new situation in which the learner is having a *primary* experience (more direct sensory experience) rather than a *secondary* experience (one that is mediated, e.g. through language, such as learning in a lecture or from a text book). The experience is therefore of a different type, though clearly the individual brings to it their biographies, previous learning and so on.

As mentioned above, Jarvis presents a more complex picture of learning from experience which is included in some detail here because it considers why learning does not always take place rather than assuming it has or will. Jarvis suggests that there are nine types of responses to an experience and further that these may be divided into three fundamentally different categories: non-learning, non-reflective learning and reflective learning. These categories and their further sub-divisions are shown below:

Table L2: Three categories of learning responses, Jarvis (1995)

Non-learning	Non-reflective learning	Reflective learning
presumption	*pre-conscious learning*	*contemplation*
non-consideration	*skills learning*	*reflective skills learning*
rejection	*memorisation*	*experimental learning*

What Jarvis calls *presumption* then, is the first of the non-learning responses, based on the assumption that we do not always learn from our experiences. Presumption is described as being the 'rather typical' response to everyday experience in that we are so familiar with our surroundings we can afford to presume a great deal. By and large our presumptions are successful enough for us to engage with the world with relatively low levels of awareness, if previous learning did not constantly come into play we would always be in the position of consciously making sense of the minutiae of everyday life.

There are a variety of reasons why we do not respond to potential learning situations, we might be tired, busy or perhaps scared of the outcome. So another fairly common response might simply be *non-consideration.* The third of the non-learning responses is *rejection* which occurs when we reject the possibility that learning might be the outcome of a situation. This can also occur for a variety of reasons, with the most obvious example being when one has a bigoted, polarised or stereotypical view of an event or person such that we refuse to consider alternative explanations, we reject the opportunity to learn.

Next to consider are the types of non-reflective learning, which are generally those forms which are more socially defined as learning, united in that none of them involve reflection. *Pre-conscious learning* occurs at the periphery of consciousness. It is suggested that this form of learning occurs through our everyday experiences but that these are the type of experiences which we do think about in a conscious way. Jarvis likens this form of learning to the work on incidental learning or learning *en passant* (looked at in more detail with Marsick and Watching's 1990 work below).

Another form of non-reflective learning commonly occurs through repetition, imitation of others, or role modelling and is concerned with learning low level and repetitive motor skills. Jarvis is keen to limit the scope of the category of *skills learning* then, to only those types of skills involved in physical activity or manual work which do not require reflection to be learnt. The third aspect of non-reflective learning is *memorisation.* Associated with learning mathematics tables and spelling for example, this is how many people would traditionally define learning and as Jarvis argues it is still what many adult learners expect when entering Higher Education. If we take this point to be well founded, it suggests that the learning of social skills does not fit well with expectations of traditional memorisation, the learning of facts and figures.

So far the types of learning above have been concerned with reproduction, whether this be reproducing facts, existing beliefs, assumptions or trained manual activity. Reflective learning on the other hand has less to do with

reproduction and has the potential to generate innovation. As above, three types of reflective learning are identified.

Contemplation, as might be expected is that form of learning associated with pure thought. 'Pure' in the sense that the experience is actively thought about but without reference being made to the wider social world. Meditation, philosophical thoughts, and more exclusively the thinking of the pure mathematician are examples of contemplation.

A distinction is then made between non-reflective and *reflective skills learning,* the latter being a more sophisticated form of learning practical skills. Reflective skills learning is similar to the notion of the reflective practitioner (Schön, 1983) as it is the type of learning that occurs when people are actively responding to the uniqueness of their situation. New skills can often emerge from this reflective process as well as learning about the 'knowledge undergirding the practice' which would lead to a deeper understanding of why the skill should be performed in certain ways. There are similarities with the concept of meta-competence here, as that which allows us to oversee and adapt our behaviour according to contextual requirements.

The final form of reflective learning is termed *experimental learning,* and it occurs when a person tries out a theory in practice and in doing so generates knowledge which relates to social reality. It relates to Kolb's stage of active experimentation which in effect brings us round full circle.

Jarvis, like Kolb, sees learning as a transformation of experience. The different types of learning he proposes are descriptive and should not be seen in any order of intrinsic merit (as can be the case with presentations of *deep* and *surface* learning for example). The distinctions Jarvis makes are useful in that they provide a greater repertoire of responses from which to make sense of the complexities of experiential learning. For example, they remind us that learning from experience is not an automatic occurrence and that it can also occur in quite subtle ways with minimal levels of reflection.

2.3.4 Cell: learning and the struggle to be

The humanist values which inform much of the work on experiential learning can be clearly seen in the work of Cell (1984). Using a Rogerian perspective, Cell argues that the basic struggles in life revolve around the need to have the power to make our own meanings, to be free, to make a difference that is significant to us, to have a purpose. From this position then, learning can be both functional and dysfunctional.

Functional learning is that which helps to create power for ourselves, it promotes autonomy and enriches us by enabling us to make our own meaningful interpretations of our experiences. *Dysfunctional learning* occurs when we internalise the values of the societies in which we live at the expense of trusting our own experiences as a source of value. It is through dysfunctional learning that we learn those values which serve to keep us in our place, or to achieve, be perfect, to be quiet until spoken to and so on.

Cell identifies four kinds of experiential learning, each with its own corresponding area of change. Each type also acts as a greater source of power than the previous one in what Cell refers to as the *struggle to be*.

Table L3: Four learning types and their corresponding areas of change, Cell (1984)

Learning type	Area of change
response learning	*behaviour*
situation learning	*interpretation*
transsituation learning	*autonomy*
transcendent learning	*creativity*

Very briefly, *response learning* is about changes in the repertoire of our behaviour. Changing the way we respond to a situation occurs largely by trial and error as we seek out that which we find rewarding and avoid that which we find punishing. Cell points out though that most of the time we are not actually learning as such but simply acting out of habit from the vast repertoire of behaviours that we already have.

Situation learning on the other hand, results in a change in the way we interpret the situations we find ourselves in. Our interpretations are based around two basic questions: why am I in this situation? (what value does it have for me?) and how do things work in this situation? (what is effective here?). Clearly this is linked to response learning in that if we change the way we look at a situation our old behaviours may be incongruent and we would need to learn new responses. Learning to interpret situations in a different way is seen as a form of power in that it gives us more freedom to create meaning.

Cell makes a distinction between two types of interpretation involved in situation learning. *Active interpretation* which happens more spontaneously within the activity or situation itself, is creative but likely to be bound up in our biases, our 'provincialisms and rationalisations'. *Reflective interpretation* occurs when we are more removed from the situation and are more able to be critical and free of bias because we are less caught up in the immediacy of the situation.

A key factor in interpreting situations is our ability to make contrasts. Contrasts are seen as essential to meaning making and therefore the more experience we have, the more potential we have to make more contrasts and increase the number of potential meanings we bring to each situation. However, we do also have a tendency to interpret in generalisable ways. Indeed, the way we tend to interpret situations gives rise to our character. Cell relates such generalisations to the transfer of learning so that what transfers here is the way we tend to perceive the meaning of situations.

We are also able however to learn to change the way we interpret, and this is referred to as *transsituation learning*. This is a higher level of learning and Cell argues that some are more able to do it than others. The crucial factor here seems to be an ability to ask questions of our experiences so that contrasting understandings are created. Cell talks about reflecting on our powers of reflection, which again has similarities with the 'meta' constructs of learning to learn, meta competence and meta cognition. From the point of view of transfer,

61

what is interesting here is the argument that we may not learn how to ask such questions of ourselves (which is the benefit of therapeutic help) such that we are only able to interpret a situation in one way and 'are in bondage to that interpretation'.

Finally, Cell introduces a much higher order construct which is much less likely to be developed by all people. *Transcendent learning* involves creating a new tool in addition to those already culturally available in order to help us to interpret. Examples of such tools of making sense are Freud's unconscious and Skinner's reinforcement. In Cell's work, learning from experience is bound up in a Rogerian view of freedom and the growth of the individual. Learning can be seen as a continuum from the fairly routine to the more profound.

2.3.5 Experiential learning and organisational life

Other theories of experiential learning, addressing different audiences, place greater emphasis on the nature of the setting. Writers influential in management development, for example, have addressed the organisational setting and its influence on learning. It is to these approaches that attention will now be paid, based on the premise that a university can be seen as an organisation with its own practices, values and influences.

Argyris and Schön (1974) discuss the different types of learning that occur through everyday experience. For example, they argue that conditions of surprise provide a prime learning opportunity because in non-routine situations our attention is heightened and we are required to act in more experimental ways as we try to make sense of the situation we are in. Learning is not automatic in such circumstances however, and Argyris and Schön argue that critical reflection is needed. What happens during critical reflection is that we start to examine our underlying, taken for granted assumptions and in this way become able to frame the situation in a different way.

One of the key concepts of Argyris and Schön's work is the distinction between our *espoused theories* (what we think and say we do) and our *theories in use*

62

(what we actually do). Critical reflection then, helps to make explicit the gaps between our espoused theories and our theories in use so that we can understand more about how our behaviour is guided.

Like Jarvis, they emphasise the role of the learner's social milieu but refer to it in a more specific way, in terms of organisational contexts. Part of the aim of their work is to identify what it is about the way organisations operate which can both hinder and facilitate learning. In keeping with the role of critical reflection in helping to make the implicit, explicit, they identify a broad distinction between two organisational climates.

Model 1 climates are characterised by values such as win/lose thinking, unilateral control and secrecy. In model 2 climates on the other hand, people feel encouraged to make public their assumptions and beliefs so that the way they are thinking can be examined. The organisational climate then, can hinder critical reflection with an atmosphere of defensiveness and control or it can encourage it by valuing trust and open inquiry.

Indeed, on this latter point Argyris and Schön discuss the more informal way in which learning can occur. In relation to the concept of professionalism, they argue that this is not only a matter of learning technical knowledge and skills but also a matter of learning to "think like a ...." lawyer, doctor or building surveyor. So in addition to the more obvious conditions of surprise, much more subtle background learning takes place in organisational life. Such background learning is heavily context specific to both organisations and professions and can take place both with and without conscious awareness. Presumably then, students entering higher education will also be learning what it is like to be "a student".

Marsick and Watkins (1990) continue the theme of subtle organisational learning. Their work is more explicitly addressed to the work place and this difference in emphasis can be seen in their definition of learning as:

the way in which individuals or groups acquire, interpret, reorganise,
change or assimilate a related cluster of information, skills and feelings.
It is also primary to the way in which people construct meaning in their
personal and shared organisational lives. [p.4]

The starting point for their argument is the distinction between *formal* and *informal learning.* By formal learning they mean the more institutionally structured learning (such as at school) where the learner has little control over content, outcomes and even location. Informal learning is of more interest to Marsick and Watching, and this is the type of learning that is predominantly experiential and more under the learner's own control. In the workplace, informal learning occurs through such examples as: networking, coaching, mentoring, self-directed learning and performance planning.

Furthermore, they introduce a sub-set of informal learning, that of *incidental learning* though it should be noted that these terms are by no means unique to their work. Incidental learning is basically unintentional learning, learning *en passant,* it occurs as a by product of another activity, examples of which are: learning from mistakes, learning from interactions with others and sensing the organisational culture.

In formal learning our attention is directed towards those abstract principles that are deemed relevant, this is not the case with informal and incidental learning which relies much more on *tacit knowledge.* Tacit knowledge is typically outside of our conscious awareness, is intangible and resides in the context. We draw on tacit knowledge constantly when we are actively engaged in work or interaction by using our existing ways of making sense to help us interpret the current activity. This is why making a mistake, or feeling unsure how to react to an event can trigger informal or incidental learning. It is in these unusual situations that we become more consciously aware that we do not have sufficient knowledge to guide our actions spontaneously.

Marsick and Watching argue that informal and incidental learning are delimited in certain ways. For example, the nature of a work task can impose limits on the

opportunity to learn incidentally from it (the nature of the task defines the substance, purpose and time available for learning). Likewise the degree of 'discussability' of the work-place culture can impose limits on learning incidentally. Individuals too can delimit their own opportunities for learning by the way in which they set or *frame* the problems they face. So, in any given problem situation we select what features of it we will pay attention to, we impose our own boundaries on it. People can therefore focus solely on the task itself, or they can widen their vision to include aspects of the context and by doing so open themselves up to the possibility of different ways of looking at the problem.

Marsick and Watching also discuss three major ways in which informal and incidental learning can be enhanced. The first of these is by being *pro-active*, taking initiative and taking charge of learning rather than adopting a fatalistic view of the world where one is at the mercy of circumstance. The concept of pro-activity as used here is similar to the use of autonomy in other experiential learning theories and also to the constructs of internal locus of control and being field independent rather than field dependent. *Critical reflectivity* is the second characteristic enhancer - though it is not clear whether they see these as conditions that vary or as more stable personality traits. However, being critically reflective involves the process of checking our assumptions before we act, of asking questions of ourselves, reframing situations and so on. *Creativity* is the final condition for enhancing informal and incidental learning as it is creativity which allows us to see beyond the point of view that we normally hold, to 'break out of preconceived patterns'. Note that these suggestions are all concerned with actively attempting to stop the automatic transfer of previous learned responses.

A variety of experiential learning theories have been explored in this section and several concluding points are worth making. It will be noticed that experiential theories rely less on the controlled experimental work that characterised transfer research. Transfer from an experiential perspective is less likely to be treated as a separate construct and more likely to be seen as part of a learning cycle or as a part of the way the developing individual

characteristically approaches a situation. As with the socio-interpretive theories of transfer, some accounts of experiential learning place the individual within a social context with the work-place organisation having particular emphasis.

2.3.6 Summary

- Experiential learning has been influential in HE over the last twenty years and collaborative group work is often a feature of courses which are based on an experiential learning philosophy.

- Dewey proposed that the opposing forces of action and observation create a dynamic force from which the individual can learn. The key concept of *reflective thought* starts with a situation which in some way presents a *felt difficulty* to the individual.

- Lewin (and later, Kolb) saw learning as a four stage cycle in which *concrete experience* is the basis for subsequent observation, generalisation and testing of implications.

- Jarvis sees it as vital to place the learner in a socio-cultural milieu and suggests that there are three fundamentally different categories of responses to an experience: non-learning, non-reflective learning and reflective learning.

- Cell places experiential learning within a Rogerian approach and argues that it occurs when direct interaction with our world or ourselves results in a change in our behaviour, our interpretation of situations, personal autonomy or creativity.

- Other approaches have specifically addressed the organisational setting and its influence on learning. These approaches were discussed on the premise that a university is an organisation with its own practices, values and influences.

- Argyris and Schön argue that an organisational climate can hinder critical reflection with an atmosphere of defensiveness and control or it can encourage it by valuing trust and open inquiry.

- Marsick and Watching also place the learner in an organisational setting and place great emphasis on *incidental learning* which occurs as a by product of another activity, examples of which are: learning from mistakes, learning from interactions with others and sensing the organisational culture.

2.4 Experiential learning in groups

Introduction

This section starts by defining the type of group of interest to the present research. It is noted that student groups have specific properties of their own. This is a fundamental point to make. For whilst there is a body of literature about learning in groups, it tends to be based on specific types of training groups where interaction is the explicit focus of attention, rather than the task. In these groups, quite specific dynamics are seen to be crucial in encouraging learning - the provision of feedback, the feeling of psychological safety, freedom to experiment and so on.

Whilst transfer is the objective, the research reviewed here suggests that the learning that takes place in training groups is not long lasting. In general, a picture emerges of a series of barriers to learning in groups and the transfer of that learning. Several of these barriers are discussed here. The presence of others, for example, seems to inhibit trying out new behaviours. Cultural values also create a sense of resistance to learning about how we interact with others. For this reason, the concepts of the learning milieu and the social identity of 'a student' are discussed. A number of studies reported here show generally positive findings about student group work, though published work tends to lack detail both in terms of data analysis and of the learning that occurred.

2.4.1 Definitions used in the study of group learning

In the opening to their chapter on skills development, McGill and Beaty (1995) raise an illuminating paradox. They acknowledge that few of us live and work in isolation, that our lives largely depend upon our effectiveness in the presence of other people. Yet they also endorse a general view that (at least in the UK) we tend to lack the basic human skills involved when interacting with others.

Despite the ubiquity of human groups then, their argument suggests that we do not learn to work effectively with others readily, or sufficiently, through everyday experience alone.

So what do we know about learning to work with others in groups? That is the basic question to be addressed in this section. As with the sections before it, the starting point is to define a key term. The question of learning to work in groups has no doubt been asked before, but in its present state it is too simplistic, for it treats 'groups' as a unitary concept when in fact the nature of groups is vastly diverse. It also needs to be made clear precisely what learning is of interest. The issue of learning in groups therefore, can only be addressed after the nature of the group has been defined, its parameters or boundaries delineated in some way and the nature of the learning expressed in some more meaningful manner.

Perhaps the most basic way to differentiate groups is the difference between *primary* and *secondary* groups. Primary groups are of more interest here as they are the type of smaller groups typified by face to face interaction and studied by social psychologists. Secondary groups are more the object of study for sociologists and the term refers to those larger groupings of people such as by class, nation, or region. The most common of the primary groups according to Argyle (1988) are families, work groups and groups of friends.

Of these, the *work group* comes closest to representing the nature of student groups. A work group is defined by Argyle as existing

> .... *primarily on account of the particular tasks they are to tackle....work groups meet in a complex environmental setting and sub-culture, which limits and defines social behaviour. They are also part of a social organisation, and have a leader and other kinds of role-differentiation. However, work groups have a life of their own which affects what happens and how much work is done.* (p.175)

The concept of a work group is useful here, though it is important to note that a group of students working together on a project task are less likely to have pre-determined roles and formal leadership as is implied above. Indeed, the lack of formally pre-determined roles and hierarchies is a particular feature of the majority of student groups and serves to make their dynamics quite different from a work group comprised of a supervisor and subordinates for example.

Having discussed something of the nature of the group under examination here (for there is no agreed definition to be found) the second question raised during the introduction was to do with the nature of learning. Another basic distinction in the study of small groups is that between the group's task functions and its maintenance or process functions (a brief discussion of this can be found in the Argyle reference). In the present research and under the broad heading of transferable skills, the interest lies with *process skills*, those skills used by the group members in order to interdependently carry out the task - decision making, negotiating, providing feedback, chairing a meeting are all examples of process skills.

Despite the ubiquity of work groups and the understanding that both task and process skills are needed, there is a lack of literature which investigates how people learn process skills experientially whilst in work groups. A similar point is made by Reynolds (1994):

> *There are many books on group behaviour and many written about learning. It is more difficult to find any about learning from group methods.* (p.14)

In the field of social psychology it is easy to find studies on group performance and productivity, conformity in groups or leadership, but learning about interacting in work groups has not received the same attention. To find literature which is concerned with learning in groups it is necessary to turn to studies based on specially created groups such as those involved in training exercises. Whilst the research here is of value it should be recognised that these are not work groups nor are they student groups.

Within the group training literature a broad distinction can be made between training which focuses on identifying and encouraging pre-determined effective group behaviours (see for example Bales 1970 and Rackham and Morgan 1977) and those that are more open ended, non-directive and based more on self discovery. The latter type of group, such as encounter groups and T-groups are of most interest here simply because the nature of learning is not pre-defined. Examining the dynamics and assumptions of these groups reveals the conditions purported to stimulate the type of learning that is required to be more effective in groups in a generalisable way.

The dynamics of T-groups (where the 'T' stands for a particular type of Training group) are crucial in fostering a climate in which significant personal learning can take place. Though they can be influenced by psychodynamic theories, they differ from therapy groups because the assumption is that participants are healthy and well, but concerned with understanding and improving the way they relate to others. They also differ from other types of training (including the behaviourally oriented ones above and the 'outward bound' type of training) in that the emphasis in the group is on explicitly discussing the 'here and now' dynamics of the group rather than thinking about these indirectly whilst co-operating on a problem solving task. In a T-group then, interpersonal processes are the explicit source of interest.

T-groups have specific conditions to foster learning and these have been described by Cohen and Smith (1976). Their description starts with the importance of *feedback* (a point shared with many other learning situations). Feedback is seen here as a prerequisite if group members are to learn about their impact on others as its function is to help determine the adequacy of their existing styles of behaviour. However, the feedback itself also needs to be specific rather than general, it needs to take into account the needs of both the receiver and giver of feedback, it needs to be solicited rather than imposed, well timed and checked for clarity.

Other conditions for learning are *disclosure,* that is, the degree to which the individual in the group is willing (behaviourally) to react to others openly as well as allow others to react openly to their behaviour. There needs to be a *supportive climate* in the group, an atmosphere of help and respect must be fostered. Group members must be willing to *experiment* with different ways of behaving and observe what effect these have on other members. Finally, for learning to transfer, new behaviours need frequent *practice and application* in order to become internalised.

> *changes in behaviour tend to be painful, and it takes courage to change and maintain the changes. The T group provides an atmosphere that makes it less difficult to change; it is far more difficult to apply new behaviours to other and possibly less supportive conditions. However, as these changes are fundamentally useful only as they become transferable to outside situations, the learner and the learning group are encouraged to apply their new behaviours outside the T group.* (Cohen and Smith, 1976, p62)

Miles (1971) shares this view, he describes learning to work in groups as not being easily achieved and also states that specific conditions in T-groups are needed to bring about change. To start with, the training needs to focus on skills, with interpersonal skills being the tools with which the individual can bring about their intentions in the group. Skilfulness in interaction is seen by Miles to include sensitivity (detecting the effect one has on others), diagnostic ability (the ability to work out why the effect is occurring) and action (the necessary techniques and responses). Training needs to consider the *whole person* which includes their values, ideas, principles, attitudes and feelings in addition to their observable behaviour. People need to have *guided practice* so that they receive feedback on their performance, and this needs to take place in an atmosphere of *psychological safety.*

It is argued then, that a T-group can provide the conditions and dynamics needed to encourage learning. The principle in operation is that in a challenging but supportive atmosphere where the individual trusts and feels

accepted by the other group members they will be freer to experiment with new behaviours. Miles develops this further though, by asking *why* an individual would want to learn in the first place. In doing so he describes a sequence of stages which are similar to the cyclic theories of experiential learning reviewed in the last section.

Before there is likely to be any significant improvement, the individual needs to first believe that learning about group skills will be of benefit, and secondly to feel some dissatisfaction with their present skills. This is similar to Dewey's notion of a felt difficulty in that the learner needs to feel an inadequacy in relation to groups so that they can move on from that position. The next stages involve selecting new behaviours, practising them, getting evidence on results, generalising or integrating them and then starting the cycle again by identifying other difficulties.

The penultimate step in this sequence is where the more lasting change occurs as the individual learner generalises, internalises the new way of behaving to their overall view of how groups work. There is a similarity here not only between this view and the cyclic learning theory of Lewin and Kolb but also with the notion of *schema* used in information processing theories. In discussing general ways of thinking about groups there is a suggestion that individuals have a schema about groups and their relationships in them.

2.4.2 Learning in groups and the concept of schema

The use of the schema concept is taken up by Oatley (1980). He uses the term to provide an account of how people learn in T-groups. In brief, a schema is an internal representation or model of the world from which we generate sequences of purposeful behaviour. Oatley (drawing on the work of Horney 1942) suggests that in our early lives we start to form models or schemata of relationships based on how we experience those around us. Over time, these build to form an implicit, largely unconscious theory of interaction in general (there are similarities here also with Berne's (1971) notion of *life scripts*). The implicit theory is used to make predictions, generate expectations, possible

74

outcomes and so on, so that we use the schemata to interpret situations. Learning occurs therefore, when in some way we modify our implicit theories of interaction.

Using terms associated with Piaget, Oatley goes on to describe the processes of *accommodating* new experiences and *assimilating* more familiar ones. If our existing schemata match closely the outside world we can easily make sense of them because our schemata can readily assimilate the evidence. If, on the other hand, we experience a discrepancy between schemata and 'reality' then two things can occur. Firstly, we generate feelings and emotions. Secondly, the discrepancy becomes an opportunity for our schemata to accommodate the new experience, to improve our existing theories.

So, in certain group situations we have the opportunity to experience discrepancies between lived experience and our implicit theories of interaction. In a supportive group we can be encouraged to pay attention to the feelings generated from such discrepancies. In turn this can allow us to understand how we interpret situations, the meanings we give them, to 'get in touch' with our implicit theories. In a supportive group, Oatley argues, feelings are allowed to be expressed and therefore changes and learning can occur.

The notion of a schema specific to group interaction has not received any great research attention but one study (Rentsch, 1994) has recently investigated the ways in which individuals with varying amounts of group experience describe groups in general. The study (which involved American undergraduates) found that students with higher levels of group experience used fewer and more abstract defining terms and represented their group knowledge more consistently than did students with less group experience. Individuals defined group work in different ways according to the amount of experience they had, which Rentsch suggests is evidence for the existence of core (generalisable) group work knowledge or schema.

The study also hypothesises that those with more experience of groups will have more elaborate group work schema and will also be more effective in

75

groups as a result. However, this suggestion presupposes that individuals will continue to accommodate their schema continually through experience - a position which is rather ambitious given the theoretical work on experiential learning. It would also seem to be the case that we may come to see situations as being increasingly complex but do not learn to deal with them any more effectively. Moreover, the conditions outlined by Miles and Oatley above would suggest that there are limits to the depth of learning about working in groups which depend as much on the dynamics of the groups as they do on individuals wanting to learn.

The call from Rentsch is for more research into the notion of teamwork schemas and the call from Oatley is for more research which investigates learning outcomes for particular individuals in particular types of group situations. Smith (1980) reviewed nearly 200 studies evaluating the effects of groups which were intended to examine the interpersonal relationships among those present. He concluded that overall they showed some support for the enthusiasm of practitioners using group work in the field but in terms of generalisablity and transfer there was sufficient data supporting the view that:

> A good deal of measurable change does occur after groups, but there is a substantial fade-out of these effects in subsequent months. (p.46)

It would appear then that the learning brought about by a range of different types of training groups is either not deep enough for it to transfer to other group situations, or that there is something about the dynamics of other, more everyday groups that inhibits the new learning and encourages old behaviours and habits. One explanation for this can be found from the research into what is known as *social facilitation*.

2.4.3 Learning in groups and social facilitation

One of the most consistent findings in social facilitation research is that having others around us appears to facilitate simple tasks and impair performance on complex ones. Baron et al. (1992) suggest a variety of explanations as to why this might happen.

76

The first explanation is that the mere presence of others around us increases our drives and general level of arousal, the 'others' being a potential source of threat or judgement in some way. The key point of this explanation is that under such conditions our dominant responses tend to be strengthened. So, what we have come to do almost instinctively, our habitual ways of reacting - whether these are appropriate or not - are likely to be strengthened by the presence of others. Any new learning, any good intentions we may have are less likely to be dominant and according to this view stand less chance of manifesting themselves under conditions of arousal brought about by others. In a group meeting therefore we may instinctively start to defend ourselves when our ideas are being criticised - despite knowing on a more rational level that this is not the most effective way to react.

Another explanation is that the presence of others increases our level of self consciousness and this makes us more aware of any discrepancies between our actual performance and our sense of ideal performance. Thus we can be motivated to try and increase our efforts but if we perceive that we are failing then we may be motivated to withdraw because we are more aware of the discrepancy. The key in this explanation is that we generally want to present a favourable image of ourselves and this need is heightened by the presence of others. Trying out new, different or bold actions therefore involves a greater sense of risk (of failure and embarrassment) and will tend to be avoided as a result.

Social facilitation thus provides one explanation for the failure of learning in groups to transfer. It is also worth looking at this point at other accounts of learning in groups which suggest that there are significant barriers to overcome before learning takes place at all.

2.4.4 Barriers to learning in groups

Douglas (1993) argues that all groups share the same basic processes. They all involve interaction, norms and values, have goals, develop sub-groups,

make decisions, develop over time and so on. Fundamentally, they behave in the same way, the difference being in the way that these processes are emphasised by the peculiar composition of each group. If this point is accepted, he argues that learning about groups can then become a 'basic operation'.

This position has interesting parallels with the use of isomorphic problem solving in transfer research. The problems in the research had different surface features but were solved by the same fundamental processes. What was revealed by such research was that problem solvers concentrate on the surface features rather than the deep, underlying structures. This would help explain common sense accounts of groups, for example that 'all groups are different', and that 'it depends on the people in the group'. To learn about groups then, the learner needs to overcome this surface approach and recognise the deeper processes but as Douglas argues, there are some major barriers preventing such learning from happening.

The first barrier to overcome is a tendency to believe that we have already learnt enough when it comes to social skills:

> So many people believe that because they have achieved whatever age they have without major catastrophe that they are therefore 'by the light of nature' experts in human relationships. (p. 176)

Douglas argues that the social skills we have acquired naturally are at best parochial, that is, they refer to, and are adequate for, the limited situations in which they were learnt. Such natural learning is only adequate for limited situations, otherwise we would not experience the many interpersonal difficulties that we do. Moreover, there is a cultural influence at work here.

Our society (Douglas is writing from a UK perspective) tends to regard learning about human behaviour as 'something akin to witchcraft', it is seen as unnatural because we are conditioned into accepting that our social training is adequate. So, this is the first barrier to overcome in learning about group skills. Learning about groups has to involve a willingness to learn.

78

The second barrier is also culturally influenced because it is concerned with overcoming the embarrassment associated with observing others. Observing is an essential part of learning about group skills according to Douglas because we need to become more aware of the ways in which the basic processes of the group are in operation. However, our society disapproves of staring, we are told from an early age that it is rude and are likely therefore to associate it with feelings of embarrassment. The same argument can be applied to being open about feelings or asking others about theirs.

The third barrier to overcome is the appreciation that one has to personally experience the effects of group processes in order to understand their possibilities. Learning from text books or lectures is therefore not enough. Combining these three barriers then, the learner has to be actively engaged in a need to learn, be an active observer of group processes and be an active participant in groups. As Douglas notes, it is not surprising that most people find this 'daunting if not impossible'.

Douglas also draws on other less conscious influences by suggesting that the early stages of group life involve the need for psychological safety or *psychic comfort* and that this shapes interaction. During the early stages, group members are reacting to the presence of others in ways which they may be more or less conscious of (adding to the explanations of social facilitation). Their reactions will be based on the need they feel to be accepted by the group, their need to establish a position in the group, to form impressions of the other members, to work out if they trust them or not, if they like them or not and so on. Past experiences form a crucial part of these judgements and it is worth quoting Douglas at length on this point:

> .... *what kind of behaviour actually emerges will depend to a great extent on the previous experience of similar situations which the members of the group will have had in the past. This means that the whole of their relevant experience of which they are more or less aware will be brought into play in order that they will feel rather safer. For as we have seen, the*

fear, the basic fear of being forced to regard oneself as an isolate and alone, is sufficient to make us try very hard to reduce strange and new situations to something which is less strange and more comfortable and liveable with. (p. 43)

2.4.5 Learning in undergraduate groups

Attention will now be paid to research which has specifically looked at learning in undergraduate student groups. The section starts with an overview of the state of research in this area before moving on to consider how the role of being a student might influence learning.

Singh (1995) writes that there is a limited amount of research on group work in the UK and that this has largely concentrated on school rather than post-school education. The same point has also been made recently by Kennett et al. (1996) from a Canadian perspective and as they point out, there are significant differences between group work in schools and university group work. The critical differences being that undergraduates are typically required to be more independent, work with less structured tasks and be monitored less by the tutor concerned.

Recent group work texts targeted at HE practitioners, in particular Jaques (1994) and Reynolds (1994) despite having learning in groups as a key concern, were not able to draw on any substantive research examining how and what undergraduates learn during group work assignments. It is symptomatic of the student-skills literature in general, that it is relatively easy to find texts of a practical nature (including the two cited above) and even learning manuals to encourage skills development (Gibbs 1994) than it is to find such evaluative research.

Journal articles tend to focus on specific aspects of group work, peer assessment has attracted most attention here (for example, Earl, 1986 and Conway et al., 1993, Mathews, 1994) or introductions to the use of group work in specific discipline areas (for example, in Geography by Hindle, 1993 and in

History by Winstanley, 1992). These journal articles occasionally have wider implications however (see Parsons and Drew, 1996 for example) and in addition there are a couple of collective works of group work practice from which to draw conclusions.

The largest collection of research studies involving group work were found in the texts by Thorley and Gregory (1994) and by Foot et al (1994). In total, these two texts contain around 40 studies relating to the use of group work in UK higher education. They form the basis for discussion in this section which starts by making some general observations of them.

The number of studies in these recent texts is indicative of the current interest in group work. The use of group work is clearly a fruitful area for research. The studies tend to be small scale, if not in terms of student numbers then in longitudinal duration and level of data analysis. This last point is partly explained by the fact that most research into group work has tended to be done by the tutors concerned, who are less likely to be experienced educational researchers and who work within severe time constraints. Moreover, research into group work does not focus specifically on the development of group skills; whilst this is often addressed it is not analysed in any substantive detail.

Lecturers using group based projects do so with two key aims in mind. The first of these is the development of subject specific knowledge and this usually takes priority in terms of the rationale for using groups. The second aim is the development of non-subject specific skills which include what are being referred to here as group work skills but may also involve skills in oral presentation, information seeking and so on. Though the first of these aims is not of direct concern for the present research, it is worth noting that despite the increasing use of group work, not all studies of co-operative learning have shown positive subject learning outcomes (conclusions made in reviews by Webb, 1982 and Topping 1992, - though this was not exclusive to HE).

In terms of the efficacy of group work in developing group skills, it is true to say at present that this is more a matter of belief than substantive evidence. This

point will become clearer after an examination of the more positive findings reported in the articles under review.

Certainly, positive findings can be found in the group work literature. For example:

> *The individually completed group behaviour questionnaires, team discussions, the reading material supplied and the team log were all identified as being important in helping students to learn about working in groups.* (Garland, 1994 in Thorley and Gregory p.38)

> *The group-projects described have not only been instrumental in the development of team-working skills, but have provided opportunities for students to develop .... other personal skills ....* (Grant, 1994 in Thorley and Gregory p.134)

> *The following general conclusions were drawn .... group skills were considerably improved.* (Harris et al., 1994 in Thorley and Gregory p.138)

> *.... students comment that the (group based) unit has helped to develop their personal confidence, provided them with a better understanding of their interpersonal behaviour, led to changed responses in the group context and that they have been able to apply learning derived from within the unit to other relevant situations.* (Cuthbert, 1994 in Thorley and Gregory p.87)

These studies are problematic however, because they do not give sufficient indication of the data from which such conclusions were drawn. They appear to rely on student comments of some form and these presumably were questionnaire-based or anecdotal as there is no mention of interviewing or observational work. Whilst it would be unfair to dismiss such positive findings there is a need for published research to provide more direct evidence.

Likewise, other studies have reported generally supportive findings but have felt hampered by the lack of objective measures in their research (Kemp and Seagraves, 1995, Guzkowska and Kent, 1994). For example, in one of the more detailed articles, Kemp and Seagraves used the following statement in their student questionnaire.

'*During my course I gained a clear understanding of the factors involved in team working*'

Whilst it is an encouraging sign that 72% agreed with this statement it does not give sufficient information on the nature of the learning taking place. There is a danger therefore that positive but-not-detailed findings may be based on the assumption that students feel the experience of group work in (and of) itself must be beneficial. Whilst it is true that there are tremendous difficulties in the notion of an objective measure of group skill, neither does there appear to have been any substantive analysis of the more subjective student perception of learning.

When such attention has been paid it reveals some of the complexities of learning in groups and in particular the dynamics of undergraduate groups that appear to be influential. For example, Cuthbert (1994, not the same person as above) analysed students' views of their role in a group based unit and found that though they were positive about preferring the more active approach to learning they had also some reservations. There were concerns that strong personalities dominated groups, that too much time was spent trying to get together to meet and that some students did not take the group membership seriously.

Callaghan et al. (1994) similarly found that although students generally reacted in a favourable manner (to a series of questionnaires, n=31), students nonetheless had particular concerns when it came to group work. The chief concerns centred around the extent to which other members were prepared to participate in the group task and that it was seen to be a matter of chance whether the groups worked well or not. Abson (1994) found much less to be

positive about, though this article was based on student experiences of a specific method of peer evaluation. Nonetheless as peer evaluation is often recommended it is worth noting that Abson concludes by suggesting that peer evaluation appeared to generate 'dysfunctional behaviour' (putting others down, settling personal scores and so on) and quotes Campbell and Ryder's (1989) argument that

> It is crucial that teachers avoid putting students in situations that they themselves have not experienced and which they lack experience in handling. (Abson, in Foot et al. 1994, p.157)

The purpose of including such research is to show that not all the outcomes of group work are necessarily positive ones and that the experience of students in groups is shaped by the management of the project and the university milieu. These external factors appear to have a crucial influence on group dynamics which in turn are likely to shape the nature of the learning that is taking place.

These points are also made in a number of other texts. Garland (1994) concludes that group work needs careful planning of assessment strategies and resources in addition to the timing given to projects. Further, she suggests that learning outcomes need to be made clear to students and that staff need to be competent in dealing with the issues raised by group work. Her overall argument is rooted in an understanding of both the positive and negative potential of group work and suggests that it is a mistake to assume that staff and students have a common understanding of what it involves.

Parsons and Drew (1996) used structured group sessions and a questionnaire to evaluate a 2nd year undergraduate unit (n=31) in which students were given a variety of choices in terms of how they wanted to be assessed. The research was based on the understanding that assessment has a crucial influence on how students operate in groups and indeed evidence was found to support this. They found that students tended to focus more on other's behaviour and on logistical problems rather than on their own behaviour and ability to deal with problems. Assessment methods can foster this by only assessing the group's

product, and the study suggests that using a mix of product and process assessment may be needed. Poor organisation can also discourage inward reflection which supports the conclusions made above by Garland. They also suggest that a balance is required between student control and providing an effective structure for group work and that tutors need to be more encouraging about the use and development of skills.

In addition to the role of staff, Allen (1991) points to the role of 'being a student' in terms of learning about group skills. In her research into the development of a model of transferable skills she evaluated a number of courses which used group methods. She concluded that students in the second or third year of courses were self-conscious about practising communication skills with their peers. The crucial factor being a difference between what they saw as 'professional behaviour' and the more informal, social behaviour which was characteristic of their peer group.

2.4.6 The student learning milieu

The picture emerging from the research is that students' experiences in groups are critically shaped by a number of external factors. Whilst there is little in-depth research into learning in undergraduate groups, it is clear that whatever learning is taking place does so in groups that exist within larger social frameworks. Students are learning not in a social vacuum but in a university context in which their role as students, in addition to the skills and resources of tutors, influence the internal dynamics of groups.

A powerful influence on student learning therefore, is what Reynolds (after Parlett et al. 1977) refers to as the *learning milieu*. The learning milieu or learning environment encompasses all the influences described above and has been defined as:

> .... the social-psychological and material environment in which students and teachers work together. The learning milieu represents a nexus or network of cultural, social, institutional and psychological variables.

85

These interact in complicated ways to produce, in each class or course, a unique pattern of circumstances, pressures, customs, opinions and work styles which suffuse the teaching and learning that occur there.
(Parlett et al, in Reynolds, 1994, p.84)

Sharing much with the notion of organisational culture, the learning milieu forms the background rather than the foreground, is rarely examined but nonetheless ubiquitous. It is precisely that which is learnt through the incidental learning described by Marsick in the previous section. What becomes acceptable or appropriate in group work will therefore be shaped by the customs and practices of a given cohort of students on a particular course which in turn is shaped by the implicit values of staff, the institution, economic climate and so on.

Reynolds uses the notion of the learning milieu to argue the case for seeing groups as *open systems,* that is to say that learning groups are not detached or isolated from their social context. In an article reviewing studies of student group interaction, Webb (1982) also concluded that the characteristics of the individual members, the group itself, the setting and the interaction within it will be more fruitfully understood if they are seen as a system of relationships.

Thompson and McHugh (1991) add to the discussion by showing how groups can be seen as *sites of socialisation,* so that the social context, the culture of the organisation becomes internalised through participation in groups. An individual entering an organisation becomes attached to a role within it and through their interaction with others 'learns the ropes' of how to survive in that role.

Applying these lines of thought to student groups then, it can be argued that students in addition to their chosen subject will be learning what it is like 'to be a student'. The role of student is the particular *social identity* on offer to them. This in turn will influence small group work by the implicit rules about what is appropriate and valued within that role. Of course this argument is made more complex by the fact that the student body is more diverse than ever and it

should also be stressed that whilst there are many similarities in the use of group work it is by no means standard across institutions.

2.4.7 Summary

- Whilst there is a body of literature about learning in groups, it tends to be based on specifc types of T (training) groups where interaction is the explict focus of attention rather than a project or task.

- In T- groups, quite specific dynamics are seen to be crucial in encouraging learning - the provision of feedback, the feeling of psychological safety, freedom to experiment and so on.

- Whilst transfer is the objective, research suggests that the learning that takes place in T- groups is not long lasting. In general a picture emerges of a series of barriers to learning in groups and the transfer of that learning.

- The presence of others seems to inhibit trying out new behaviours.

- Cultural values create a sense of resistance to learning about how we interact, a resistance to observing others and the sense that experience is sufficient in itself.

- Research into student learning in groups has become more available in recent years. A number of studies report generally positive findings about group work though published work tends to lack detail both in terms of data analysis and the learning that occurred.

- Other studies report the difficulties involved in student group work and point to organisational factors such as the assessment and task design as well as problems in arranging meetings with other students.

- The concept of the learning milieu was discussed to help account for these difficulties as was the notion of the social identity of a student.

3.0 Methodology

3.1 Development of the research design

Introduction

This first section of the methodology discusses the development of the research design and the research understanding which underpins it. It addresses the assumptions that were made about the nature of knowledge, what it represents and how the world is known to both researcher and researched alike. Questions of epistemology and ontology need to be addressed because a focus purely on methodology, whilst indicative, is not a sufficient explanation of the major paradigm(s) influencing the research.

Questions of paradigm are explained at this point because they are crucial to understanding how this particular research developed. Initially, these paradigmatic assumptions were implicit to the researcher and it would be wholly inaccurate to present the research as if its underlying assumptions were clearly understood at the start. Indeed, to do so would be to deny much of the learning that took place.

Exploring and understanding assumptions is important in the social sciences because they allow sense to be made of the complex, often ill-structured situations which are characteristically studied. As Morgan (1983) quite succinctly puts it, *assumptions make messes researchable*. The way they do this is problematic of course, and the route to understanding the implications of such assumptions has not been an easy one. The process is not made any easier by the literature on the philosophy of social science research which frequently presents different 'basic' paradigms, using different terminology and at different levels of abstraction. Moreover, some writers present different paradigms in terms of a dichotomy, others as potentially complementary parts of a wider system.

This introductory section now continues with a discussion of how the methodology of this study developed and the underlying assumptions that

influenced the process. Its starts with a discussion of the evolution of the methodology, explaining how the topic was chosen and the influence of the author's previous academic experience in the discipline of Organisational Psychology. Following this, the initial influence of quasi-experimentation is described. It will then be shown how there was a shift away from the assumptions of quasi-experimentation and towards a more interpretive position. The shift in emphasis from quasi-experimentation to interpretation, gives rise to a potential for contradiction. To counter this, the research adopts a broadly pragmatic definition of social science which is explained towards the end of this section.

3.1.1 The initial design

I was awarded funding for this PhD study on the grounds of a very broad interest in the personal development of undergraduates. Having just completed an MSc (Organisational Psychology) dissertation on the transfer of training, I was curious to see whether organisational training methods had any place within HE in view of what employers seemed to be saying about graduates' lack of skills.

At this point my previous research in the field of organisational psychology was very influential. In both educational and organisational psychology the literature agreed that the transfer of skills was an under-researched area. Moreover, the literature on the transfer of training called for more fieldwork to be done, and for research to collect behavioural data rather than relying on trainees' perceptions of their training transfer. Whilst other researchers have found it difficult to gain access to measure behavioural change, I was in the position of being able to gain access quite easily. Students, after all, are the psychologist's favourite because they are accessible in large numbers and in a relatively predictable environment. The advantage of being able to predict and control the students' environment partly shaped the way this research focuses on learning and transfer within the university setting (i.e. from one student group to another) and not transfer from university to employment.

Mainstream organisational psychology then, strongly influenced the early basic design. The intention was to conduct a quasi-experiment in which I would observe group interaction behaviours in two cohorts of students on the same degree course, provide feedback and training for one cohort and measure the outcomes of this in a real-life setting. It was ambitious, structured, and met the requirements called for by the training evaluation literature.

The success of this plan was heavily dependent on the logistics of observing group meetings. In addition to the behavioural observations, therefore, I also decided to collect data by using questionnaires both before and after the students participated in their groups. The intention here was both to collect background information (to generate variables which might explain why transfer had or had not occurred) and also to try to measure the improvement of skills over an academic year.

I also decided to interview the students about their experience in groups. Again, the intention here was partly to generate variables, but to do so in a more detailed and student-generated manner than the questionnaires. The interviews also built into the design a certain flexibility and security. The interview method is flexible in that it can become more, or less, structured if needed. Interviews provided security in terms of data collection if the observations were less successful than planned. Whilst presented here as a rational choice, there is no doubt that as a naive researcher, I was also influenced by a less conscious drive to collect as much data as possible. The initial design of the research is represented diagrammatically below:

Table M1: Diagram of the initial research design.

Treatment group	Comparison group
Questionnaire	Questionnaire
SEM1 group project [meetings observed]	SEM1 group project [meetings observed]
Questionnaire + Interview	Questionnaire + Interview
Training	**No training**
SEM2 group project [meetings observed]	SEM2 group project [meetings observed]
Questionnaire + Interview	Questionnaire + Interview

The behaviourally-based training evaluation aspect of the design was strongly literature-led. It was consistent in itself as it drew on a quasi-experimental perspective. In addition to this, however, there was also data collection from a student-generated (as opposed to researcher-imposed) perspective. Ultimately this divergent approach proved to be a successful strategy, but, as Giorgi (1985) argues, it does mean that the research was initially based on a *mixed discourse* of scientific perspectives which may be incompatible. The purpose of the next section is to explore and resolve this tension.

3.1.2 Quasi-experimentation

The initial design of the research then, was predominantly quasi-experimental, using a *between group* design. In terms of surface features, quasi-experiments (according to Cook and Campbell 1979) differ from experimental work because they rarely occur in a laboratory setting or involve the random assignment of subjects to the different research treatments under investigation. Like experiments though, they are still concerned with probing causal relationships between treatments (independent variables) and measured outcomes (dependent variables). They also typically involve one or more treatments with

93

measures being taken both before and after. These distinctions need further exploration.

As with other quasi-experimental work, the present research interest was in conducting empirical work in the setting to which findings would be most generalisable. The interest was not in probing causal relationships in a laboratory setting. To tightly control the subjects of the study would have been an unnecessary trade-off against the naturalism of the setting I was interested in. For, unlike the positivist experimentalist approach, quasi-experimental work does not purport to describe a complete causal system in a bid to achieve perfect prediction of the total behaviours within that system. Rather, the goal of this research in its initial stages was to identify only those aspects of the system which might be making a difference to specific outcomes (the variables influencing learning and transfer), even if this only meant looking at a small part of what others would see as a larger system.

This places quasi-experimental work in post-positivist thought, using the account of this provided by Guba and Lincoln (1989). Quasi-experimentalists have a modest approach to causality believing that the external world is *probabilistically ordered* in its essence (Cook, 1979). So, rather than working with the premise that full causal explanations of reality are achievable, the assumption is that we should try to identify a few dependable, but probable causal relationships. An objective reality is still assumed to exist therefore, but the paradigm is post-positivist because of the belief that reality can only be imperfectly known. The argument here is that both the limitations of human intellect and the intractable nature of social life mean that all claims about reality should be subjected to critical examination (Guba and Lincoln, 1989). The aim is to apprehend reality as closely as possible but accept that this cannot be done perfectly. This ontological position has also been labelled as *critical realism* (Cook and Campbell, 1970).

Questions of epistemology address the relationship between the knower (or would-be knower) and what can be known. In term of quasi-experimentation,

94

results always need to be held tentatively because of the *probabilistic* nature of causality. Cook (1979) presents three epistemological pillars which reflect this. The three pillars are concerned with objectivity, the public and critical discussion of results and with the verification and falsification of findings.

In terms of objectivity, the possibility of theory-neutral measurement and observation is denied. The observations of a researcher are never pure reproductions of external reality but are shaped by their cognitive and motivational characteristics. Likewise, individual methods have their own limitations and fallibilities. However, quasi-experimentalists do not abandon the notion of objectivity - it remains, but as a form of ideal. Greater faith is placed on those findings which have been replicated by using different methods, and by different researchers. Objectivity is therefore equated with inter-subjective reliability and also with whether the findings fit existing theory, provided that this process has been critically examined.

Public criticism of results is also important because of the emphasis on falsification of results in addition to their verification. Quasi-experimental work holds its results as tentative until all other currently available interpretations of the data can be ruled out; hence public discussion of results is crucial to the process. Unlike its experimental counterpart, the lack of controlled laboratory conditions means that there are many threats to the proposed causal relationship.

In terms of methodology therefore, quasi-experimental work values the role of *critical triangulation* (Cook 1979) or *critical multiplism* (Guba and Lincoln 1989). Providing it is done in a critical manner, the use of different methods serves to reduce the limitations of any one single method, and also provides the basis for generating different interpretations. The inter-reliability of the findings indicates the extent to which alternative interpretations can be ruled out and indicates the confidence in which findings can be held (albeit tentatively). This has to be *critical* triangulation because the researcher can never be in a position of having used (or ruled out the use of) *all* alternative methods. However, the

intention is to *probe* causal relationships. Quasi-experimental work is not designed to test them rigorously.

The present research, therefore, owes its initial design to the perspective of quasi-experimentation within the broader paradigm of post-positivism. The intention was to probe causal relationships within an open, naturalist setting by asking, for example, what variables most probably influenced the success or failure of the training to transfer? The use of different methods was appropriate because of the different perspectives that would be generated by each of them. In line with other post-positivist influences there was also an element of discovery in the research, it was not simply built on a series of pre-determined hypotheses.

3.1.3 The shift towards interpretivism

After some quite lengthy investigations, I was informed of a unit on the full-time Building Surveying degree course at Sheffield Hallam University in which students took part in an equally weighted group project in each semester. The students were also divided evenly into two separate tutorial groups, thus providing an ideal basis for the study.

The first significant change in the research design came about as a result of the attempts to observe group meetings. Very briefly, the central aim here was to observe enough group meetings to be able to provide half the course with feedback on their behaviour in groups. However, not only was the process of observing much harder than anticipated, but there were severe difficulties in gaining access to meetings. In short, not enough meetings were observed to be able to give useful feedback.

In addition to this, the attempt to provide feedback and training had to be abandoned because of an oversight in terms of the timetable. Students missed one week's lectures because of graduation ceremonies for HND students,

96

which in effect meant that there was not enough space to provide a training input without further disruptions to their normal course provision.

A further complication arose in the second semester in that in order to accommodate changes in timetables and room allocation, the students were split into three tutorial groups rather than two (the original treatment and non-treatment groups). The neatness of the early design then, became significantly eroded over the year. Of course, it is for such reasons that empirical field evaluation of training and transfer is rare.

At the same time as these practical difficulties, I was also learning a great deal about the nature of student groups. This increased understanding led to a critical re-examination of the appropriateness of the quasi-experimental approach. My assumptions about what students would be learning (i.e. quite specific interactive / group meeting skills) were not necessarily what was important as far as the students were concerned. So, the re-examination here, centred around the critiques of traditional transfer research which argue that it is typically the experimenter who imposes/defines the learning which is to transfer.

In light of this argument, it began to feel quite inappropriate to work with skills from a pre-determined (imposed) checklist which did not necessarily capture what was important about group work as far as the students were concerned. For example, much of what seemed important for the students in group work occurred outside the observed meetings (in terms of producing work on time or being reliable, for example). Doubts over practical and epistemological appropriateness therefore, led to a continual and critical review of the quasi-experimental aspects of the initial design.

In contrast, the interviews at the end of the first semester felt much less problematic, and were very revealing of what being in a group was like for the students. It was during the interviews that I felt I was coming to a greater personal understanding of the topic. In contrast to the imposed checklist (and to

an extent some of the questionnaire questions) the interviews were far more revealing of the role that group work played in their lives as students and the issues that were important to them. The student-generated and discovery aspects of the research, therefore, began to appear more useful and appropriate.

For the sake of consistency, further observations were carried out using the checklist, but in the second semester less structured notes were also taken during the meetings. Likewise, in the design of the final questionnaire I included more open-ended questions about students' attitudes towards group work and their perception of skill improvement. The final interviews were also less structured, longer and wider ranging than the first ones.

This shift in emphasis, which began during the second year, led to the decision during the final year of the research to analyse the interviews in depth and give them priority as data. It is important now to assess the implications of this shift.

In terms of the development of the present research, the initial design was largely based on quasi-experimental assumptions, in term of analysis, however, a more *interpretive* perspective was adopted. Whilst this may be methodologically untidy, it also raises the serious question of whether this shift in emphasis represents a contradictory / untenable position.

The answer to this question is to be clear about the social scientific assumptions that are being made.

At the level of method, a shift in emphasis is not greatly problematic, as questions of method are secondary to questions of paradigm (hence positivist and anti-positivist paradigms can both use qualitative methods). The use of different methods in this research can be seen to gain coherence during the analysis stage as they are united through my *interpretation* of them. My observations for example, are not treated as accurate reflections of an objective

reality but are filtered through my ways of looking at the world, the same holds for the interviews and qualitative responses on the questionnaires.

What has to be recognised is that the move towards an interpretive position represents an ontological shift from *critical realism* (which still assumes there is a reality out there) to the view that there is no objective culture-free reality to be sought no matter how imperfectly this is done.

This position became more influential during the analysis stage of the research as I increasingly saw *understanding,* rather than *prediction,* as being the central aim of the study. Coming to a position of understanding is the central feature of interpretive work rather than the probabilistic prediction of quasi-experimental work. Indeed, within the hermeneutical tradition, understanding is a fundamental aspect of what it is to be a human being.

I began to recognise that *making sense* was fundamental to what I was trying to achieve not only with the subject matter, but also with the process of research itself. Likewise, the interviews were the by-product of the students making sense of my questions, which they did on the basis of the sense that they had made of their own experiences!

Within this circular process of making sense (in which one returns to an original position enriched) the researcher cannot approach the data in a pressuppositionless mode. As Heidegger (1962) argues, when we encounter something in the world it is always on the basis of our existing knowledge of the world. Furthermore, interpretation also depends on standpoint, so that the meaning of 'something' has to be seen in terms of the relevance of that something, in this case to a research project.

So, whereas quasi-experimentation relies on replication, critical triangulation and inter-subjective reliability, intrepretive approaches give meaning a much more negotiable position. Interview data for example:

.... is to be understood as an account of the way certain situations are interpreted or understood (without any notion that, behind such understandings, fluid and of varying certainty though they may be, there is any 'true' reality which could be uncovered with appropriate questioning). (Ashworth, 1996, P.18)

This now leads on to the question of generalisability. The question that might be expressed here is; if this is just my interpretation, and meaning is negotiable, how can claims be made about generalisability? Well, firstly the question is too dismissive. To say that meaning has a more negotiable position is not the same as saying that meaning is random. The process of interpreting students' experience was systematic, arduous and enriched by spending time in the student milieu.

Secondly, it is not the aim of this research to make demonstrable claims about generalisability. However, the aim of the research is still to be useful and applicable. The point is, that judgements about usefulness and applicability will be made outside this research - making mine a pragmatist view (Morgan, 1983). Ultimately then, there are different routes to achieving usefulness and different ideas about who has the responsibility for making such claims. Quasi-experimentation would have taken the route of making probabilistic judgements about causal group work variables. An interpretive approach takes the route via an increased understanding of the sense that students make of group work and requires others to be the judge of its generalisable nature.

In presenting this discussion then, I have tried to explore the basic assumptions which shaped the research. It would be naive to assume that this has been a complete discussion, perhaps even more naive to assume that it ever could be. In writing this thesis however, I have continuously felt a tension between the need to present a coherent piece of research, whilst at the same time acknowledging my own learning in terms of implicit assumptions and possible contradictions.

Moreover, there is a significant tension in that the 'finished' thesis has to be complete, whilst at the same time my understanding of the subject and process of research is itself developing. I am indebted here to Morgan's (1983) text in which he reassuringly expresses the view that one has to move beyond the need to categorise, classify and label the different types and methods of social scientific research and come to see research as a process of *engagement.* In this sense then, whilst I have felt the need to label my own research assumptions, my interest in the classificatory 'map' is now moving towards interest in the 'territory'.

3.1.4 Summary of the research design and data collection

As described above, the eventual design developed but still retained the basic methods of data collection as the original design. The major difference is that there was no distinction made between the students in terms of a control group and treatment group, as no training was provided. All students completed questionnaires on three separate occasions; before the start of the first semester project (SEM1), after SEM1 and after the second semester project (SEM2). As many group meetings were observed as possible and as many students were interviewed as possible after both projects had finished. Data analysis focused on interviews with seven students who had been interviewed on two occasions (after each project). The total amount of data collected is shown (in brackets) below:

Table M2: Summary of data collected.

Summary of data collected
Observations of meetings using structured checklist and own notes (23).
Questionnaire 1 completed before projects began (42). **Questionnaire 2** completed after the SEM1 project (42). **Questionnaire 3** completed after the SEM2 project (39).
Individual Interviews conducted after SEM1(13) , after SEM2 (15). 7 students were interviewed in both semesters.

3.2 Course details

The course chosen as the basis for the research was the full-time BSc. (Hons) Building Surveying at Sheffield Hallam University (SHU). More specifically, the research used the second year (1995) cohort of students on this course whilst they participated in group projects for the year-long Construction Technology unit. The course was felt to be particularly appropriate for the research for two main reasons.

Firstly, the course is vocational and stresses the role of personal skills in its graduates. In its goal of developing *practical and adaptable* graduate building surveyors (School of Construction, SHU, 1995), the course has adopted a strategy of integrating skills development into its separate units. The use of group work was nothing new to the course, it was not something imposed on the students because of the research and the students had some familiarity with group work from their first year.

Secondly, the students work on two different group projects during the year. Moreover, the projects are based on very similar tasks (in terms of structure, assessment, weighting, duration); what changes each time is the membership of the groups. With the task remaining relatively constant, the intention of the unit is that emphasis is placed on the students learning how to co-ordinate their work with different people.

There were 48 students on the second year of the full time/sandwich Building Surveying degree. 45 of these were male, 3 female.

3.2.1 The Construction Technology unit group projects

The unit tutor determines group membership of the projects. The criterion for membership is that each student should not work with someone that they have worked with before on another group project. Groups have four members.

When the students started their second year, they had already worked on a similar type of group project in their first year. What changes each time is the type of building they are to design (for example, in SEM1 this was a low-rise medium span building, in SEM2 it was a tall building). Each group also gets a slightly different emphasis in terms of their notional clients' needs.

The nature of the task given to groups can have a considerable effect on group dynamics (Parsons and Drew 1996) so it will be described here in some detail. Students are given a project briefing which contains the following six sections:

1. **Introduction** - In this section, the aim of the project is described as being; *for designated groups of students to work on a task to produce a single scheme document and in doing so to develop skills in construction technology, design and core skills including group work and co-ordination.*

2. **The project** - This section outlines the details of the project. It includes an overview of the building site and the type of building that the fictional client has permission to build. Details are also given about vehicular access and specification of the type of construction methods and materials that will be needed (e.g. *the client wants solid reinforced concrete floors, steel portal frames* and so on).

3. **The brief** - Though each group receives the same basic brief, the precise details of it are varied so that each group is working on an original building. For example, one group may be instructed that their client wants the building to be user-friendly, flexible and low cost, another group that the building should use materials with low environmental impact, be suitable for single occupancy and of a high cost. Each group also receives a map of the building site/area.

4. **Project outcomes** - This section outlines the separate pieces of work that the group must complete for the client (but actually for assessment). These include four reports (on different aspects of the building and building process),

four lots of drawings or sketches (again on different views of the building), and a summary/progress report. The intention here then, is that each group member should work on one section of the report and on one aspect of the drawings. In order to clarify this process, each member of the group signs a learning contract that states which group member is working on which particular aspect of the building. Once agreed, the learning contract is then signed by the tutor.

5. Allocation of marks - 70% of the total marks awarded are for individual aspects of the final scheme. This breaks down into 25% for the report and 45% for the drawings and sketches. 30% of the marks are awarded for group aspects which breaks down into; 10% for the summary/progress report, 10% for an oral presentation of the scheme at the end of the unit and 10% for the coherence of the group submission (i.e. all reports and drawings must be submitted as a group submission). In the briefing, each student is given more detailed criteria for assessment.

The assessment breakdown makes the project look more individually based than is intended. To complete the project, however, the sections of the building are divided up so that in order for one student to be able to complete their section, they must have information from another student. The end result has to be a coherent building scheme, and to achieve this, students have to interact with each other and keep each other informed of changes and developments.

6. Programme - This section provides a brief indication of the timetable that students should be working towards. In weeks 1-2, they should be familiarising themselves with the brief and working on the learning contract. In weeks 3-8 they should work towards completing the scheme, having regular meetings and seeking guidance from the unit tutor when necessary. In weeks 9/10 they should be ready to present their scheme orally to the tutor and the rest of the class.

3.2.2 Informing students about the research

At the start of their second year, students were informed by the unit tutor that a PhD research student was interested in using the unit as a case study for looking at the development of group skills. I was not present at this session as the tutor wanted to ask the students if they had any objections. None were raised.

In week 2, I introduced myself to the students in person by giving a brief summary of why I wanted to study their particular unit and the methods I proposed to use. Each student was given a sheet of A4 with a summary of the research on it. This paper included information about who I was, where I could be contacted and what the research would entail for them. It also stated that the data collected was for use only in a PhD thesis and would not be shown to the tutor in a way in which they could be individually identified. Independence from the tutor was an important issue to stress, whilst at the same time acknowledging that the research had his full backing.

The next three sections address the different methods used: observations, questionnaires and interviews.

3.3 Observations

3.3.1 Selecting the observation checklist

The use of structured behavioural observations has to be seen in light of the original research design which was to provide objective behavioural feedback and training to one cohort of students. According to the literature on evaluating training-transfer, having a behavioural component is a desirable but rarely achieved part of the evaluative process. Influential models of training evaluation, such as Kirkpatrick's (1979), suggest that evaluative work can take place at a number of different levels. The easiest data to gather, for example, is at the level of the trainee's post-training reaction. The more difficult, more objective data, concerns overt behavioural measures of training transfer.

In the initial design of the present research then, it seemed important to include a behavioural component. A method was needed to systematically record overt behaviour in student meetings. This objectively recorded data could then be fed back to students and changes in behaviour in their next group could be measured.

To design an original checklist for the research would have been too time-consuming. Any checklist needs to be tested repeatedly to ensure that the behaviours are appropriate to the situation and are adequately described. For this reason, the method eventually adopted was the use of an existing behavioural checklist designed by Rackham and Morgan (1977). Although there are many checklists to be found in the literature, few have been designed on the basis of repeated empirical testing, the major exceptions being Bale's (1970) Interaction Process Analysis (IPA) and Rackham and Morgans'.

The difference between these two major choices is essentially that whereas Bales proposes IPA as a pre-structured *system*, Rackham and Morgan advocate behaviour analysis as an *approach*. That is to say that IPA is intended to be used off-the-shelf to record group interaction, whereas behaviour analysis

is intended to be used to devise new context-specific checklists. For example, Rackham and Morgan have used behaviour analysis to produce different checklists for analysing telephone conversations, customer care interaction and selling techniques. Significantly for this research they have also designed a checklist for use in analysing workplace meetings.

In this research then, I have not used the technique of behaviour analysis as it is intended, as this would have involved developing my own checklist specific to Building-Surveying students' group meetings. I have, instead, adopted a pre-determined checklist but one which is nonetheless based on empirical work with work-place meetings. Indeed, Rackham and Morgan describe how the checklist was revised five times over as many years before it met the criteria that they had established for it.

The criteria they chose for the checklist were that it should include behaviours which are: possible to change, meaningful to both observers and trainees, possible to record reliably, differentiate between each other and be related to other indicators of a person's effectiveness. The checklist comprises thirteen behaviours which are described in the table overleaf:

Table M3: Categories, with definitions, of the behaviour analysis checklist.

Proposing behaviour which puts forward a new concept, suggestion or course of action (and is actionable).
Building behaviour which extends or develops a proposal which has been made by another person (and is actionable).
Supporting behaviour which involves a conscious and direct declaration of support or agreement with another person or his/her concepts.
Disagreeing behaviour which involves a conscious, direct and reasoned declaration of difference of opinion, or criticism of another person's concepts.
Defending / attacking behaviour which attacks another person or defensively strengthens an individual's own position.
Blocking / difficulty stating behaviour which places a difficulty or block in the path of a proposal or concept without offering any alternative proposal and without offering a reasoned statement of disagreement.
Open behaviour which exposes the individual who makes it to risk of ridicule or loss of status. This behaviour may be considered as the opposite of defending / attacking, including within this category admissions of mistakes inadequacies providing that these are made in a non-defensive manner.
Testing understanding behaviour which seeks to establish whether or not an earlier contribution has been understood.
Summarising behaviour which summarises, or otherwise restates in a compact form, the content of a previous discussion or consideration.
Seeking information behaviour which seeks facts, opinions or clarification from another individual or individuals.
Giving information behaviour which offers facts, opinions or clarification to other individuals.
Shutting out behaviour which excludes, or attempts to exclude, another group member (e.g., interrupting; talking over).
Bringing in behaviour which is a direct and positive attempt to involve another group member.

3.3.2 Pilot work

Before the checklist was used to observe actual group meetings, its use was piloted on video-recordings of group interaction. The videos in question came from another research project within the university, each featured five students working together to solve a practical dilemma (how to remove a pot of 'treasure' from an island using only a limited number of utensils and without touching the 'water' around the island.) The purpose of the pilot work was to gain familiarity with using the checklist and to establish an acceptable level of test/retest reliability.

To establish a level of reliability, the checklist was used to record the students' behaviour on the videos. Two videos were analysed over a period of several weeks. To minimise the effects of rehearsal, a few days were left before watching the same video again. Initially, just one of the videos was analysed and this was done very slowly (using the pause button to clarify points) until a high level of reliability between repeated attempts was reached.

As a measure of agreement between the observations, Spearman's rank-order correlation (ρ) was used. This procedure uses a simple calculation, in this case to show the level of agreement between one analysis and another, in terms of the rank-order of the behaviours. With the slow analysis, the rank-order correlation reached an acceptably high level of $\rho = .991$.

Once this level had been reached, the other video was watched in real time, to gain familiarity with using the checklist at speed. The third and fourth attempt at this were again subjected to Spearman's *rho* and again reached an acceptably high level of $\rho = .891$.

3.3.3 Gaining access to meetings

In order to be able to provide accurate feedback, enough observations needed to be made of each student so that the feedback could be based on a number

of meetings rather than just one or two (in which they may have been uncharacteristically quiet or talkative). In an attempt to ensure that this occurred, a system was established by the tutor whereby students were to write down the time and place of their next meeting on a timetable posted on a notice board to which I had access. Furthermore, a specially designated meeting room was made available to the students in the form of the School of Construction's resources room. This room is home to a technician but is large enough to house a large table for meetings, photocopier and some trade journals.

The target at the start of the first semester (SEM1) was simply to observe as many meetings as possible, with the expectation that each group could be observed three times. In total, this meant about 36 observations per semester. It soon became apparent however, that though the tutor and I were proud of the system we had established, it was not being used by the students as well as we had anticipated. Several reasons help to explain this.

Many of the groups did not have formally pre-arranged meetings held at the same time and place each week. Rather, these groups met as and when they felt the need. As such, they were unable to write down the time and place of their meeting in advance. In addition, meetings were occasionally cancelled at the last minute. Once or twice, not enough of the group arrived to make it worthwhile for them to hold a meeting. It also seemed to be the case that many meetings were held quickly and informally at the end of lectures and tutorials.

In retrospect, this reveals interesting details about the nature of student group meetings, that they are often ad hoc and not necessarily held in the type of environment I would have expected. At the time however, this was a frustrating process because of the uncertainty and amount of wasted energy trying to observe meetings that never happened.

It was clear at the end of SEM1 that insufficient observations had been made to provide reliable and meaningful feedback to the students. This, combined with an oversight on the tutor's behalf which led to the loss of one week's tutorials,

resulted in the decision not to proceed with the intended design of providing feedback and training. For the sake of consistency, however, and because the data might become useful for other reasons, observations continued in the second semester (SEM2). In total, 23 meetings were observed.

3.3.4 Use of the checklist

Using the checklist to observe real meetings was not easy, even after the practice with the videos. The real meetings were much more dynamic affairs which did not have the advantage of a volume or pause switch! The first few meetings in particular were immensely difficult and tiring to categorise. Just to recap, the process involved categorising each verbal behaviour as it occurred. This meant placing a tick in the appropriate row of the checklist (according to which of the thirteen behaviours it was), and at the same time making sure that the tick was under the correct column according to which student had spoken. After the first few meetings the process of negotiating the layout of the checklist did become easier. What remained difficult, however, was the process of deciding which category the behaviour belonged to.

The problem of categorising has to be put into perspective. For the majority of the time, ambiguity over the categories was not an issue. However, most meetings involved a number of ambiguous phrases which were sufficient in number to lead to a questioning of the usefulness of the instrument. A typical example is the following, where in one meeting a student said:

"what colour should the roof be?"

My initial categorisation of this was that it was primarily a *proposing* behaviour, the student wanted to propose that the group discuss a course of action. However, the difficulty here was that the way in which this was said (in terms of non-verbal intonation and gesture) also suggested that it had a secondary purpose of *bringing in* other members of the group into the discussion.

Likewise

".. we've got to know what size it is haven't we?"

Primarily this was seen to be *proposing* a course of action ('let's discuss sizes') but it also felt as if a secondary or additional purpose was to *check understanding* ('is size important for us to know'?). So the problem here was that the checklist forces the behaviour to be put into one category. However, my concern at the time was that a skilful student would be able to combine meanings and intent in one phrase. In the first example of the colour of the roof, the student could have said:

"Right, I want one of you to decide what colour the roof is going to be"

This choice of phrasing would still be categorised as *proposing,* but it would probably create a different effect on the other members of the group. This problem of multiple meanings and intent was, then, a consistent feature of the observations.

As part of an attempt to resolve this problem, a number of the categories on the checklist were divided up. The intention here was to clarify distinctions which seemed particularly important to a study concerned with group skills. For example, in terms of the *proposing* category, a distinction was made between proposals primarily concerned with the task, and proposals which were concerned with the group's progress or work as a whole. So for example, a student might suggest that the group arrange a meeting for the following week (*proposing- group)* or suggest that the building should use wood from renewable sources (*proposing - task).*

Other similar distinctions were made in order to record the extent to which groups were discussing their own processes as well as their task. The *supporting* category was divided into two to distinguish between minimal shows of support (such as a 'yeah' or a non-verbal 'uh-huh') and more elaborate

support (such as 'that's a good idea because ...'). An additional category of *off-task talk* was also created so as to include a record of non-task related discussion (talk about social life for example). The distinctions made are shown in the table below:

TableM4: Revisions made to the Rackham and Morgan checklist during observations.

original category	revised category
proposing	proposing - task proposing - group
building	building - task building - group
supporting	supporting - full supporting - minimal
testing understanding	testing own understanding testing others' understanding
summarising	summarising group progress summarising own work summarising task

3.3.5 Practical difficulties in using the checklist

The majority of meetings were observed in the Resources Room which has a table large enough to accommodate a group of four/five with the researcher at the other end of it. In the main, this proved to be quite acceptable as I was near enough to hear but far enough away not to feel intrusive. However, there were frequent disruptions during group meetings which caused quite substantial chunks of interaction to escape categorisation. Disruptions came from a variety of sources: from other students who came into the room to use the facilities, from the technician in the room receiving visitors, from plumbers examining the radiators, building noise and so on. Whilst irritating at the time, these conditions were the ones in which many students met and so it was useful to have recorded this fact. In addition, a number of meetings were observed in the library and other rooms which were far from convenient for them to meet, let alone for me to be able to concentrate to observe them.

A plan to use video-recordings of the meetings was also subject to a number of practical difficulties. The intention here had been to record some of the early meetings in order to have a mechanism for testing the reliability of the observations. Initially, the use of the video was curtailed because the technician in charge of the video had not sought consent from the technician who was based in the Resources Room. This caused a certain amount of resentment and brought an element of work-place politics into the research. A total of 6 meetings were recorded in this way, with the video camera placed out of sight (students' consent had been obtained). As the interviews took priority as data, the videos were not subjected to any analysis.

3.3.6 Effect of observer's presence on group meetings

One of the key concerns about observing the students' meetings was the effect that my presence might have on them. The approach I adopted was to try to be seated before the meeting started and avoid making eye contact or verbal acknowledgement when the students arrived. Having to concentrate on the checklist also ensured that I was looking at my clipboard rather than staring at them. It was not always possible to maintain a detached presence however, nor am I sure it was desirable. Students would occasionally ask me how things were going, and in turn I would ask them in reply.

As far as I could be aware, I did not observe any overt indication that students were monitoring their behaviour because of my presence. Obviously this is a difficult area, so during the interviews I asked the students what effect they thought my presence had had on the meetings. Their responses generally were that they felt I had not influenced what they were doing, that they just got on with their meetings and were not aware of 'putting on an act' in any sense.

However, one student did suggest that groups had possibly had more formal meetings because the resources room had been made available. Another student felt that the act of writing the times of the next meeting was reassuring, in that having a record of the meeting possibly made full attendance more likely.

I was also aware on one occasion during a meeting that a student was saying something which was for my benefit (he kept repeating the name of a group member who was consistently not attending meetings).

3.3.7 Unstructured observations

In addition to the structured checklist above, a series of un-structured notes were taken during the meetings. During the first semester, the notes were ad hoc in nature and usually concerned with the problems of categorising verbal behaviour. During the second semester, it will be recalled that a shift in emphasis occurred in which less attention was paid to the rigid imposition of the researcher's own questions/checklists and more on the meaning that students generated themselves about group work.

For this reason, the SEM2 notes were more detailed and included small vignettes about significant events (a student leaving a meeting unexpectedly) as well as the more mundane matters (topics of discussion, seating arrangements). These unstructured notes were not intentionally built into the research and so appear rather unsystematic as a method. However, if one accepts that a methodology can develop, the unstructured notes were an essential tool in terms of recording what could not be captured on a 13-point checklist.

An example of the notes taken during a group meeting observation can be found in Appendix 1.

3.4 Questionnaires

In total, three different questionnaires were used in the research. One was administered before the students started their second year group projects. One was administered after the first semester project (SEM1) and the third after the second semester project (SEM2). The major purpose of this section is to describe the questionnaires and to explain the reasons for asking the questions they contained. Before that discussion however, it is worth discussing a few general points about the questionnaires.

3.4.1 Pilot work

The purpose of the questionnaires was to obtain factual and attitudinal data from the course members as a whole. Questionnaires were used as a method as they allow these aims to be met relatively quickly and were the most effective way of ensuring that data was collected from as many students as possible.

In order to check the initial questionnaire format, pilot work was conducted with twelve students who had been involved in group projects on a different course. The twelve were asked to complete the questionnaire and discuss their reactions to it afterwards. The main finding from this exercise was the difficulty they experienced in answering direct questions about roles in a group, or in trying to express the factors that are most salient in determining their effectiveness in a group. To overcome this, questions about effectiveness on the research questionnaire were asked in a comparative format, by which is meant that students were asked to compare their current group with previous group projects. This comparative format makes the question more tangible, opening up for the student a store of examples from previous experience.

3.4.2 Design issues

Careful attention was paid to the design of the questionnaires to ensure that as well as being pertinent to the research aims they were also attractive and interesting to complete. The sequencing of the questions was such that impersonal questions were asked first, then gradually more attitudinal questions were asked. The style of response was also varied to avoid questionnaire fatigue.

As far as possible, questionnaires were unambiguously worded and often structured so as to encourage free-response answers. The students were clearly instructed that the researcher was not interested in hearing certain answers and that there were no right or wrong answers. The confidentiality of their responses was also assured. At the end of the questionnaires, students were given the opportunity to make 'any other comments' and were thanked for their time and honesty.

3.4.3 Administration and completion rates

The first two questionnaires were completed during class time with the tutor's permission. This had the advantage of securing 42 complete responses each time, a figure which represents an 87.5% return rate. Whilst completing the questionnaires, the students were asked to sit apart from each other as some of the questions were of a personal nature. With the third questionnaire there was not enough time during class hours for it to be completed by every student. A number of questionnaires were therefore mailed which resulted in the slightly lower 81.25% return rate (39 completed questionnaires).

3.4.4 Questionnaire 1

Questionnaire 1 (Q1) is divided into 2 sections:

Section 1 - *background information.*

The purpose of this section was to collect general background information about the students, their age, sex, route onto the degree and so on. It will not be discussed in detail here. A copy of the questionnaire can be found in Appendix 2.

Section 2 - *experience of group work*

In this section, students were asked a variety of quantitative and qualitative questions about their previous experience of group work. The section started by asking how many group projects they had been involved in whilst at university and the average length of these. It followed by asking them to rate their overall experience of group work (on a 1 = negative, 10 = positive scale), and explain the rating in their own words.

This section also contained two questions designed to elicit the students' perceptions of what constitutes effective group work skills and qualities. The intention here was to provide a counter-balance to my use of a pre-determined checklist, which in a sense, represents an imposition of what the salient behaviours/qualities are. Responses from this section were used to form a student-based checklist for the next questionnaires, on which they rated themselves and their peers on behaviours which they had collectively said were important. The two free-response questions used for this purpose are:

> *What are the important skills or qualities that group members need in order to be effective in group work?*
> *What things do people do that hinder your performance in group work?*

There is a clear overlap in these questions but this was an advantage in that whilst the first question produced some quite vague and broad responses (typically 'communication') the second produced more specific responses based on previous incidents (e.g. 'keeping information to themselves').

To produce the student-generated checklist, responses to these questions were pooled. They were then subject to a cyclical process of content analysis in which all similar responses were categorised (e.g. is the response mainly to do with punctuality, or giving feedback to others etc.) and counted. In order to produce a manageable checklist, categories were re-grouped and reduced so that the vast majority of responses could be included in one of the seven final categories shown below:

Table M5: Seven student-generated effective group behaviours

group behaviours
Attending meetings / being punctual
Producing work of good quality
Co-ordinating your work with others
Listening to what others said
Giving positive feedback to others
Paying attention to deadlines
Encouraging a sense of team spirit

The final question,

> *What were your initial reactions when you found out that you would be doing a group project for this unit?*

encouraged a spontaneous response in an attempt to record the ways in which they talked about group work and the prospect of it. Responses were eventually analysed by categorising their general sentiment, i.e. was the response generally positive, negative or more non-committal in sentiment?

3.4.5 Questionanire 2

The second questionnaire is divided into four main sections, entitled:

number, duration and location of your group meetings

what you did in meetings

what you learnt about group work

performance in the group

'Number, duration and location of group meetings'

In this section, the intention was to collect data about the organisation of meetings throughout the SEM1 project. Little is known about what happens when tutors leave their students to work in groups and so it was important to collect information of this nature.

The range of information asked for included the amount, duration, location and spread of group meetings over the semester. In addition, I wanted to find out how many students were prevented from attending meetings for legitimate reasons, as failure to attend meetings was raised as an important issue during the pilot work.

'What you did in meetings'

This section refers to the students' estimation of how often they behaved in the ways specified by the Rackham and Morgan (1977) checklist. The use of this question has to be evaluated in light of the original research aims of providing feedback and training. A fundamental part of the training process (advocated by Rackham and Morgan) was to be the provision of feedback to the students on the behaviours observed during meetings, contrasted with their own estimations of what they did. For Rackham and Morgan, the provision of objective feedback is crucial, particularly if the feedback is based on behaviours which can be changed.

With this in mind, the students were given the following instructions.

Overleaf is a list of some of the main things that people do in group meetings. How far does each item describe what you personally did in your group meetings? Read through the list and answer by using the 1-4 scale provided:

4 = This is something I often did in our meetings

1 = This is something I rarely did in our meetings

The behaviours were presented in table format and were re-phrased from the original descriptions to make them more accessible. Next to the brief description, students were asked to circle the appropriate number on a 1-4 scale. A 1-4 Likert scale was used in an attempt to avoid the tendency to tick central scores.

' What you learnt about group work'

The great advantage of the research design is that students were taking part in two, consecutive, similarly structured group projects. This design allowed data to be collected about what students thought they would try to do differently in their next group, and then to ask them later if they actually did what they thought they would do. This section, then, was an attempt to examine what they had learnt about effective group work from the SEM1 project and whether this transferred to the SEM2 project.

Two free-response questions were asked, one to elicit change at the level of the group, and one to elicit change at the individual level:

1. From your experience of being in the present group, what would you encourage your next project group to do in order to be effective?

2. Besides encouraging the above, what will you personally try to do differently in the next group project?

To analyse this data, the same cyclical process of content analysis and theme generation was used until all the responses could meaningfully be placed under one of a small number of main categories.

'Performance in the group'

The intention here was to try to measure whether skills had increased during the year. To do so, a scale was devised using the seven student-generated group skills elicited from the first questionnaire. Students were asked to rate themselves and their fellow group members on the seven behaviours. The final measure then, was based on combining the students' self and peer evaluations.

The advantage of this question is that the criteria for effective behaviour were generated by the students themselves. Furthermore, the measure of skill is based on both self and peer evaluation. The question used a four point scale in which: 1 = did this rarely   4 = did this often.

The use of this question however, revealed two major flaws. Firstly, in order to act as a useful measure of skill, the question should be able to discriminate between students (it should produce a broad range of scores). However, students were reluctant to use the whole of the 1-4 scale and tended to give scores of 1 or 2 thus producing a low range of scores.

Secondly, the phrasing of the behaviours should genuinely reflect the students' concerns, so that it would be meaningful to them. However, the phrasing here was inadequate in at least two areas. 'Paying attention to deadlines' could mean their own individually generated deadlines or those created by the group. 'Encouraging a sense of team spirit', in retrospect, was an inaccurate description and might have been more usefully termed 'showed commitment to the group' or 'acted as a group member not as individual'.

In addition to the above question, students were also asked:

Do you feel that you were personally more or less effective in this group than in other groups you have been in?

They were provided with tick boxes for the three responses of: more effective, less effective and about the same. In addition, they were asked to explain the reasons for their response. The purpose of this question was to elicit those features of group work which students feel contribute to their own personal effectiveness, be it changes in their own attitude, behaviour, changes to do with the task, other members and so on.

Analysis of the responses involved the search for persistent themes and patterns, which were subjected to a content analysis. To elicit the themes, questions were asked of the data such as: 'what phrase helps to make the differences between responses clear? What phrase links these responses? In what way are these similar and different to each other?'

3.4.6 Questionnaire 3

The final questionnaire, Q3 shares the same structure as Q2 and many of the questions are identical. There are some alterations however, which are described in this section.

'What you learnt about group work'

In the same section on Q2, students were asked what they thought they would try to do differently on the basis of their SEM1 experience. In Q3, a follow-up to this was asked, which took the form:

Did you personally try to do anything differently during this project? If so, what was it, and what do you think your motivation was for doing it?

The advantage of this question is that it encourages the students to give quite specific answers, rather than the vague and broad responses of 'communicate better' which might have been elicited from a less precise question. In order to analyse this follow-up question, responses were compared on an individual level with the previous questionnaire. The main objective here was to establish how consistent the proposed changes and the attempted changes were.

'Performance in the group'

This section used the same questions as in Q2, with two additions. The first of these is:

> *Group work involves many different types of skill. Do you think you have improved your own skills over the last two projects?*

The question starts with a statement that there are different types of skills involved in group work. The reason for phrasing the question in this way was to let the students choose which types of skill they thought they were developing. In this way, the results could indicate whether task-based skills or socially-based skills were favoured in their responses.

The YES, NO tick boxes provided a numerical indication of how many students felt they were developing group work skills. Without the emphasis on providing explanations and examples, however, this would be a rather superficial question. Analysis of the responses used the same process of categorisation and content analysis as with previous responses.

The second addition to this section is:

> *Do you think that your attitude/approach to working in groups has changed since the first year?*

This question was asked in recognition of the difficulty that students might have experienced in trying to be specific about their development of group work skills. Furthermore, the previous question's emphasis is on behavioural change. In contrast, this question was phrased more generally to encourage students to consider attitudinal and/or emotional changes over the year.

3.5 Interviews

3.5.1 The nature of the interview method

There is no such thing as *the* interview method. In summarising research, it is quite tempting to say that the research is 'based on interviews', but this covers a variety of different approaches and assumptions. Essentially then, issues of how to conduct and analyse interviews are based on paradigmatic assumptions of the research.

Silverman (1994) describes two basic sets of assumptions, *positivism* and *interactionism.* For positivism, interviews are about collecting facts about behaviour and attitudes which are both valid and reliable and exist independently of the research setting. In terms of method, this typically gives rise to the type of structured, survey-approach in which random samples of a population are asked to respond to a set of standardised questions often in multiple choice format so that the data can easily be tabulated. To work towards reliable and valid interviews, the interviewer follows a research protocol, and as a detached outsider maintains a distance from the interviewee.

In contrast, an interactionist approach treats interview data as the product of an encounter in which two people have been engaged in purposeful interaction. Within this perspective, a clear-cut distinction cannot be made between the research interview and other forms of social interaction. Both participants in the process create the context of the interview, which is crucial to interpreting the data produced. During the interpretation, the emphasis is not on obtaining facts about behaviour but on gaining insight into the authentic experiences of people in particular contexts. For this reason, in-depth and unstructured interviews are the preferred method as they allow the interviewee to explore and explain issues that are relevant to their experiences (rather than being imposed by the researcher).

The interactionist approach most closely represents the understanding I eventually reached about the interviews used in this research. I have used the word 'eventually' because at the start of the research it would be true to say that I was more concerned with designing the questions and questioning my ability to conduct the interviews, than with questioning the nature of the data itself. Over time, and particularly during the formal analysis stage of the research however, my understanding of the nature of the interviews developed.

Initially, the use of interviews was influenced by the post-positivist position explained at the start of this chapter. The working assumption in designing the interviews was that I would be able to identify variables in the data which would provide part of a causal explanation of the success or failure of training and transfer. In this sense, I saw the relationship between myself and the students in terms of the roles of researcher and research subjects, with the interviews being a way of students giving me information about their attitudes and behaviours. Moreover, the question schedule I devised was based on an implicit model of what the important variables would be (such as their attitude towards the task, attitude towards other group members etc.).

The first change in emphasis occurred during reflection on the first series of interviews, together with a questioning of the appropriateness of my approach of imposing structure generally on the data collection. As a result of this, the second set of interviews were less structured. A more significant change in emphasis came about during the arduous process of analysis. More will be said about this later. Suffice it to say at this point that the emphasis changed from the identification of causes, to the interpretation of experience. What also became clear is that the interviews are the outcome of an interaction. The relationship between myself and the students is an intrinsic part of the interviews, to be explored and discussed rather than problematised as a potential threat to the validity and reliability of the data.

Indeed, the tone of this section will be on exploring and discussing the interviews, rather than on defending the use of interviews per se. I take my lead

here from the work of Kvale (1994), who convincingly address ten standard objections to the qualitative research interview. In his rebuff of these common objections, his aim is to move the researcher on from having to defend the use of qualitative methods to a position which emphasises the development of the methods themselves. Much of his argument is based on a progressive definition of science, as illustrated by the quote below which is also consistent with the pragmatist approach to research which I discussed earlier.

> *Science becomes the creative search to understand better, and it uses whatever approaches are responsive to the particular questions and subject matters addressed. Those methods are acceptable which produce results that convince the community that the new understanding is deeper, fuller, and more useful than the previous understanding.*
> Polkinghorne (1983, p.3)

3.5.2 Pilot work

Before interviewing the building-surveying students, a series of trial interviews were conducted. In total six interviews were trialled with students on a different degree course but one which also involved group project work.

There were two main aims of the pilot interviews. The most basic aim was simply to gain familiarity with the interview process as I had not conducted any before. As a result, one of the main outcomes of the pilot work was a feeling of increased confidence in my ability to manage the process. Furthermore, the students I interviewed responded well, with a couple explicitly stating that they had welcomed the opportunity to talk about their experiences. Familiarity with tape-recording equipment was also part of this confidence-building process.

The second aim of the pilot interviews was to try out the use of different types of questions. The major outcome of this exercise was an understanding of the value of leaving the more direct/personal questions until a rapport had been established. It was quite difficult for the students to respond to questions about

roles/relationships/learning in groups, if these were asked early on, particularly if the students had not considered how to articulate their thoughts in advance.

3.5.3 Selecting interviewees

The major limitation in organising the interviews in both semesters was a shortage of time. The research design meant that students needed to be interviewed after they had completed their group project. In effect, this gave a three week period when students would still be attending the university before their exams and holidays.

Two options for selecting interviews were considered. Asking for volunteers would have had the advantage of not inconveniencing the students or making them feel obliged to attend. On the other hand, this approach would appeal to those students most keen to express their views about group work, and these students might offer more extreme views as a result.

The other option (which was chosen) was to give each student an interview appointment. This method had the disadvantage of making demands of the students. However, the great advantage was that it gave me more control over managing the interviews in such a short time period. Appointments then, were given out in person by myself at the end of a tutorial. Care was taken to present the interviews both as an important part of the research but also as voluntary with no repercussions from the tutor for non-attendance.

3.5.4 Interview location

All interviews were held in what is known as the 'Cutting Edge' café area in the main atrium of the University at its City Campus. There were no alternative rooms available and whilst a busy café atmosphere was not ideal, it nonetheless had certain advantages. The major advantage of the location was that it created a more relaxed atmosphere than conducting the interviews in an empty office or tutorial room. The café is used by both staff and students, so in

a sense, this had the advantage of being neutral territory. In addition, I was able to offer students a drink and snack which helped to create an atmosphere which people associate with the informal expression of views.

On the other hand, the location was public space, and students may have felt uncomfortable expressing personal opinions and reflections with other students walking past or sitting near by. The café was also quite a noisy area and the tape recordings are full of interesting background noises (windows opening and closing, crockery being collected, once a fire alarm and once a Christmas carol service!).

Interviews were recorded using a hand-held cassette recorder with external microphone. The external microphone had the advantage of amplifying the sound and was also very small (of the tie-clip variety) so that the actual tape-recorder could be put out of view and therefore be less distracting. Permission to use the tape-recorder was sought each time with the guarantee that no one else (except my supervisory team) would hear the interview.

The SEM1 interviews typically lasted 40-45 minutes. The SEM2 interviews were slightly longer due to a more flexible timetable and were approximately 60-75 minutes long.

3.5.5 Structured and semi-structured format

One of the major ways to distinguish interviews from each other is in terms of their structured or un-structured nature. To make any sense, this distinction has to be seen as a continuum, not as a dichotomy.

Table M6: The continuum of structured to unstructured interviews

structured	unstructured
interviewer asks all subjects a set of standardised questions ↔	the individual interviewee's responses are used as the basis for questions
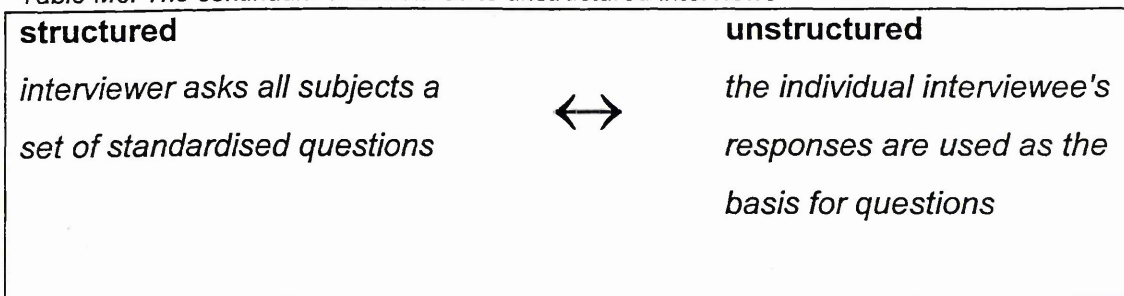
Somewhere in between the two extremes of structured and un-structured is the semi-structured interview, which, depending on degree is either close to one or other end of the continuum. The interviews in this research were semi-structured. As mentioned already though, their format shifted gradually from being more structured in the SEM1 interviews to being less structured in the SEM2 interviews. The relatively structured nature of the SEM1 interviews can be explained with reference to two influences.

Firstly, the initial emphasis on trying to identify causes meant that I wanted each student to provide me with information about a set of pre-determined questions. To this end, a more structured approach was wholly appropriate. Secondly, there is a case for arguing (as Miles and Huberman, 1984, suggest) that a more structured approach is also appropriate to a newcomer to research as a means of gaining confidence over the process of data collection.

In describing the interviews as being relatively structured to start off with, reference is being made to the fact that each student was asked the same basic set of questions (examples of which are shown below). However, in keeping with the *post*-positivist influences of the research, I left some room in the schedule to explore avenues of thought that emerged during the interviews. For the interviews after the SEM2 project, I still had a set of basic questions in mind, but gave greater time to exploring issues that the individual student raised during the interview.

So, whilst there was a shift, the interviews were still conducted within a framework of questions. This is a crucial point to make because it obviously shapes the nature of the topics that the students talked about. The data, therefore, is not a student-centred account of their life-world, but a product of a relatively pre-structured interaction between researcher and student.

3.5.6 Questions asked during interviews

As explained above, the interviews were based on a set of pre-determined question areas. The difference between the interviews in SEM1 and SEM2 is that the questions were more rigidly adhered to in SEM1, that is to say that they were asked in sequence and phrased in a similar, occasionally identical manner. Interviews in SEM2 were less identical in nature, though still based essentially on a limited question framework.

In total, the questions were based on eleven main topic areas, from their attitude towards the task, to general attitudes about the course as a whole. The topic areas (in bold) and sample questions used to trigger off a discussion of the topic (in italics) are shown below. Of course, what cannot be shown below is the intonation of the questions which was an important part of my attempt to reassure the students that I was interested in what they genuinely thought.

Attitude towards group work generally

Before you found out the task or who you would be working with, what were your initial reactions when you found out you were going to be doing a group project?

Attitude towards the specific task

What was your initial reaction to the task?

Did the high/low cost brief have any effect on your approach to the project?

Attitude towards the specific group members

What did you think when you found out who you would be working with in the group?

Did this attitude change?

Factors influencing effectiveness in the specific group

Do you think you have been more or less effective in this group than in previous groups? Why/why not?

What would have encouraged you to work better in the group?

Perception of skill development

Group work involves lots of different skills, what do you think you are learning as a result of doing these group projects?

Do you get any sense of feeling that you are getting better in group work?

Transfer potential for next group

As a result of this project, is there anything that you think you'll try and do differently next time?

Transfer of previous learning

Was there anything in this group that you did/tried to do differently?

Last time, you said that you would try and do X differently, did you?

Reflection about group work

Do you spend any time after a group project looking back and thinking about what you did, what you could improve on?

If I wasn't asking you these questions, would you have spent any time thinking about them?

Contextual information/attitudes

What would you change about the unit/course if you could?

What do you think other people think about group work?

Usefulness of group work

What do you think is the benefit of doing group projects?

To what extent do you think that this type of group work will be of benefit for your placement year?

Research matters

What effect do you think me doing this research has had on your experience of the group projects?

Do you think me doing this research has had any effect on the course as a whole?

3.5.7 Analysis of the interviews

The purpose of this section is to explain the process by which the interviews were analysed. Just as there are different forms of interviews, there are

different ways of analysing them depending on the research question and assumptions about the status and nature of the data generated.

As a newcomer to analysing qualitative research in depth, it was initially tempting to seek some form of 'how to analyse interviews' text. However, not only are these texts limited in number, but moreover, they are based on different views of what interview data represents. For example, the texts by Miles and Huberman (1984) and Giorgi (1985) both offer structured, step by step approaches to analysis but are based on very different approaches to research (the former on transcendental realism and the latter on phenomenology). So, whilst the existence of structured guidelines was comforting initially, they were not consistent with the present research objectives. A key feature of the analysis in this research then, was coming to a realisation that the data and research questions had to guide the process rather than the prescriptions of other researchers (whose aims may or may not be consistent with these).

3.5.7.1 The purpose of interview analysis

The purpose of analysing the interviews was to come to a better understanding of how the students experienced group work. What sense do they make of being in a group? What reasons do they give for their actions? What role does group work play in the experience of university life? The 'meaning' made of group work then, is central to this research. Through analysing the interviews, the aim is to provide a systematic and plausible *interpretation* of the *sense they made* of their experiences. Insights into the students' meanings will then be used to examine the issues of learning and transferability as applied to student group work.

In highlighting *interpretation* and *sense making* an important belief is being expressed. Interpretation and making meaning are central features of all human endeavours, not just facets of analysing interview 'data'. This hermeneutic standpoint developed by Heidegger (1962) and Gadamer (1975) is expressed

somewhat more clearly by Reason and Rowan (1981) who make the point as follows:

> .... the interpretive method is not a special process, totally different from everyday human understanding; it is just one example of an everyday process through which persons make sense of their world. All understanding is hermeneutical, taking place, and to a very large extent determined by our finite existence in time, history, and culture. (p132)

So, interpretation occurs continuously and on many levels. The interviews and their analysis can therefore be usefully seen as a *fusion* of the students' perspectives and my own. This is an important point to make because it serves to introduce the distinction between the interpretive and phenomenological approaches to understanding meaning.

A phenomenological approach to the present research would have its aim as *describing* the life world of the students, by first setting aside (or bracketing) any presuppositions about what that world would be like. In seeing the interviews and their analysis as a fusion of perspectives, I am rejecting this approach. Whilst familiarity with the research topic is of great importance, my approach is not to immerse myself in the students' worlds in a phenomenological manner but to come to an understanding of it as a researcher wanting to address specific questions. I analysed the interviews primarily to satisfy my own aims and objectives, not primarily to let the life-world of the students emerge. So, whilst I do want to know what group work was like for the students, I want to know this *because:* I want to be able to improve the experience of group work for other students, I want to see how the student perspective relates to the literature on student-skills development and so on. The purpose of analysing, therefore, was to illuminate my own naive assumptions and those of the research literature. Presuppositionlessness, in the phenomenological sense, was not needed or attempted.

3.5.7.2 Interviews as purposeful interaction

The research interview is not a paper event (as it appears when transcribed) but is subject to a host of interpersonal dynamics. As the product of *purposeful interaction*, the present interviews were shaped by the same complexities which affect other forms of social interaction, such as the participants' social identity.

I, for example, most often refer to those interviewed simply as 'the students' rather than being 'research subjects' or 'research participants', neither of which sound particularly appropriate. 'Subjects' has clinical, detached and mechanistic connotations which I do not wish to subscribe to. On the other hand, 'research participants', though more humanistically appealing, implies that the students had a greater involvement and willingness in shaping the research than was the case. The agenda for the interviews was mine.

In terms of the students' perceptions of myself, a variety of possible interpretations were suggested by remarks made during the interviews. For example, probably the highest level of identification with me was as a fellow student working on an important piece of academic work. During the interviews, students would quite often ask how my work was going, or ask jokingly if I had nearly finished it yet.

At the same time, the students were aware that I had formed quite a close working relationship with their tutor. Occasionally they instructed me not to tell the tutor some of the things that they were telling me. In fact this put me in a difficult position at times, as the tutor would often ask me questions about the specifics of what was being said. Confidentiality had to be maintained at the same time as fostering and appreciating the co-operation and involvement of the tutor.

One student referred to me as being 'the expert' during an interview and there was some disappointment from him when I felt unable to tell him 'exactly' how

he could personally improve in group work. Again, this example shows the multiple roles on offer and being performed during the interview process and the potential for role conflict.

The majority of the students on the course, and therefore interviewed, were male. As a male researcher it would be naive to assume this had no effect. It is another matter altogether to try to specify what effect this had as there is no material on which to base comparisons, such as if some of the interviews had been conducted by a female researcher. Whilst there is some literature on women interviewing men, there is a dearth of material addressing men interviewing men.

Stereotypically, for example, one might predict that two men talking would be reluctant to discuss emotional issues. Perhaps there is some truth in this, as I recognise in my own conversational repertoire with men a reluctance to ask probing questions of an emotional nature. Despite assuming the role of research interviewer (which helps overcome such reluctance) there is no guarantee that I was as sensitive a questioner and a listener as I could have been. Whether or not this wholly a gender issue is difficult to say but is likely to have some influence.

Feedback from one of my supervisors suggested that my interviews with the female student (the only one of the seven) had a different tone, being more light-hearted than the interviews with the male students. I agree with this observation but it is difficult to tell how far this was due to the issue of gender. Certainly, there were differences in the ease with which the interviews were conducted. In part this can be attributed to the creation of a masculine interview style, but it is also equally attributable to the maturity, self-confidence, self-awareness or simple interest of the student. For as one student said, *I don't even know why you're asking me about this when it's not something I normally think about.*

3.5.7.3 Procedure for analysing the interviews

The realisation that the prescriptions of other researchers were not appropriate for my own interviews led to a process of analysis which developed through six main stages. Dissatisfaction with the previous stage led to the next stage until the final version of analysis which appears in the Results chapter. Interpretation is not a finite process, but within a limited time period it is subject to diminishing returns. The version of analysis which appears here therefore, represents the outcome of a systematic, arduous and reflective process which was also subjected to an external critique (this will be the focus of the section on validity later in this chapter).

This section describes the six stages, starting with the transcription of the interview recordings. It will be recalled that the main focus for analysis was the seven students who were interviewed twice. The remaining interviews were also transcribed but feature less heavily in the final analysis

Stage 1 - Transcribing the interview recordings

It is difficult to say when the analysis of the interviews started in a formal sense, (if this is an appropriate idea) but the process of transcription is a useful place to begin. For, as will be explained, this was not just a technical process of turning audible words into written ones.

Although the interviews were listened to after they occurred, transcription did not begin until all the interviews had been conducted. In terms of surface appearance, a sample of a transcription is shown below (an extended version is shown in Appendix 3).

Table M7: Example of interview transcription.

8	can you just cast your mind back a few weeks and think, before you knew what the task was and who'd be in your group, can you think what your initial reactions were when you knew you'd be doing a group project?
-	oh no not another group project! Like, my first experience of group work was like everyone just left it for two or three weeks in the first year and then thought 'oh we'd better start doing something' - it just didn't really work out well at all, but the group I was in this time seemed to be more enthusiastic, the people in the group wanted to work more and it worked out better for me 'cause like, I prefer to get things done first off, like work better to start with and then relax later so it worked out better this year

As can be seen, this is a fairly basic transcription, showing the interviewee in plain text and the interviewer in bold, with each interviewer contribution given a reference number. The purpose of analysis was not the linguistic features of the interview and so therefore, the transcripts do not show intonation, timing, pitch, or other paralinguistic features. However, during the analysis the tapes were listened to on many occasions to gain a clearer sense of the meaning of a passage which appeared ambiguous in written form.

Stage 2 - Breakdown of the transcripts into key topics

Although not following a prescriptive technique for analysing the interviews, I nonetheless wanted to meet certain criteria discussed in the literature on interview analysis. For example, the initial stages of analysis needed to be systematic, inclusive rather than exclusive, referenced (to allow others to check my interpretation), encourage reflection and ultimately be a vehicle for the further reduction of the interviews into key themes.

The first step in stage 2 was to read the interview slowly to gain a sense of familiarity with it as a whole. Following this, the interviews were analysed by taking a paragraph at a time. The definition of a paragraph here is not fixed but

was typically represented in the transcript by a question-answer sequence, so that one question and its response formed the basis of a paragraph. On occasion however, it made sense to combine more than one question and answer if they were brief and related to the same basic topic.

When reading the particular paragraph, the analysis centred around asking a series of implicit questions: 'What is this paragraph about?' 'What is the most accurate way of describing the topic under discussion?' 'What would be the most accurate way of describing *how* the student talked about that topic in terms of their attitude, the opinion or feeling being expressed?'.

In terms of making notes, the first step was simply to write down in my own words what was being expressed in that paragraph. Essentially this was a creative process in which I tried to encourage myself to write down alternative, possibly conflicting analyses. The second stage, was to produce one or more key topics which most accurately described what I thought the paragraph was about. Under each topic heading I then summarised the particular opinion, attitude or feeling being expressed. Having done this, I then re-read the paragraph and reviewed my own notes about it until a process of diminishing returns set in whereby I could no longer generate alternative interpretations or improve my articulation of what the student was saying. An abbreviated example of this is shown below (and refers to the paragraph transcribed in the previous table)

Table M8. Example of interview analysis, stage 2.

So, his initial reaction to the idea of group work was a (mild?) sense of well, I won't say trepidation but, its not joy, not dread, but leaning towards the - could be a bad experience again - is there a word for this? So its really not wanting a repeat performance of last year - mildly negative? Coloured by - yes, there's a phrase

initial reactions
- coloured by poor group in 1st year
past experience of group work
- 1st year work left late, generally poor functioning group, apathy
SEM1 group
- characterised by more willing to work, more enthusiastic in comparison to 1st year group - creates better work climate for him than year 1
work preferences
- to start work earlier, work early and relax later

Notes:

His comparison with 1st year is quite interesting. Meaning is generated by comparison, His attitude that the SEM1 group was better, and better for him - the word 'better' being a comparative term. What you have to compare things with shapes what the current situation means.

Also, the people in the group affect his work attitude. How does this happen, on first meetings perhaps, a sense is established of how hard/what ways the others will work. But how does this happen? who takes the lead in this? Did he make it clear to the 1st year group that he likes to get work done early, doesn't seem so as 'everyone JUST left it for two weeks'. Perhaps this relates to field dependency??

His first experience of group work is not an encouraging one - does this set the tone of future group work, the apathy also of the 'oh we'd better start doing something'

The outcome of this process resulted in 60-70 pages of hand-written notes for each interview. It was a time consuming and difficult process, but one which satisfied the criteria outlined above, particularly in terms of its reflective and systematic nature. The difficulty at this stage stemmed from a dialectical tension between the activity of writing the sense of the paragraph, and also reflecting on the material and challenging what I was writing.

141

Stage 3. Listing key topics

Having completed the above stage with three of the interviews, it became clear that there were a large but limited number of topics within the interviews. This should come as no particular surprise because each student, by and large, was asked a similar set of questions. The topics under discussion then, were similar, what differed were the ways in which the students talked about the topics. This stage of the analysis involved collating and combining the key topics on an individual level and listing them together with the individual student's articulation of the topic.

The example shown below lists the topic of 'past experience of group work' and then the themes associated with that. The figure in brackets represents the interview paragraph which illustrates the theme (extended example in Appendix 4)

Table M9: Example of interview analysis, stage three.

Past experience of GW

    relatively little experience in project groups [29]
        outcomes
            difficulty in knowing own typical behaviour [29]
            increasing familiarity with demands of gw [48]
                example given
                    range of others work styles [48]

    initial reaction to SEM1 coloured by poor group in year one [8]

    poor group in year one
        examples given
            work left till late in project [8/25]
            group as whole not well motivated [8]
            generally poorly functioning group [8]
            own lethargy after returning from summer hols [11]
            work produced on isolated/individual basis [25/26]
            work produced was at times incompatible [26]

The outcome here was an abbreviated, re-organised version of the interviews. For example, every comment made about the topic 'past experience of group work', no matter where it appeared in the interview, now appeared together. At this stage, the topics were closely related to the interview questions and therefore were similar across all interviews. The list of broad topics from the SEM1 interviews is shown below:

Table M10: Main SEM1 interview topic headings

Student's own accumulated experience/attitudes about group work (in a general sense).

Accounts of others' attitudes to group work (in a general sense).

Accounts of self and self in relation to others (in a general sense).

Descriptions/categorisation of group members (SEM1 group project).

Accounts of group processes (in SEM1 group project).

Accounts of the task (in SEM1 group project).

Accounts of challenges (in SEM1 group project).

Accounts of self - roles, interactive style, effectiveness (in SEM1 group project).

Accounts of intentions/planned changes (at start of SEM1 project).

Reflection about group work and areas identified for improvement.

Comparisons made between university and employment.

The great advantage of this stage was that it was systematic and established a standardised format so that each of the interviews could easily be compared with each other. The referencing system also meant that the analysis could be checked by others and myself at a later date. At the end of this stage each of the interviews was re-presented by a 10-12 page document, listing key topics and the individual's response to them.

However, on reflection and after discussion with colleagues, the outcome of stage 3 proved unsatisfactory in that the meaning expressed in the interviews

143

appeared to be lost. The listing of topics appeared as a series of cold, isolated almost unconnected variables rather than a representation of the sense that a human being had made of their experience. Analysing the interviews was an iterative and creative process. The dissatisfaction felt with the loss of meaning after this stage triggered the shift towards an interpretive position.

A decision was made at the end of this stage then, to subject the interviews to a further stage which would make the student's meaning much clearer and more central.

Stage 4. Producing summaries of the key topics.

The purpose of this section was to make the student's meaning more central and to present them in a less isolated, detached manner. To do this, a summary of each of the interviews' main topics was written in much more narrative form. An example of this is shown below, with an extended version shown in Appendix 5.

Table M11: Example of interview analysis, stage four.

Topic - What account does S45 give of his experience and attitudes about group work in a general sense?

45 provides a general response to the notion of group work which is neither overtly negative or positive. He does have some reservations about what to expect and presented his initial reactions to hearing of the SEM1 project in the form of a mild reluctance 'oh no, not another group project!' Generally he sees group work as just another aspect of the course which has to be done and he does not single it out as being particularly looked forward to or not.

His reservations are based on his experience in YEAR1 when he was a member of a poorly functioning group. In particular he cites: that work was left until late on, that the group as a whole were poorly motivated (partly his own lethargy after the Summer holidays) that work was at times incompatible and that it was largely produced on an individual basis.

As a further reservation he feels it is a matter of luck whether or not one gets to work in a group which has poorly motivated members. This situation is presented largely as a fait accompli 'you can't really make the people get off and do the work if they don't want to'. Moreover intervention shouldn't be needed as he feels it is in their interests to work hard.

He has had little experience of group work which he suggests as a reason for finding it difficult to discuss what might be constituted as typical of him in group settings. However, he also feels that he is becoming more familiar with the demands of group work with particular respect to the difficulties associated with group members who are poorly motivated.

Again, what was produced was in a standard format so that each interview could be compared with the others. This emphasis on cross-comparison needs clarification as at the time it raised the potential for contradiction. For if the purpose of analysis was to interpret the sense that an individual had made of their experience - why the emphasis on standardised format to aid comparison with other interviews? Why not treat each interview as a unique event with its own themes and topics?

There are two main reasons for reproducing the interviews in order to facilitate comparison with other interviews. The first, is that in a sense, the interviews were not completely unique events - in terms of the structured-unstructured continuum, each student was asked a very similar set of questions. So, whereas their responses to the questions were different, the actual topics under discussion were very similar.

The second justification concerns the process of analysing, interpreting and sense-making. By keeping each of the reproductions of the interviews in the same format, the intention was to aid the process of making comparisons. Comparison is an essential tool for generating meaning. To compare one response with another reveals both similarities and differences, shared themes and uniqueness.

With this in mind, the rest of the stages of analysis were focussed on facilitating comparison between the seven different students.

Stage 5. Producing comparative tables of the summaries

Analysing interview data is a difficult process. There is a need to maintain the intractable nature of another individual's experience, whilst at the same time imposing order on the data by working systematically. So, whilst the process here was an iterative, creative one, it was also important in terms of working practices that each stage had its own routine procedures. To facilitate a routine and systematic method of cross-comparison, the summaries produced in the last stage needed to be reduced and presented in a format which made comparison the focus.

In order to do this, the summaries produced in the previous stage were sub-divided into different topic areas with each relevant extract from all the interviews cut and pasted into a table. To save space, an abbreviated example of this process is shown below (a more complete example can be found in Appendix 6). The topic title for the table is: 'general attitude towards group projects', it refers to general comments rather than specific comments about the SEM1 or SEM2 projects.

Table M12: Example of interview analysis, stage five.

Student	interview 1	interview 2
S38	Prefers group work to any other course work - not because of group aspect per se but because of type of design work involved - attitude to being in groups is more conditional and depends on 'sussing out' others at start of project - acknowledges role of group work as teaching you how to work with others [1]	preference for design work involved in group projects - enjoys this type of work more [1]
S39	Is not against working in groups as a principle but has a clear preference for work that is done on an individual basis - past group work has usually resulted in getting a lower than normal grade - mechanics of group marking serve to lower grades generally [1]	one persons bad work does not nec. impact upon his grade some aspects are assessed more individually than others some aspects are more interdependent [3]
S45	Provides a general response which is neither overtly positive or negative - he has some reservations about what to expect (based on YEAR1) - presented his initial reactions as 'oh no not another group project' - sees group work as just another part of the course and is not singled out as being particularly looked forward to or not - he recognises that group work is a 'different way of learning' with regard to it being more self directed - 'they've got to leave it up to ourselves to see what we come up with' [1]	

This stage resulted in a total of 38 tables. The next part of the stage was similar to stage 2 in that it involved a table by table process of reading, reflecting and generating comparisons which resulted in a series of written notes about each table. Unlike stage 2 however, the emphasis here was on generating *themes* rather than *topics.*

The distinction between topics and themes is as follows. A topic refers to a description of what is under discussion, whereas a theme represents a characteristic and/or shared way of responding, a point of reference to that topic. For example, under the topic of 'general attitude towards group work' a shared theme that emerged through comparing responses was a sense of reservation about group work. Within this theme however, there were variations in terms of the strength of reaction.

Stage 6. Draft versions of the findings

Version 1.

Another challenging stage of analysis is to re-present the sense made of the interviews to an unfamiliar audience. The first draft of the findings consisted of presenting the 38 tables above with a summary of each one underneath it. Clearly though, this was extremely lengthy and required the reader to do more work than necessary in trying to understand the material. On reflection, I had not assumed full responsibility for my own interpretation of the interviews and had presented them too tentatively.

Version 2.

In the second draft version, the tables were removed and emphasis was focussed on reorganising the summarised themes. It was at this stage that the themes were re-grouped into a much smaller, more concise number of main topic headings. This version was also characterised by a reduction of the material by focussing even further what was essential and what was redundant or repetitive. This produced a much more focussed, concentrated version of the results. The headings were:

1. Setting the scene: the seven students and their account of the course in general.
2. Reservations and difficulties involved in group work: major themes.
3. Life in groups: group development and the negotiation of roles.
4. Accounts of improvement and reflection.

However, the process of writing the findings section was still characterised by a reluctance to let go of material, particularly the individual nuances that emerged during analysis. This version of the findings was littered with "X felt that ..., whereas Y felt .... and Z responded by ...." etc etc. These nuances were

difficult to let go, having spent nine months analysing the interviews. However, this produced an awkward and repetitive written account.

Version 3.

Version three represents the final version of analysis which appears in the findings in the next chapter. It keeps the four main topic headings but removes what became known as the 'he said, she said' character of the previous version. At times, the process of analysis (from stage 1 to here) appears somewhat convoluted because it has been presented as it occurred, as a learning process involving an active/reflective engagement with the process. On reflection, the great benefit of the early stages was in terms of familiarity with the material. Familiarity through repeated readings and re-readings fostered the sense of confidence in writing the final version of my interpretation where individual details and interesting asides have to be excluded for the sake of clarity and brevity.

3.5.8 Validity of interview data

As Schwandt (1995) points out, the question of validity in qualitative research is deceptively simple. Given that meaning is negotiable within an interpretive framework, what is needed to provide an adequate account? Schwandt goes on to suggest that besides *procedural criteria* (in accordance with its own research paradigm, was the study conducted in a sound manner?) the value, truth or worth of a claim ultimately lies beyond the particular interpretation. According to this view, the important judgements about validity come from the research community, practitioners and any others who are likely to be influenced by the research.

In a similar argument, Kvale (1994) writes that validity in qualitative research has to move from the idea of correspondence (with an objective reality) to one of *defensible knowledge claims*. Validation here, becomes a process of *investigation*, of continually checking, questioning and theoretically interpreting

149

the data and the process of research. Validity then becomes a built in process (part of the skilful researcher's activities) rather than a final type of product control. Furthermore, Kvale argues that validity can also be sought through dialogue with others in the community (*communicative validity*) and through the practical benefits of the interpretation (*pragmatic validity*).

Though the issue of validity is not well resolved, the themes of pragmatic worth, educational value, and good craftsmanship in research are consistent with at least one other account (Guba and Lincoln 1994). As traditional concepts of validity have their roots in psychometrics, by definition qualitative research cannot fulfil such criteria as it is not based on measurement. The general argument from the work above then, is to create an alternative way of conceptualising validity.

In the present research validity was primarily (and formally) sought through the supervisory framework (in addition to more informal networks). The process was concerned with demonstrating a form of quality control in terms of accuracy, but also in terms of levels of reflection, divergent thinking and generation of alternatives.

Two formal procedures were adopted; the submission of a research diary and the structured revision of selected interview data.

The research diary was primarily a tool to aid reflection during the process of analysis. The process of writing was a constructive way of articulating and resolving difficulties, doubts and conflicts. In addition to its cathartic function however, it also served as a record of the process of analysis. A copy of the diary, as it expanded, was kept by a member of the supervisory team both as a validatory record of the reflective nature of analysis and as an interesting document in its own right in terms of gaining insight into the research process. Occasionally the diary was the source of generative discussions between researcher and supervisor (example pages from the diary can be found in Appendix 7).

The other formal validatory procedure was the public examination of a randomly selected interview analysis. Both members of the supervisory team were given a whole interview to examine, from the original tape-recording through the transcription to the first three stages of analysis. The transcript itself was found to be an extremely accurate reproduction of the interview with only a few minor amendments. Examination of the analysis raised two major constructive criticisms.

1. things said by the student (that appeared in the transcript) but did not appear in the key themes or summary.

A total of four statements fell into this category. Two of these were not felt to be valid criticisms as the researcher was able locate them in the summary albeit in a less detailed form. Another was not felt to be particularly significant in terms of the overall meaning of the interview. One criticism however was felt to be a noticeable omission (concerning the student's opinion of those who fail to attend lectures) and this was re-written into the summary.

2. things said by the student were 'stronger' in their phrasing than my interpretation of them in the key themes or summary

There were three examples in this category. One of these is shown in detail in the worked example below. The comment made by the supervisor was that "although this appears in the summary, his words are much stronger than yours". The summary was altered to include more of the student's own phrasing:

Original transcript

"..... But about the group work as opposed to individual work where I imagine my work looks stronger, but when you're part of a group you feel like your work's <u>not shining out</u>, it's not getting noticed as much." [int 49/1 p.6]

initial summary

In terms of outcomes, group work represents a loss of opportunity for his own work to be recognised and rewarded on an individual basis.

final summary

In terms of outcomes, group work represents a loss of opportunity for his own work to be recognised/rewarded on an individual basis. He feels generally that in individual assignments his work probably 'looks stronger' and that in group work his own input has less of a chance to 'shine out' as much.

In light of this criticism, the other summaries were revised to include more of the students' own words to help clarify the strength of feeling associated with a particular statement.

4.0 Results

4.1 Questionnaires

In this section, a summary is provided of the three questionnaires used during the research. To recap, each student was asked to complete a questionnaire on three separate occasions: before the first project, after the first project and after the second project.

The section is divided into ten main headings:

4.1.1 Summary of the students and group projects

There were 48 students on the 1994/5 second year of the full time/sandwich Building Surveying degree. 45 of these were male, 3 female. The average age of the students was 21.4, with the modal age 19. The majority of the students (about 70%) joined the course via BTEC/HND conversion with, the remainder came mainly straight from 'A' level. A significant minority (about 25%) had work experience before University ranging from 1 - 10 years.

The majority of students had participated in either two or three college/university group projects before they started the second year. At the extremes of this average however, eight students had been in five or six group projects and another eight had only been in one before. On average previous projects lasted eight weeks.

The year 2 projects lasted for approximately ten weeks and during this time groups would meet five times on average (mean for SEM1 = 4.8 meetings, mean for SEM2 = 5.1). No group met more than eleven times. These figures are slightly problematic however, in that 'group meetings' was not specified on the questionnaire as meaning formal, pre-arranged group meetings, so students may have been unsure whether to count informal, brief or ad hoc meetings as part of their total. Meetings lasted between fifteen and fifty minutes, most often for half an hour.

No student in either project thought that their group had had too many meetings, whereas it was typical that about one-third thought their group had not met frequently enough. Groups tended to use either the central library or the School of Construction's Resources Room in which to have their meetings.

4.1.2 Overall rating of group work

On a numerical scale of 1-10, where 1 = negative and 10 = positive, the students were asked in the first questionnaire to rate their overall experience of group work so far. The mean figure at the start of the second year was 5.7, at

155

the end of the year this had slightly (but not statistically significantly) increased to 6.4.

Students were also asked to explain the numerical rating in their own words. The responses have been categorised according to whether they were positive, negative or conditional in sentiment. The term 'conditional' refers to those responses which specified conditions preventing group work from being enjoyed in a general sense. The distribution of these categories is shown in the table below, in which it can be seen that there are few positive responses.

Table R1: Ratings of group work according to the categories of positive, negative or conditional.

	Total	% of complete response
Positive	5	14%
Conditional	8	22%
Negative	23	64%

4.1.2.1 Negative Responses

Table R2: Frequency of reasons given for 'negative' responses about overall group work experience.

Topic / theme	Frequency*
level of participation/effort was not equal	9
lack of attendance at meetings	5
general lack of interest in project	4
lack of organisation in group	3
personal differences between members	3
lack of/poor communication in group	2
lack of thorough discussion in meetings	2
lack of formal authority or structure in group	2
waiting for others to produce work or ideas	2
lack of time given to do project	1
lack of sense of achievement in meetings	1
group work not taken seriously on course	1

*students may have given two or more reasons within their response, hence the total frequency will be more than twenty three.

A total of twenty three responses were categorised as being generally negative. The tendency was for them to refer specifically to the first year project, with a few comments of a more general nature (the ratio is 18-5). Overall, the negative responses refer to a sense of frustration with the lack of interdependent, co-

operative activity, particularly using the first year project as an example. There was a strong tendency for the students to distance themselves from the problems of group work however. For example they refer to *we* (had problems with xyz), *other members* (didn't do xyz), *the group* (didn't do xyz), *there was a lack of* (xyz). The use of *I* and *me* was limited to only two of the responses.

The single most frequent response was based on a frustrating sense of inequality in terms of members input into the group. In some of the more detailed responses this frustration was linked to the lack of a formal structure in the groups. For example, one student described being *'often left to our own devices'* with another adding that *'group work has its limits in that because there is no chain of command, friction occurs whereby one can dismiss the whole thing and not pull his weight'*.

4.1.2.2 Conditional Responses

Table R3: Frequency of reasons given for 'conditional' responses about overall group work experience.

Topic / theme	Frequency
Quite enjoy/good but:	
- others unreliable	4
- others have poor standard of work	2
- others bossy	1
- co-operation poor	1
- always problems	1
- others can restrict ideas and thoughts	1
- others do not contribute equally	1
- nobody took charge	1

The most significant feature of the conditional responses was the role that 'other people' play. So that about one-fifth of the students had enjoyed group work but felt also that the other members of the group were the source of various difficulties they encountered. It was 'the others' who were unreliable or who did not pull their weight, or co-ordinate poorly and so on. 'Others' were also bossy and can restrict ideas and thoughts. The quality of work produced with 'others' was also seen as being at best 'not exceptional' and at worst as 'poor'.

157

4.1.2.3 Positive responses

Table R4: Frequency of reasons given for 'positive' responses about overall group work experience

Topic / theme	Frequency
progress good because members were friends / well known	3
made friends with other members	1
others willingness to work to decent level	1
good communication generally	1
problems easily solved	1

The positive responses again tended to refer to the first year project specifically rather than group work in general. The over-riding theme was that positive responses were based on a smoothness of process within the group, and for three of the responses this is attributed to working with friends or others who were well known to them. Making friends with the group members was also given here as a reason for having a generally positive attitude about the first year project. The positive responses then, were based on the success (or lack of difficulties) in collaborating and co-operating with the other members.

4.1.3 Initial reactions to finding out that they would be doing a group project

Students were asked this in the first questionnaire just as the SEM1 project began. As with the question above, their responses were categorised according to their positive or negative sentiment, with the conditional category extended to include non-committal responses. The distribution of these categories is shown below:

Table R5: Distribution of initial reactions to the 2nd year group projects according to the categories of positive, negative or conditional.

	Total	Percentage of complete responses
positive	9	21%
conditional/non-committal	20	48%
negative	13	31%

158

4.1.3.1 Conditional / non-committal Responses

Table R6: Frequency of themes for 'conditional/non-committal' initial reactions

Topic / theme	Frequency
apprehensive about the group membership	5
"not bothered" / "oh well"	5
not wanting a repeat of first year project	4
project is similar to previous ones	3
not too interesting but might be ok	1
not keen but group work can be ok	1
just want to get on with work	1

This was the largest of the three categories with a total of twenty responses categorised as either being conditional or non-committal in nature. In terms of the conditional responses, the two major themes were a sense of apprehension about who they would be working with and a desire that the negative experiences associated with the first year project would not repeat themselves. With the non-committal responses, the reactions were either that they had an acceptance that group work was being used, or that the project was similar to ones they had done in the past.

4.1.3.2 Negative responses

Table R7: Frequency of themes for 'negative' initial reactions

Topic / theme	Frequency
"Oh no!" / "Not again!"	5
strongly opposed to the prospect	2
Generally not happy about the prospect	2
task appears difficult	1
task is okay but do not like the group	1
task is okay but do not like group work	1
not keen because of previous group work	1

There were thirteen responses in the negative category. The interpretation of these responses was made difficult by the use of exclamation marks after some comments making it unclear whether humour was intended. The most frequent negative response for example was "Oh no!" which may indicate a genuine negative response or a negative response with a humorous undertone. The more strongly opposed comments use the words 'horrified' and 'gutted' which

give a clearer indication that the prospect of group work aroused strong emotions in at least a couple of the students.

4.1.3.3 Positive comments

Table R8: Frequency of themes for 'positive' initial reactions

Topic / theme	Frequency
useful for developing group skills	2
good to do group work for a change	2
"good practice for placement"	1
"will be a benefit for my education"	1
"good"	1
"looking forward to the challenge!"	1
understood the task - project would be enjoyable	1

Nine responses have been categorised as being positive in sentiment. However, at least one of these was written with an idealised answer in mind. The response of "*I was looking forward to it with the hope of further developing my group skills*" came from a student who typically offered impersonal, idealised responses in the rest of the questionnaire. The response of "*I was just looking forward to the challenge!*" is also written in a tongue in cheek manner. Interpretation was helped here through my personal contact with the students involved, such that the response of "i*t will be of benefit to my education*" was typical of the serious manner in which that particular student spoke about his course work.

The remaining responses indicate that only a small minority of students on the course looked forward to the prospect of group work, as a change from normal individual assignments and because of familiarity with the task involved.

4.1.4 Frequency of behaviours displayed in group meetings

Students were asked to rate how often they had behaved in certain ways during their meetings. The thirteen behaviours were drawn from the Rackham and Morgan (1977) checklist which was to be used originally as part of their training. However, their ratings were still analysed and show a high level of stability over the two semesters. The two sets of scores were correlated according to their

rank order using Spearman's *rho* and this resulted in a statistically significant correlation of $\rho = 0.925$, (p<0.005). Calculations are shown in Appendix 8.

The rank order of the behaviours suggests that they felt their meetings were predominantly characterised by the behaviours of giving and receiving information and by the suggestion of ideas. The less frequent behaviours were those of disagreeing, defending/attacking ideas, dismissing suggestions and interrupting.

Table R9 Self-rated frequency of own group meeting behaviours, shown in rank order and with mean rating

	Semester 1	mean rating (1-4 scale)	Semester 2	mean rating (1-4) scale)
More frequent behaviours (scores > 3)	seeking information giving information showing support putting forward ideas	3.48 3.29 3.12 3.04	seeking information putting forward ideas summarising giving information	3.43 3.26 3.13 3.05
Middle frequency (scores >2<3)	summarising building on others' ideas being open bringing in checking understanding disagreeing defend/attacking ideas	2.98 2.9 2.9 2.8 2.74 2.23 2.0	building on others' ideas showing support checking understanding being open bringing in disagreeing	2.97 2.85 2.8 2.8 2.59 2.49
Less frequent behaviours (scores < 2)	dismiss suggestions interrupting	1.55 1.40	defend/attacking ideas dismiss suggestions interrupting	1.95 1.56 1.31

The students' perception of what they did most/least often is also highly consistent with the researcher's structured observations. Again, a rank order correlation was calculated but some adjustments needed to be made before this could be done. The checklist as used by the researcher had sub-divisions of the behaviours which appeared on the students' list so it had 20 categories as opposed to thirteen. These were re-grouped so that both sets of data had thirteen categories. In addition, only the data from SEM2 was used as by this time the use and design of the researcher's checklist was more consistent.

A rank order correlation of ρ = **0.867** was obtained, this is statistically significant (p<0.005).

4.1.5 Effective group work behaviours

In the first questionnaire, the students were asked how they needed to behave in order to be effective in project groups. This question was asked specifically so as to compile a list of behaviours on which the students could later rate themselves and their peers during both projects. The resulting list comprised seven main behaviours which students felt were needed in order to be effective in groups.

Table R10: Student generated behaviours needed to be effective in group work

Topic / theme	Frequency
attending meetings / punctuality	24
encouraging a sense of team spirit	13
paying attention to deadlines	10
co-ordinating work with others	10
producing work of good quality	10
listening to others	7
giving positive feedback to others	6

The most basic requirement then, is that group members should attend meetings and be punctual for them. In addition to this they felt that to be effective, a group member should put forward ideas and work of a reasonable quality and generally work in a way that recognised the group nature of the assignment by listening to others, co-ordinating work and so on.

4.1.5.1 Self assessment of effective group work practices

As explained above, in the second and third questionnaires, the students were asked to rate themselves according to how often they behaved in terms of the seven student-generated effective behaviours (shown above in section 5.0). This next table shows how they rated themselves on the seven items. The scale used was 1 = rarely did, 4 = often did. The table shows the mean scores of the ratings which are displayed in rank order.

Table R11: Self assessment of effective group work practices

Semester 1	mean rating	Semester 2	Mean rating
attending meetings/on time	3.64	paying attention to deadlines	3.60
listening to others	3.38	attending meetings/on time	3.55
paying attention to deadlines	3.28	listening to others	3.52
producing good quality work	3.19	producing good quality work	3.36
co-ordinating work with others	3.07	giving positive feedback	3.18
giving positive feedback	3.04	co-ordinating work with others	3.15
encouraging team spirit	2.92	encouraging team spirit	2.92

The rank order correlation for these scores is $\rho = 0.858$ which is statistically significant ($p<0.025$). The vast majority of scores are between 3-4 on a four point scale so there are no substantial differences between them. This could suggest a reluctance to rate themselves using the lower end of the scale or, that they generally felt they did behave in ways which were productive for the group. Calculations can be found in Appendix 9.

4.1.5.2 Peer assessment of effective group work practices

Table R12: Peer assessment of effective group work practices with rating and in rank order

Semester 1	rating	Semester 2	rating
attending meetings/on time	3.51	producing good quality work	3.37
producing good quality work	3.39	attending meetings/on time	3.36
paying attention to deadlines	3.23	paying attention to deadlines	3.35
listening to others	3.19	listening to others	3.31
giving positive feedback	2.97	co-ordinating work with others	3.09
co-ordinating work with others	2.92	giving positive feedback	2.99
encouraging team spirit	2.71	encouraging team spirit	2.60

As with the self assessment there was a clear correlation ($\rho = 0.929$) between peer assessed ratings for SEM1 and SEM2. So in other words, the behaviours they rated other group members as doing more/less of in both projects were highly consistent with each other.

4.1.5.3 Correlating self and peer rank orders

There is a statistically significant correlation $\rho = 0.849$ ($p<0.025$) between their overall self ratings and their overall peer ratings in terms of rank order. That is

to say that what they thought they did most of and least of, they also thought the other group members did most and least of.

Again, the range of scores was small but as they are consistently ranked in the same way this gives a fairly consistent picture of what behaviours they felt occurred most and least frequently from the range of behaviour descriptions they were given.

Table R13: Self and peer ratings of effective group practices with ratings and in rank order

Total self ratings	rating	Total peer ratings	rating
attending meetings/on time	3.59	Attending meetings/on time	3.43
listening to others	3.45	Producing good quality work	3.39
paying attention to deadlines	3.44	paying attention to deadlines	3.29
producing good quality work	3.28	listening to others	3.25
giving positive feedback	3.11	co-ordinating work with others	3.00
co-ordinating work with others	3.11	giving positive feedback	2.98
encouraging team spirit	2.92	encouraging team spirit	2.65

4.1.6 What will you personally try to do differently next project?

Students were asked this question in the second questionnaire (after the SEM1 project had finished). Their responses have been organised into three main categories depending on whether they proposed a difference that was primarily to do with their own work planning/effort, planning of the group's work, or their relationship with others in the group.

The responses from the 'own work planning/effort' category make up the largest total category. It also includes the single most frequent response of "*starting own work earlier*". Combined with the other responses of sticking to their own deadlines and being more organised, a picture emerges of them wanting to impose a sense of order, stability and control over the production of their own work. Starting work earlier, a couple of students suggested, would avoid last minute rushes and give time to make improvements. It would also mean, though this was not explicitly said, that others would not be waiting for them for information needed for their own tasks. As with the other suggestions in this

category though, there is no indication whether their intention was chiefly for their own benefit, the group's benefit or a combination of the two.

Table R14: What they will personally try to do differently in SEM2 as proposed after SEM1.

Category	sub - theme	freq.	Category total
Planning / effort of own work	get my work done earlier	10	23
	keep to own deadlines	3	
	be more organised	2	
	seek more info to be sure of facts	2	
	put more effort into work	2	
	choose easier part of task	1	
	improve quality of own work	1	
	present work better	1	
	do more research	1	
Planning of group's work	more structure to meetings	4	9
	have more meetings	2	
	have agenda for work as a whole	2	
	get the main idea sorted out	1	
Relationship with others	listen more	2	12
	help others more	1	
	be more involved	1	
	have less controlling role	1	
	chase others up more for their work	1	
	encourage team work	1	
	be more assertive	1	
	be less laid back - take more responsibility	1	
	get others involved more	1	
	be less of an informative figure	1	
nil / nothing	nil response	3	
	nothing different	3	6

In the category of planning for the group as a whole, the nine responses again shared the theme of imposing order and structure, this time on the group's meetings. There was a felt need that their meetings should be more clearly structured both in terms of their timing and location and in their idea of working to an overall plan for the project.

In the category of 'relationship to others', the predominant theme was the issue of their position in the group in terms of involvement and relative contribution. A handful of students clearly wanted to become more involved than they had been previously, for example by trying to be more assertive, or taking on more

165

responsibility. A similar number of others wanted to be less involved themselves by getting the rest of the group working and contributing more. So these students suggested they would chase others up more, get others involved more, be seen less as the person who gave out all the information. The overall suggestion then, was one of gaining a sense of balance or equilibrium that either they had been in a position of having too much personal responsibility or too little.

4.1.6.1 What will you try to encourage the group as a whole to do differently in the SEM2 project?

In addition to being asked what they would try to do individually, they were also asked what they would try to encourage the group as a whole to do differently in the SEM2 project. Responses to this question were organised into three main categories; planning and timing of work (30 responses), planning and timing of meetings (20) and working styles and relationships (28).

Table R15: What they will try to encourage their group to do differently in SEM2 as proposed after SEM1.

Category	Examples	Example total	Category total
planning / timing of work	start / complete work earlier	12	30
	set rigid deadlines for work	6	
	keep to deadlines	5	
	more organisation	4	
	have clear agenda for work	2	
	do more work	1	
planning / timing of meetings	have regular meetings	6	20
	make most of meetings	4	
	clarify meeting times	3	
	be punctual	2	
	have more meetings	2	
	have rigid meeting times	2	
	get more info. for meetings	1	
working styles / relationships	more communication / discussion	11	28
	work more as a team	3	
	offer more ideas	3	
	more co-operation	2	
	don't assume understanding	2	
	listen more	2	
	help everyone	1	
	share information	1	
	clarify tasks	1	
	have group support	1	
	be more strict with others	1	

The category of 'planning and timing of work' contains the single most frequent response of *"starting / completing work earlier"*. The majority of responses in this category are to do with timing, making deadlines, meeting deadlines and having a clearer sense of working to an overall plan. Their responses suggest a desire to reduce the uncertainty and stress of not knowing that work was going to be completed on time or to avoid the problem, panic and rush of last minute working.

In the next category, fifteen responses are about the number and timing of group meetings. The general theme being to increase the certainty and predictability of meetings, to reduce the time spent trying to organise others and increase the chance of full attendance. The category of 'planning and timing of meetings' also indicates that they felt their meetings needed to be more productive and generally more worthwhile. In part this is addressed in the next category.

The main theme of 'working styles and relationships' suggests that in their next group they felt that more communication and discussion were needed. This is the second most frequent comment in total and is part of a general picture that they felt groups needed to work more as groups and less as collections of individuals. This is further illustrated by a range of comments such as the need to listen more, share more information and help each other more.

4.1.7 What they tried to do differently in the SEM2 project and why

This question was asked in the third questionnaire as a follow-up from the previous question which asked them what they thought they would try to do differently next time. To start with, their responses have been categorised according to whether there is a consistent match between what they thought they would do differently and what they reported as having tried to do differently.

The table below shows the distribution of these categories.

Table R16: Match or mis-match between proposed attempts and reported attempts to do things differently

Category	Frequency
Total	39
Consistent match	20
Inconsistent match	12
Blank responses	7

A total of twenty students then, reported that they had tried to do something in SEM2 which was consistent with what they proposed they would try after SEM1. However, not all of these attempts were reported as being successful or appropriate and this distinction is the next category to be examined.

4.1.7.1 Unsuccessful or inappropriate attempts

Nine students reported an attempt to try something different but either failed to do so, or as was more often the case, found that it was no longer appropriate. The majority of these cases were to do with their relationship with others in the group, such as being more involved, more assertive or avoiding confrontation. However, whilst this may have been relevant in terms of the SEM1 project, they found in SEM2 that other members of the group were more welcoming or less confrontational than before so their attempts at a change of approach were no longer appropriate.

4.1.7.2 Successful attempts

Of the successful attempts (or at least of those that gave no indication of failing) *"starting and completing work earlier"* was the most frequent response (five students) with another reporting *"preparing more work for meetings"*. For another three, their 'successful attempt' was a matter of adopting the same approach or the same level of effort as they had done in the SEM1 project. For the remaining two it was a matter of their role in terms of organising things for the group, with one trying to increase his role and the other trying the opposite.

So, the most clear cases of a successful match between proposed change and reported change tended to be task related and concerned with the timing of work. Attempts to adopt a different level of involvement with others tended not

168

to be reported as successful because they proved no longer appropriate to the new group.

4.1.8 Their perception of their own effectiveness in the groups

Students were asked to tick whether they had been more effective, less effective or 'about the same' in the group they had just finished compared with their previous group. They were also asked to explain why they thought this had been. The distribution of responses is shown below:

Table R17: Effectiveness in groups - distribution of responses

Effectiveness in SEM1 compared with YEAR1	Effectiveness in SEM2 compared with SEM1
more effective = 20	More effective = 16
about the same = 12	About the same = 11
less effective = 12	Less effective = 11
total = 42	total = 38

4.1.8.1 More effective: reasons given

Students' accounts of why their effectiveness were remarkably similar across both semesters. Their explanations revealed that their interpretation of 'effectiveness' is to do with a sense of being actively engaged and involved in the group.

For example, students talked about having more active roles in terms of organising and designing work, others of being more interested, speaking more, being more knowledgeable about the task. In addition, the absence of dominant or disliked members was given as a reason for greater effectiveness, as was getting on with the other members of the group, trusting them and being made to feel part of the group.

Three students also gave their previous experience of a similar project as a reason for improved personal effectiveness. In two cases this was the sole response, but the other talked of putting into practice the experience of the YEAR1 project in terms of "voicing your opinions and relating to each others work and needs." The results indicate then, a variety of both personal and

situational factors which they felt enabled them to be more actively engaged with the group and the task.

4.1.8.2 Less effective: reasons given

As with the 'more effective' responses, students associated their lower effectiveness with their level of involvement and engagement with the group. The main theme here was that for a variety of reasons they felt less able to contribute. For three students it was because they felt they did not know as much as the other members. Others suggested they were less effective because they felt excluded from the group. Examples here include; other members having a dictatorial style, other members organising things or producing pieces of work without consultation. One student felt that he had excluded himself by having the wrong attitude towards the project, giving his own absenteeism as an example.

4.1.8.3 About the same: reasons given

The less detailed responses indicate that this was a harder category for students to explain. Three students talked about their SEM1 groups being about the same in terms of composition as the YEAR1 groups so that they felt they had the same type of role and performed in the same manner. Another three identified problems with their own work which were similar in SEM1 and YEAR1 - one responded that he tends generally to be poor at group work with another two feeling that they had left work too late as was usual for them.

4.1.9 Whether they had improved skills or not - with specific examples

Students were asked this question in the third questionnaire, and were given the choice of saying whether they thought they had, or had not, improved the skills needed in group work and to either give specific examples or explain why they felt they had not developed skills.

Table R18: Whether they thought they had developed group skills or not.

Improvement?	Frequency
Total responses	39
YES	29
NO	10

4.1.9.1 YES responses to skill improvement

Taking the YES responses first, the areas of skill development have been categorised according to whether they were primarily concerned with: the planning and effort of their own work, the assessed task areas or roles, and relationships with others in the group.

Table R19: YES - for skill improvement with examples and their frequency

Topic / theme	Examples	Frequency
Work effort / work planning	meeting deadlines / starting work earlier	6
	doing more research	3
	choosing different task each time	1
Assessed task areas	oral presentation	3
	report writing	4
	drawing	2
Role / relationship with others in group	putting more ideas forward	6
	being more involved	2
	being less involved	1
	co-ordinating work with others	1
	handing responsibility to others	1
	criticising others work more	1
	get the group to say more	1
	working as a team	1
	communication skills	1

There appears to be an element of justification at work in some of the YES responses in as much as skills 'should' have improved simply by the light of experience. This was mentioned explicitly by one student whose account was *"not sure, just feel you can't go backwards or get worse at it"*. A number of other accounts were unconvincing because of their lack of examples. For example, the responses of *"working as a team"* and *"communication skills"* are less convincing than those students who provided clarification such as improvement at *"getting used to handing responsibility to others for things that will affect my work"*. The key to this question then, was asking the students to give specific details or examples.

However, in doing so, the process of categorising was made much more difficult. This in turn revealed two crucial points. In trying to categorise a response according to the broad distinction of task or role, the inter-relatedness of the responses became clear. Had they just written "*working as a team*" or "*better at drawing work*" the process of categorisation would have been clearer and when looked at in total would suggest whether they felt they were learning more to do with the task or the process of group work. Giving more detailed responses blurred the issue, as the following examples illustrate:

"*I have put more research into materials/components/types of construction and the overall design, therefore I was more able to put forward my own ideas of what the building should be like.*"

In this example then, the extra effort put into the task is associated with increased involvement and participation in the process of designing the building. Another example will serve to clarify the point:

"*.... over the last two projects I have discovered that deadlines have to be met and work has to be of a good quality as you do not want to let down the group.*"

In this example, the student's effort in organising his own work might have been interpreted as an individually oriented response, however, if the result benefits the group as a whole then a more collective orientation is revealed. The dichotomy of task-process is less clear.

The second major point to be made here is that the improvements of one member can facilitate a change in approach of another group member. The issues of 'starting work early' and 'meeting deadlines' have consistently been raised by the students and in the following example the effect this can have on others is shown. One student's account of the SEM2 group was that she felt she had been more effective and involved in it, part of the reason she gave for this is that everyone stuck to the deadlines in the group whereas last time they did not.

In short, those students who felt they had improved because they were starting work earlier or keeping to their own deadlines are quite likely to have had an effect on the other group members.

4.1.9.2 NO responses to skill improvement

The NO responses to the question of skill development are each quite different. They reveal more of the space that group work occupies in terms of being on a degree course at university of which group work is one part. Two students talk of group work in quite mundane terms. They had not developed skills, they felt, because group work is just something *"we had to do to pass the course"* and *"I wouldn't say improve, just that we got on with what we had to do .... we had to do it and that's what we did!!"* A general lack of interest in the projects was also given as a reason by another student for not improving on his *weaker areas*.

One of the other students was unsure about his skill development because in all the groups he has been in, he has received similar grades, and in doing so used grades as an indicator of development. Two responded by giving the reason that the groups they had been in had not worked well together, one going so far as saying that the experience *"has completely put me off group work"*.

The final response in this section is interesting in that it presents an account of learning about group work at university as having a natural limit. The student felt that having been at SHU for four years he knew *"how much work to do and how to do it. Therefore it is difficult to develop any new skills, it will probably require a change of environment."*

4.1.10 Attitude change since the start of the first year?

The responses to this question are equal in terms of whether they thought their attitude had changed (seventeen) or had not changed (sixteen), there were six nil responses. As with the question above, they were also asked to elaborate on their response.

4.1.10.1 Attitude change: 'Yes' responses

Of the 17 'Yes' responses, 11 were generally favourable shifts in attitude about group work. Group work for some, was becoming easier as they felt people were helping each other more, others were feeling more comfortable with the idea of group work, with the remainder working harder in groups, putting more effort in.

6 students felt that their attitude towards group work had changed for the worse. The responses here were partly to do with the unfairness of working with others (not producing work, for example) and partly to do with their own input (apathy, feeling the need to get good individual grades at the expense of helping others in the group).

Two themes stand out in the responses to this question. The first is that students interpret group work in different ways, compare the following examples:

"In the first year it was harder - people didn't know how to work in groups and there was a wide range of ability .... now everyone knows how to act and has similar levels of knowledge so it is easy and better working in a group."

"It was easier in the first year, not knowing anybody and therefore willing to work with anyone. Now knowing most people it is harder to approach and adjust to working with them. It makes it more difficult to work in a group."

The second theme is the influence of positive and negative group experiences, as manifested in these two quotes:

"My attitude has changed somewhat, in the first year I was in poor working groups which discouraged me, but this year I have worked in groups willing to

work and get on which encourages myself to work better and get more out of it."

"My attitude is becoming more negative towards group work due to the lack of input and interest from others. These people tend to be carried through projects, this being a fact I have noticed throughout the full year."

4.1.10.2 Attitude change: 'No' responses

An important theme in students' attitudes towards group work is evident in the 'no' responses. Of those who thought their attitude to group work had not changed, the most frequent response (six) was that *it depends on the other members of the group*. The use of this phrase ties in with the point raised above about the impact of positive and negative group experiences.

Following this, five thought that they had approached both groups in a similar way. The other responses give an indication of the general attitude towards group work with the response of *"I've always got on with people and enjoy group work"* being the most enthusiastically positive comment about group work. For others, again, the lack-lustre appeal of group work is reflected:

"I still don't like it and would prefer to work alone. However I understand it is an essential part of the building industry and it doesn't appear to be such a chore now. Do it and get it over with."

"If anything I think 'Oh no, not another one' its as if group projects are the 'in-thing, although I enjoy the occasional one, when everyone decides to do them its a bit 'samey'"

175

4.2 Interviews

In order to help contextualise this section, reference is occasionally made to background information and suggestions which did not come directly from the interviews. To distinguish this information, it appears in square brackets.

The section is divided as follows:

4.2.1 Setting the scene: the seven students and their account of the course in general.

The purpose of this section is to provide essential contextual information about the students and how they felt about their course during the second year. It starts with a brief biographical overview of the students interviewed.

4.2.1.1 The seven students

There are six males and one female in the group of seven (of forty two students on the course only three are women). The oldest student in the group was twenty four, with the average age being twenty one. Their route onto the course varied quite widely for such a small sample. Two of the seven have had full-time work experience, three came from a HNC background, one came form 'A' levels, and the other joined the course in the second year from an OND course.

Due to the diversity of previous qualifications and experience, the amount of group work they had done also varies quite widely. The HNC and OND students were the most familiar with the idea of group work and had worked on approximately four large-scale projects before. The 'A' level student was new to group work in the first year and the student with the most work experience felt that he had not had 'a great deal' of group experience for his age. When these students started the second year projects then, they brought with them unique biographies in terms of the amount of group experience they had, and the context in which the group work was done.

One important distinction to make in terms of the nature of the interviews concerns the ease and willingness of the interviewee to respond to questions directed at them at a personal level (e.g. about their role or effectiveness in groups and so on) and in turn, the ease with which I felt I could ask and follow-up such questions.

On the one hand, three students were very willing to talk about themselves, and in terms of recognising a fellow student working on a project, were broadly sympathetic to what the researcher was trying to do. They were clearly quite

177

glad at times to have been asked their opinions about group work and their course in general. At the other end of this continuum, two other students were more hesitant, not necessarily that they were not willing, but that they found it difficult to answer questions of a more personal nature. It is characteristic of these interviews that one student reacted sarcastically when the researcher said 'that's interesting'. The other student commented that he was unsure why he was being asked about reflecting on group work when it was not the type of topic he generally considered.

In terms of the students' attitudes, another rather crude but worthwhile distinction has to be made between those students with a greater concern for doing well academically [who are also those with consistently high grades] and those who want to do well but for whom high academic standards were not such a priority (or realistic proposition). As will be seen, the students' attitude towards course work shapes the strength of their reaction to the prospect of doing group projects and also their roles and interpersonal experiences.

4.2.1.2 Social composition of the course

During the interviews, the students talked about other people on their course and this section provides an account of how they described the social composition of the second year cohort.

The course of forty two students was seen to have sub-groups within it. For example, one sub-group were those who played football for the course team. These students were more familiar with each other, and, as was described by one student, this sense of familiarity can facilitate communication in a project group if they happen to be working together. [It could also be the case, therefore, that a non-footballer in such a group could feel less included]. Other social groupings were described by one student as being based on geographical origins, two significant groups for him were the 'Sheffield lads' and the 'Liverpool lads'. These different groups would sometimes socialise with each other in the evenings.

The emphasis here on 'lads' reflects the male dominated nature of the course. At least for the male students interviewed, this situation was seen as a natural state of affairs given the male dominated nature of the construction industry. The way they talked about the two mature women on the course was not that they felt they should not be there, but that their age, gender, lack of experience of construction and technical drawing made them less likely to be employable. In this sense they were seen as unusual students and stood out as such.

The younger female student (one of the seven interviewed) felt that gender was not a significant issue in terms of how she saw her place on the course and how she was treated by the others. Rather, what characterised her position was that she felt at a disadvantage in comparison with many on the course because of her 'A' level background and relative lack of drawing skills and work experience. There was no indication from the other interviewees that they were influenced by her status as one of the few women on the course and they generally rated highly both her level of enthusiasm and her ability.

Another classification of students on the course were the mature students with work experience. These students were often talked about in terms which gave them higher status than other students and this reflects the value that the students placed on experience, technical knowledge and drawing ability. Likewise, one of the mature students identified a different type of student on the course as being those who more fully identified with the student lifestyle, by which he meant they placed more value on socialising than academic work.

These different groupings then, became more developed and their membership more obvious as time progressed. The importance of this is that by the time students started their second year, they were becoming more likely to be aware of each others' backgrounds, social preferences and degree of conscientiousness.

4.2.1.3 Time spent at university

The timetable and the students' attendance at university were discussed frequently as something which affected their work and the nature of their project

179

groups. In the second year, the timetable was limited so that they were only scheduled to attend two days a week. [One of these days was a Wednesday, the afternoon of which is given over to sports, including the course football team]. A number of students lived outside Sheffield and because of the potential for very long weekends, they talked about going home on a frequent basis. From their discussions it would appear that for many students, travelling in for a group meeting on a non-scheduled day was unlikely due to the expense involved and because they did not 'have' to be there. Their world then, was shaped by the timetable, just as at work the 9-5 scenario shapes other organisational lives. The students on this course were likely to spend considerable time away from the university, with some spending more time at 'home' than in Sheffield. Unlike the first year, it was also mentioned that the second year timetable offered much fewer opportunities for informal contact with each other.

4.2.1.4 Their perception of the course in general

Besides the eventually career-enhancing prospect of the degree, the over-riding purpose given for being on the course was to work towards getting grades. Assignments are vehicles for grades and the way in which they were structured and presented was seen to greatly affect motivation.

The general impression the seven gave of second year morale, was that motivation on the course was quite low. They did not feel overall that students were giving their best or were encouraged to do so. The de-motivating influence of semesterisation was mentioned by one student, he felt that they were given as much work to cover in some units as used to be the case over two terms. They described how only the final year grades count towards their end degree classification and this was also given as a reason for low motivation. The timing and bunching of assignments was also felt to have reduced motivation and pride in their work.

All these statements were given as an indication of a general course morale. However, it was also clear from the way in which most of the seven students talked about doing their own work, that they themselves did 'put in the hours'

and try to do well, so there is a contradiction here. One of the seven suggested a possible explanation in that he felt students on the course probably do have pride in their work but they may not show it because it is not generally the norm on a university course to show excitement or enthusiasm.

I asked the students if there were any improvements they would like to see on the course. Only three offered concrete suggestions but they all wanted the same thing - a return to more traditional teaching methods in the tutorials. They all said that what they wanted from a tutorial was to be given more detailed information about the different aspects of construction and to be given these by the tutor. They were aware of terms like 'student centred approach' and recognised that this was what their tutors were trying to encourage. However, the feeling for these three was that they knew how to use a library, so why not be given the information?

When asked what they thought other students felt about group work, the general response was that it was not singled out particularly as being liked or disliked by others on the course. There was a reluctance to make generalised statements here as they felt that individual students would have their own reaction and attitude towards project work. It was mentioned however, that some students have very negative reactions to group work based on their past experience of poorly working groups.

The over-riding source of motivation in group work was seen to be working towards individual grades, whilst at the same time doing enough work so as not to have a negative impact on the others. Grades were constantly given as *the* source of motivation, rather (as one of them said) than any sense of wanting to improve group skills.

There was a feeling that motivation in group work on the course was quite low and a variety of reasons were suggested. The restricted timetable for example, was felt to have made it harder for people to feel motivated as they were only at university for one and half days a week. It was also suggested that the second years didn't give 100% in group work partly because of the student lifestyle of drinking and socialising (which was felt to have been promoted by the

181

university) and partly because they were all aware that grades in the second year do not count towards the final degree classification. In a more general sense, there was a lack of motivation on the course and group work was 'just' another assignment to do.

4.2.2 Reservations and difficulties involved in group work: major themes.

The starting point for this section has to be an appreciation of the students' reservations about group work and their tendency to prefer individual assignments over group-based work. The differences they saw between individual and group-based work are crucial in understanding their experience of group work and the challenges and problems they faced in it.

4.2.2.1 Reservations about group work

Only one of the seven students stated a preference for group work. However, this was not because of the aspect of working with others but because he prefers the type of design work that usually forms the basis of group project work.

Based on their experiences of group work in the first year (and from previous courses) all seven had reservations about working in groups again and some were clearly keen to have the chance to express these during the interviews. Their reactions differed in the degree of frustration and difficulty they associated with group work, but for most of them it is clear that group work has at some point caused quite significant personal stress and anxiety.

However, whilst the general preference was for individual work it would be wrong to say that they were completely opposed to group work. Despite their reservations there was no call for group work to be discontinued, but it was suggested that the use of group work should be questioned more by tutors, that its positive benefits were not necessarily obvious and that its assessment method was flawed. During the interviews, it was clear that they understood the reasons given by the tutors to justify the use of group work. They were also

familiar with the notion of student centred learning and recognised that group work now forms part of many degree courses. Whilst they might not prefer it then, they acknowledged that group work was an established part of the course they were doing and for that reason it was something they had to do.

Similarly, they did not feel that preferring individual work meant that they started each group with a negative attitude towards the other members. Their approach was more conditional than this. One of the main reasons they were not completely 'anti-groups' (as one described it) is that they recognised that groups can work - if the other group members meet with their approval. One of the main reservations about group work, then, is the membership of the group itself.

What is it about the prospect of working with others that makes them prefer individual work? To understand this it is necessary to discuss the fundamental differences in the experience of individual work and group-based work.

4.2.2.2 The issue of control and limited influence over others

The first difference between group and individual assignments is to do with control. Starting a group project means that each student enters a relationship with others in which they have *lost individual control* over both the product and the processes of production. No longer do they have sole control over when to start working, how close to the deadline they choose to complete the work, how to fit the work around their lives outside university and how adventurous or routine the building design should be.

Product and process are now subject to the dynamics of a group, a group which itself has not been chosen by the students but has been randomly allocated by the tutor. [Moreover, the tutor chose the groups so that students would not be working with someone they had worked with before]. Group members, therefore, may or may not know each other beforehand and may or may not be familiar with each other's academic record or general conscientiousness.

Moreover, it is not just the prospect of losing control which causes anxiety but the difficulties involved in trying to *regain* control. For example, the timing of work is an important issue they raised and will serve as a useful example:

A student wants to complete their section of the task so that they can get on with another assignment, but in order to do so they have to be given some information by another member of the group. Despite arranging for the information to be exchanged at the next meeting, the other student fails to bring the work. Until the first student receives the information they cannot proceed with any degree of detail. The problem they face is what to do about this, how do they regain control over the process of their own work? What influence do they have over the other student?

What causes the anxiety is the feeling that their influence over each other is limited. Quite often, the problem of lacking influence was attributed to the *limited opportunities for personal contact* with other students. During the 2nd year, all their lectures and tutorials took place within two days of the week. Attendance on the remaining days was not seen by the students to be compulsory, it was much more a matter of individual discretion, need, or ease of access. Not all students lived close to the University and a few commuted in from different cities, so that personal contact with others was not an everyday occurrence. Likewise, not every student was on the telephone. In our example above, if the student with the information missed a lecture or a meeting (for legitimate reasons or not) it may be that a whole week had to go by before they could pass that information on.

These organisational factors should not be underestimated. Limited contact time served to make attendance at meetings a much more significant issue. Lack of attendance at meetings was frequently given as a source of frustration. The problem of regaining control, however, has another major barrier. Even assuming that there were no organisational difficulties and that attendance at meetings was 100%, they still felt that in general, the influence one person can have over another is restricted. Moreover, this influence is restricted further by their *role as a student.*

This point requires some clarification. Keeping with our example above, the failure of one member to produce work on time was quite often seen as a fait accompli, because it was felt that 'you' (meaning people in general) cannot make somebody else do something if they do not want to. However, during the interviews they also talked of not 'being in a position' to make demands of another student. So, in addition to the general sense, there is something about the particular nature of being a student which limits the power they feel they have to influence each other.

Though they describe important informal differences in status amongst themselves, they also see each other as peers, as fellow second year students working on the same assignments and assessed at the same level. Their connection with each other is through their shared identity as students. So, although one student may be seen as more experienced or more able and have some added influence because of this, ultimately they have no more right to make demands of another student than anyone else. Of course, strict demands could be made in theory, but this would contravene the norms of student interaction and so would be unlikely in practice. Moreover, their demands or requests could not be backed up with legitimate sanctions or rewards. Tutors on the other hand, have the perfect right to make requests and expect them to be met because of their power in this role.

Only in severe cases would one of the students inform a tutor that a fellow group member had not been attending or producing work on time and this illustrates the same peer solidarity that prevents them from making demands of each other. During the presentations, for example, students were reluctant to ask questions of other groups and as one student said, this is partly because they 'don't want to put their foot in it' and run the risk of embarrassing the group in front of their tutor. A characteristic feature of the groups, then, is this lack of legitimate sources of power to influence each other.

So how do they attempt to negotiate this problem? On one level they clearly do try to resolve potential problems through interaction, by asking the other student about their progress, or for information, or suggesting improvements and so on. As has been discussed, however, the real problem that emerges is what to do

when this fails. In these cases, resolution of the problem tends not to come through continued interaction, but by a variety of more pragmatic strategies. For example, pairing up with another member to re-do one member's task, or, ignoring a group member by making decisions without them. On a more strategic level, one student gave the example of offering to do the initial building design work on his own so as to avoid any difficulties associated with waiting for work from other group members.

What is significant about these examples is that the problem of influence was not resolved through interaction, which we have seen has limits, but through actions which usually result in at least one member of the group having extra work or responsibility. Whilst they may not feel that this is an ideal scenario, it would seem that taking on extra work is occasionally worthwhile because it gives the student back some control over the process of working.

So far, then, the issue of control has been highlighted as one of the significant themes which characterises the difficulties students experience in group work and their consequent preference for individual work. Regaining control over their own work process is made difficult by the lack of personal contact they have with each other and is limited by the role of being a student. Attempts to resolve problems through interaction are made, but this is felt to be ultimately limited in effect and some group members may find themselves taking on extra work in their desire to regain control.

4.2.2.3 Group work is reciprocal in nature

The example used in the preceding section concerned the uncertainty and lack of control that one student had whilst waiting for another group member to produce information needed for their part of the project. In order to introduce the next theme of *reciprocity*, the example will be used again but this time focusing on the student who has not been forthcoming with the information (the example being used here is based on the accounts of two students involved in this situation).

Rather than laziness or a deliberate withholding of information, it may be the case that the student is having difficulty with their section of the task and has not yet been able to complete it. They may be well aware that they are delaying another student's work and this knowledge can be as unsettling and stressful as having to wait for it. The point is that group work is *reciprocal in nature*. Not only is it the case that other members influence your working practices but you can also influence theirs.

The reciprocal nature of group work is most keenly felt when it comes to the potential effect that students can have on each others' grades. The general consensus of opinion here was that group work serves to lower individual grades rather than improve them. However, whilst this was generally felt to be the case, there were few concrete examples given of it happening, so it is probably most accurate to say that it is the *prospect* of losing grades which is the concern here.

As it was such a common concern, it is worth explaining the process by which they feel grades could be lost. To recap, each member works on an allocated task to produce one section of the building. In order to do so they need information on sizes and layout from at least one other member. The potential for losing grades occurs if one member fails to provide information well enough in advance of the deadline so that other members can proceed with their sections. It can also occur if the quality of that information is so inaccurate that it makes work on the other section difficult. A further potential for losing grades would be if the other three group members were sufficiently below one's own standard so that the pool of ideas to start with was poor.

However, as 70% of the assessment is awarded on an individual basis (for the drawings and written explanation accompanying them) students were not as concerned about the other members' academic ability as they were about their *reliability*. As one student said, the quality of the other members' work is their responsibility. The most important thing is that the others are reliable and produce the work needed for other group members on time. If the others' work standard was of a particularly high quality then this would be an advantage in

that the group would be more likely to show the type of initiative in their building scheme that is well received by tutors.

The potential of group work to lead to lower grades means different things to different students. For those who feel their standard of work is above the average in their group, group work can represent a threat to the maintenance of their own standards. For those who feel that their work is below the average standard in their group, the concern can be that they will be the one responsible for lowering other students' grades. It is also possible to have both these concerns at the same time, not wanting one's own work to be interfered with by others and in turn, not wanting to adversely affect other members' work.

One of their reservations about group work then, is that it is reciprocal in nature. The potential to affect other students' grades was a major concern creating an underlying tension which is fundamental to the experience of group work. To understand why this should be the case, it is important to understand the role that grades play. To start with, grades do not have a single meaning, they were read in different ways and some of the main ways are described below (all of which were based on grades for individual work):

- Grades were generally seen as the source of motivation for any degree course. The whole point of doing the assignments was to get grades which lead towards their own degree at the end of the course.

- Grades for individual assignments can be seen as a benchmark of their own academic performance and as a sign of individual merit. Getting a higher than normal grade can be seen as an indicator of personal academic progress. A lower grade can be seen as an indicator that they need to work harder.

- Receiving high grades can provide a source of enthusiasm, low grades the opposite. These feelings may or may not carry over to the next assignment.

- Another student's high grades can be seen as wasted, or unnecessary effort on their behalf, or as indicative that the student concerned does not enjoy an active, rounded life.

- Grades can represent the outcome of an unpredictable, or unfair system, such that the work put into some assignments is not seen to be reflected in the grade received.

- The personal significance of a grade can also be mediated by the value of the assignment, such that if interest in the assignment was low then a low grade would not necessarily be a surprise or a disappointment.

Feeling that group grades are potentially influenced by other students confuses their interpretation. Is a low grade, for example, an indicator of the need to improve, or the tangible outcome of an unfair teaching method that serves to erode individual merit? A grade which may have been influenced by other students also violates the normal practice of working individually, amassing individual credit which contributes ultimately towards one's own degree.

In group work, then, the students are put into the paradoxical situation of working collectively towards their own individual degrees. The tacit recognition of this gives rise to a feeling of solidarity with their peers, that they are all in the same situation. It also gives rise to the most significant unwritten rule about group work which is that they should not let their peers down. Students who willingly break this rule are a source not only of frustration but of something more deeply anti-social.

4.2.2.4 The public and private nature of work

Another major difference between group work and individual work is the distinction between their public and private natures. Individual assignments are much more private events; from start to finish it is not essential that any one else sees their work other than the tutor. Once assessed, work is returned to the student individually. It is up to the student whether or not they choose to show their work to other students or reveal their grade to them.

189

With group work on the other hand, the process of working is much more public in nature. When a piece of group work is assessed (on the particular unit in question) the students receive a sheet of paper with all their group's grades on it. Each member's grade is made public to the other group members. The effect of this varies, but can mean that some members are made to feel more aware that they were the weak link in the group, or that they were the most able in the group. There is also some indication that getting the grades back in this way acts as a source of encouragement for some students to work harder so that their contribution does not stand out as being significantly under par.

This is more than a question of not wanting others to see their grades, however, but of one student's academic ability in relation to their peers. Group work, because of its public nature, serves to reveal differences between individual students. Moreover, through their interaction with other group members, the individual student's knowledge of Construction, the quality and quantity of their ideas are also on public display and as such are more obvious (and potentially threatening) than in individual work. The effect of this is that it reinforces the students' view of themselves in relation to others. For some this may be a view of themselves as being an above average student, for others a view that they are below the average on the course.

4.2.2.5 Group work reveals discrepancies

The reciprocal, public nature of group work reveals more than discrepancies to do with academic ability. Through their interactions with each other, students were made aware that they had different ways of working and different attitudes towards the work itself. The differences which were recalled were those which caused anxiety or annoyance. For example, other members of the group may not share the view that everyone should contribute equally, that work should always be done to the best of one's ability, that work should be started and completed well in advance of the deadline or that punctuality and attendance at meetings is sacrosanct.

The difficulty in trying to resolve these discrepancies has been discussed in terms of general limits to the influence one student can have over another. On a more individual level though, in trying to resolve a discrepancy the student is presenting her/himself to the other(s) in the group, and their attempt to resolve what they see as a problem reveals their own preferences, attitudes and values. This involves risk, in that they are presenting themselves to be judged by the others. It can also heighten their own personal sense of adequacy in terms of being able to express their concerns and their confidence in their right to do so.

Attempting to intervene in the group, putting themselves on public display can highlight much more personal aspects of their relationships with others. Intervening involves the risk of being judged (what will they think of me if I say X?, how will they react if I disagree or criticise their idea?). In turn, these thoughts can reveal discrepancies between their ideal sense of self and the self that is on display in the group. One student, for example, felt that he had let the group down, despite wanting to be the type of student who did not do this. Another wanted to be able to work without having to ask for help, but could not do so. Others wanted to be more assertive but were not, or to be able to trust the other members more but were unable to. The examples here are quite idiosyncratic, reflecting the personal revelation that can be brought about through the presentation of themselves to others.

4.2.2.6 Summary of this section

The students' accounts of group work were characterised by several main themes; the issue of control and influence over others, which the role of student was perceived to limit; the reciprocal nature of group work with its potential to influence grades; the public nature of group work through which the students presented themselves to others; the discrepancies which were revealed in group work between different ways of working and differences in the students' ideal self and their evaluation of how they actually performed.

The themes above have been presented as shared characteristics of group work, but it is clear from their individual accounts that each student's

experiences were unique. Individual experiences were shaped by the way in which particular aspects of the above were heightened both by their interpretation of group dynamics and their own attitude towards the specific project and academic work in general. For example, those students most concerned about maintaining high academic standards were more likely to see group work as a threat. Those who were aware of their relative lower ability were more likely to be anxious about letting others down. Furthermore, whilst the themes have been treated separately for the purpose of explication, they were not experienced as such. They should be treated as a whole, not as isolated or separate factors.

4.2.3 Life in groups: group development and the negotiation of roles

This section provides an account of what happened in the groups during the second year, concentrating on two main themes: the development of characteristic stages of project groups and the often implicit development of roles within them.

4.2.3.1 Characteristic stages of the project

Group projects on the Construction Technology Unit follow the same basic brief each time so that the students have done similar types of project each semester. Students were aware of this and from their discussions emerged a characteristic pattern of project development which has three stages. An outline of these stages can be seen in the table over the page.

The early stage of the project typically lasts for the first couple of weeks or the first few meetings. Group members may or may not know each other but will not have worked with each other in a group before. It is during this stage that the group has to create a basic design for their building according to the specifications of the brief. The basic design is essential because until it is decided upon, their own individually allocated tasks cannot begin. Task and process cannot readily be separated here because it is through the discussions about how to approach the design that early impressions are made about the potential effectiveness of the group and the individual's role within it.

TableR20: Characteristic stages of the project groups.

Stage	characteristic features
early (first two weeks/meetings)	The most actively collaborative stage. Group members meet each other and need to decide upon a basic building design - work cannot start without this. Individual tasks need to be allocated.
middle bulk of the semester (five / six weeks)	A more individual stage. Work is carried out on individual tasks (e.g. specifications and drawing of floor plans, structural frame, landscape). Some aspects of work will depend on the precise specifications from someone else.
final brief (some point during last two weeks)	A theoretically collaborative stage. Work is collated to form a final, bound submission. Groups also present their building scheme to the tutor in class. Theoretically collaborative but presentations often hastily prepared, some absenteeism, little enthusiasm.

The problem to resolve at this stage is the degree to which the design is influenced by the whole group (which takes time and involves negotiation and discussion) or by one individual (which is quicker and probably more coherent but may result in feelings of exclusion). This tension was described as being resolved in various ways: sometimes by each member doing an individual design and then comparing them as a group, sometimes by agreeing that one member does the design and once by one member unilaterally deciding to do the design with no discussion involved.

The other main decision to resolve is the allocation of individual tasks. Once the design has been created, each member needs to choose or be given a more detailed part of the design to specify and draw. Again, there is a similar tension, do individuals each put a case forward for why they should do a particular aspect (which would be more truly collaborative but require more time) or do they decide by some more unilateral or random method? This problem was

more pronounced by the fact that some parts of the task were generally seen to be easier than others.

It seems that both these problems were particularly acute in the first year, when the students were unfamiliar with the demands of the project, and in some cases completely new to group work. By the second semester of the second year, a number of groups were implementing strategies to overcome the problems such as picking straws to allocate tasks. When they discussed their motivation for that particular strategy it was not only to encourage a sense of fair play, but to reduce the prospect of lengthy and difficult negotiations. As such it also accelerated the development of the next stage of the project which was much more to do with individual work.

Indeed, it was this first stage that was most often described in terms of being difficult or a 'hassle'. The two main problems which have to be resolved during this stage have a crucial effect on the rest of the project. Moreover, they have to be resolved at a stage when group members may only have a minimal awareness of each other's ability, conscientiousness and working style.

The second stage takes up most of the semester and is characterised by individuals working on their own allocated tasks. Indeed, it was not uncommon for group members to say that they had not seen another member's work in any great detail. However, whilst this is a much more individual stage, certain aspects of some allocated tasks do require information from another group member before they can be completed in detail. Group members still need to be able to contact each other during this stage and this was quite frequently a source of difficulty.

The final stage is theoretically collaborative in nature. By this is meant that students were aware that they should both present both orally, and in writing, a single, final, group product. However, it was often the case that the binding and collating of work was done by one group member. For example, those students with access to computers at home were often the ones expected to work on the presentation of the report. The group presentations themselves were described

as being poorly prepared for and carried out with little enthusiasm, though this was often attributed to their very low grade-weighting.

Through working in three similar types of projects, the students became aware that the projects develop in stages. The significance of this is that it also gives rise to a shared understanding of what the group should be doing at each stage, a benchmark against which to judge the group's progress.

They also became aware of the problems that they were likely to encounter at each stage and there is some indication that they had developed strategies to overcome these. This is particularly the case for the early stage of the project which involves most intense collaboration and whole-group discussion. This was also the stage described as being more fraught and difficult than other stages and again, there is some indication that they were motivated to reduce both the duration and amount of interaction of this stage and facilitate the more individually-oriented middle stage.

4.2.3.2 The development of group roles

The seven students found it difficult to identify typical roles for themselves, preferring instead to see them as something which developed according to the particular group that they were in. They felt it was generally not the case that they started each group with the specific intention of having a particular role. Rather, they felt they needed to see how the group was developing, and from this evaluation, make decisions on what action they should take. However, there is a sense in which they share a basic strategy in group work, which is to make sure that they can do their own work to a standard that they see as being equal to their individual work standard, given that aspects of the work need to be done collaboratively. They were also concerned that negative occurrences in previous groups should not happen again. Following from this, their group experiences were shaped by the way they positioned themselves in the group, whether this be to let others do the lead work or to try and ensure that they themselves did this.

In this sense there is an element of strategy involved in group work. Some students were more keen than others to position themselves in the groups so that they would be more actively involved and have more control over the quality of work. Other students were quite keen to take more of a back-seat role and so let others assume positions of more involvement and responsibility. However, it would be misleading to suggest that this was a straightforward, easily managed process, or a matter of individual choice. Roles developed not only according to the individual 's preference but as the outcome of interaction with others.

A student could not unilaterally decide to be the lead figure or take more of a back-seat role without the other members allowing this to happen. The way this happened was complex and appears to have been a subtle and often implicit process. Rarely did the students talk of having explicitly negotiated their relative positions of influence. For example, when asked how key decisions were reached, students would quite often respond with a vague feeling that the decision just seemed to be made, things just seemed to happen, other people seemed happy with a suggestion and so on.

One key factor in this negotiation of roles is the existence of an informal social system on the course which gives some students more status than others. On the one hand they are all students and equal as such, but on the other, some students are afforded more status than others. Sources of high status were if the student had a reputation for consistently getting good grades or as being a conscientious and reliable worker. Most significant here, though, is if a student has had work experience in the construction industry which is prized most highly of all. Lack of status is afforded to 'A' level students who also saw themselves as being at a disadvantage in terms of subject knowledge and practical drawing experience.

The notion of status is likely to be a stable factor in the groups, so that those with work experience, for example, talked of being seen as a source of advice by others on a regular basis. Others with a reputation for hard work were similarly well received in groups generally.

196

Each student enters the group, then, with their own sense of who they are, their sense of themselves as students and their own motivation and enthusiasm for the particular project. They also gain an impression of other students and become aware of any discrepancies between themselves and the other group members. The outcome of this process of evaluation can be seen in the strategic move by some to be more in control than others. It may also result in the exclusion of some members trying to adopt a position of influence because of their lower standing in relation to the others.

There are, of course, many different possible variations here, but the key point is that students adopt different positions of influence in groups. As a result, they experience their groups through these different positions, some from positions of control, influence and responsibility; others thwarted in their attempts to achieve this; others still, happy in their position of following the lead.

In turn, their accounts of their interpersonal behaviour were different, these being shaped by their role in the group. The more pro-active, quality-conscious students, for example, were much more likely to have felt the need to criticise other members' ideas. In turn, they gave much more elaborate discussions of what is involved in criticising others during their interviews. Criticising others' work was mentioned quite frequently in terms of the unpleasant and anxious feelings associated with the prospect of hurting other people's feelings. It was clear then, that for these students it was not necessarily the case that they were comfortable in their roles. They may have found themselves in positions of relative influence that they found difficult, but felt were needed to minimise the threat from weaker group members.

Indeed, what is interesting about this positioning of roles, of implicit strategies, is that they are not presented as being altruistic acts for the good of the group, but more to ensure that individual work is done to a standard that they are satisfied with. It would be quite wrong to suggest that they do not help each other, and there are a number of examples of them doing so, nor is it the case that they appeared to be selfish. Nonetheless, the over-riding goal is the pursuit of their own grade and this takes priority. This, after all, is the ultimate (official

or sanctioned) reason they offer for being at university and being on the course.

The aspects of the projects which they are less enthusiastic about or actively dislike are those collaborative occasions such as the oral presentations and the initial designing of the building. This suggests that their motives are not group-based so much as individually based but that group benefits may accrue as a result. In other words, in order to maximise their own control and influence over their own work they may have to do things which are good for the group as a whole. The course, after all, is about getting their own individual degree. The atmosphere is not one of collectivity, doing work for the good of the group itself, the priority is more an individual one.

4.2.3.3 Summary of this section

The group projects developed through three main stages. The first of these required the most active collaboration and is the stage most often associated with anxiety and problems. It is clear that some groups adopted pragmatic strategies (such as picking straws) to promote fairness in task allocation and also avoid lengthy group discussions. Towards the end of the second year, students were aware of the stages which served as a benchmark against which to judge the group's progess.

The development of group roles is crucial in shaping the interpersonal experience of group members. Students interact from a position of influence within the group which influences the interactive behaviours they display.

4.2.4 Accounts of improvement and reflection

This section concentrates on the students' accounts of their own learning in terms of developing their abilities to work in groups. It will be seen that their attitudes towards the development of group-skills vary, with some sensing changes in confidence and others feeling that they would not be aware of their own development. However, the experience of group work was felt to be

beneficial in and of itself (in a sense, experience 'has' to be useful). Experience was equated with greater familiarity with both the task and other students' abilities and attitudes.

Another major theme here is the distinction made between university-life and the real-life world of employment, which was felt to be much more beneficial in terms of learning to work with others. There was also some resistance to the researcher's suggestion that they might consciously, or systematically reflect on their group experiences.

4.2.4.1 Their account of improvements in group work

When asked whether they felt they had improved at working in groups since the first year, they tended to offer responses which were task oriented. Drawing and report-writing skills were felt to be improving with practice. They had to be prompted to talk about improvements in terms of interpersonal skills, reflecting perhaps their sense of priorities. Of course there are a variety of possible interpretations here, such as the difficulties involved in self awareness or dislike of introspection. However, their spontaneous offer of task-based skills is consistent with the value that they place on technical knowledge and ability. Certainly, what they wanted more of on the course was more knowledge of Construction. However, it is important not to underestimate this relationship between task and process. It was suggested, for example, that as they became more knowledgeable about construction, discussions in the groups had the potential to be more interesting.

In terms of interpersonal improvements, two of the seven students felt that they could identify areas in which they had improved. Both responses were essentially to do with increases in confidence. The confidence to speak up in meetings, to disagree if needed, was one response, but this was not felt to have been an improvement in any substantial sense. The other student felt that she was more confident in groups than in the first year and was less worried about how others would react to her, less bothered by the fear of ridicule. This student also felt that she was more willing to ask others questions and was realising that she could not leave it up to others to suggest all the ideas. Her

199

view of improvements was also shared by another student who said he had noticed similar changes in her approach.

Two of the others felt that they had not improved and were at the same level as in the first year. The difference between them is that one had more of a sense of what he wanted to improve, and this was related to his tendency to not trust others with key aspects of the design. The other student was not aware of where he could improve and moreover felt he may have done too many projects and that they were getting repetitive. It is significant again, though, that he equated improvements in group work with the student-centred aspects of using the library, looking for information and not interactive skills.

The three remaining students shared the view that if they were improving then they probably would not be consciously aware of it anyway. Overall they felt they probably were improving, that in a sense they must have improved, but they also shared the view that such improvements may be visible to an outsider but not to themselves.

In terms of areas that they wanted to improve on, these again were rarely offered spontaneously and tended to be more about attitudes than specific aspects of interaction. For example, they talked about wanting to be able to trust others more, to stop being so reluctant to ask others for help, to be more motivated. The students who were able to identify areas were also the ones who had been the more actively engaged students, the students concerned about high grades, doing their best and so on. The students who had been less actively influential in their groups tended not to be able to identify areas for improvement.

4.2.4.2 The benefits of experience

Six of the seven gave an account of the benefit of being in groups in which 'experience' in itself is of value. A typical comment made here was that *'you can't get too much experience can you?'* it was also said that what was gained from working in groups was 'experience'. Experience then, must be beneficial,

even if as some of them said, they might not be consciously aware of the benefits it brought them.

One benefit of experience though would seem to be familiarity with the task requirements and with the different ways of working of other students. They shared a view that working in groups gave them a sense of familiarity with, for example, students' levels of ability, different standards and expectations, less willing students, over-dominant students, all of which were quite specific to the course. A major gain from working with others on their own course is a greater awareness of each others' expectations and standards.

It was also suggested, however, that the effort involved in working out the preferences and abilities of each group member is wasted when one left the existing group and moved on to the next one. Whilst only one student mentioned this, it does raise a significant issue. Students on the course will be aware that they will be working with different people in the next group. They also know that the life span of the group is limited (to about nine or ten weeks) and this may induce a sense of surviving the particular group, knowing that the next one will be different. It may also induce a sense of group fatigue which was mentioned by a couple of the seven interviewees.

One student suggested that what one gains from group work was familiarity with the idea of working in groups generally, so that when one started work placement one would be more familiar with the idea of group work itself. So there might be more non-specific benefits, for example, the issue of other people not working like they do, or that being in a group involves losing some control over the process. It would be too dismissive to suggest that all the benefits were seen to be context/course specific.

4.2.4.3 University life and 'real life'

Learning about working with others at university was seen to be limited by the fact that assessed group projects are not 'real'. Although the students experienced very real difficulties at times, and took their work seriously, the projects were not discussed in terms of them being 'real' projects. Moreover,

university was not seen to be 'real life'. A distinction was made between university activities and activities in real life, by which they meant paid employment. Paid employment is real life and is valued as being a more conducive environment in which to learn about working with others. The university setting is not seen to be as effective for learning as would be paid professional employment in the Construction industry.

This perception of university as not being 'real' was seen by them to have effects on motivation, enthusiasm, and the pride they have in their work. For example, working on a project that is not seen as real means that small discrepancies in their work are of no tangible, real consequence financially or structurally. One student for example, felt that it was a shame that he has sometimes thought '*what's the use of it?*'

Working for a real client, another felt, would encourage greater motivation to work collaboratively. The general feeling here is that university is not as motivating as work would be (or has been, for the two who have had work experience). This perception also influences, and is revealing of, the dynamics of student groups. They see a difference in the nature of the dynamics of student groups compared with professional building teams.

For example, it was felt that in a work context they would be working with people who knew how to proceed with the task, who would have higher standards and who would be willing to work. At work they would not be in a position of being uncertain whether their work was right or not, or be in a situation where work could be 'made up' as it sometimes is at university.

It was also suggested that in employment, working in groups would be easier because of the greater contact with one's team mates. The greater contact would give one a better indication of how the others work, their preferences and so on. Furthermore, it was added that the absence of a 'boss' figure at university helped to create a 'lax' atmosphere, that there was no real dependency at university compared to the wages of work and no supervisor expecting the work to be done.

Some comments were slightly more constructive. One student said that group work at university could be useful - if there was more pressure. Another said that they were a potentially useful stepping stone for placement year and then full-time work. A student with work experience said that there was a similarity with site meetings and group work in that both involve working at some point with people that you dislike. Finally, it was suggested that group work might provide useful experience of collecting and collating information which was part of the role of a building surveyor.

There were no differences expressed (concerning the usefulness or realism of group work) between the two students who have had several years work experience and those who had been at college or taken 'A' levels. The students with work experience drew on their familiarity with working practices to show the differences between work and university. The others did not draw on personal (primary) experience but on their ideas and predictions of what work would be like.

4.2.4.4 Their account of reflection

The students were asked quite explicitly whether they had spent any time after the projects looking back and reflecting on their experiences. It was clear in general that they had made sense of the groups they had been in, in terms of what went wrong, or who they didn't like working with and so on. The question here though makes reflection a specific activity, a more conscious, deliberate type of activity and there was some resistance to this idea.

Reflection is not likely to occur in the systematic way implied by the questionnaires nor in the amount of depth of the interviews. This was given both as their own personal view and as a general course norm. Nor was reflection seen to be done as a distinct activity after the group has finished. When they talked about their groups, it was more the case that their analysis occurred in situ, in the immediacy of the group, how to solve problems that arose as and when they did. Thinking about the group afterwards is more likely to involve looking at grades or identifying areas of the task that would be

preferred next time. There was some indication that when the presentation is over then the project is finished, the groups have a clear cut-off point.

Two of the seven however, had more positive attitudes towards reflection. One thought that the process of completing the questionnaires was useful in triggering reflective thoughts. The other, that reflection could make one generally more aware of areas for improvement and that he was '*all for self improvement*'.

They also raised some other interesting points about reflection. For example, one student felt that reflection, certainly in a systematic way, could not really be done, suggesting that most of what one is doing in a group is outside of conscious awareness. Motives and intentions could not really be fully known because of this.

Another felt that he wasn't sure if he could reflect on his own performance, but moreover he wasn't sure why he should, or why he was being asked about it as he did not consider the topic of learning about groups to be of interest or personal concern to him. It simply was not a topic he thought about.

It would be wrong to say that they did not think about groups, but that it would appear to be the case that it does not happen in the deliberate planned or conscious way suggested by the researcher's line of questioning.

4.3 Findings from remaining interviews

In addition to the seven students already discussed, a further thirteen students were also interviewed. These students, however, were only interviewed on one occasion. These interviews were not analysed in the same depth as the previous ones but were studied to gain a sense of contradictions or similarities with the seven students forming the main source of data.

The additional interviews support the general themes presented above. In addition, some new material is presented in terms of the personal significance of being at university.

Unlike the previous section, I have chosen to present selective verbatim extracts here. There are two main reasons for this: a) the section in 4.2 above should be seen as the main research findings because they were based on a detailed and systematic analysis, whereas the additional interviews here are intended to add support to those findings, b) presenting selected extracts introduces the student voice into the results section, which it is hoped will be both interesting and refreshing to read after the more abstract discussion of the previous section.

The extracts are given broadly in line with three of the four headings of the previous section:

1. Reservations about group work.
2. The experience of roles.
3. Their accounts of learning and reflection.

The abbreviation 'S..' indicates the particular student being referred to.

4.3.1 Group composition and reservations about group work

As with the seven students in the main section, their general attitude towards group work was conditional, as typified by the following extracts which show the crucial role that group composition plays:

"I was worried about getting a good group, because I've had bad experiences .... it's not necessarily group work, it's just the other people you work with". S1

".... I feel when they're calling the groups out (in the tutorial) you're sitting there like, mentioning no names, but there are certain people where you think 'its going to be last minute, you're going to have to carry them along' and that's my only y'know, once I know I'm in a good group I feel that group work doesn't bother me'" S5

"I don't mind working in groups, it depends who you're going to be working with". S11

1.1 Their influence on others - the role of 'studentness'

There was some indication of how the role of 'student' influences the groups. In particular, the vestiges of school life, or classroom culture still seemed to be present.

In the following example, S3 is talking about the difficulties of working with another student who was not willing to work; he was asked what he could have done about it.

"well I could have had a word with one of the lecturers about it but I didn't want to be a grass, obviously its not nice, he may have other problems that I can't see, he may have family problems so I just left it **did you ever talk to him about it, y'know that you didn't like what he was doing?** *No we didn't, no we didn't, I don't think it's something that students really do, I don't know why it's just not common."*

S13, gave further insight into student life when she talked about the very poor attendance for their group's Thursday morning meetings. As she understood it, many of the course regularly went out to a night-club on Wednesday night. She also talked about doing her presentation at the end of the unit in a room where there were:

> *"lads sitting at the back, eating sandwiches and throwing pieces of paper and what have you."*

4.3.2 The experience of group roles

As suggested above, their reservations about group work are strongly influenced by the particulars of group membership and the dynamics that they create. These dynamics either allow the student to be in a position relative to others that they are at ease with, or create conditions in which the student is in a position in which they are not at ease.

Being at ease with their role or position in the group may stem from their concern to be in control, or their preference to take a more back seat role. The sense of ease is related to the reduction of discrepancies in the group between their way of doing things and the other members', their values and the others' values and so on. Furthermore, the sense of ease is related to the significance attached to doing well on the course, or in that particular assignment.

The following examples illustrate this further:

Asked why he felt he was more effective in the SEM2 group S1 replied:

"I'm always willing to get on, but I just had the chance to do it this time, it was a better group."

Similarly, S4 replied:

"I was more effective in SEM2 because nobody took a lead role, one member was absent most of the time, another was quiet, so I had more of a chance to put more input in, in terms of ideas."

On working with a member he had worked with before unsuccessfully, S3 said:

".... there's no feedback from him, you try to explain something to him and he'll probably come out with something else, er, he doesn't show interest in the group, doesn't contribute, er I don't know, I feel that he pretends as if it's a joke or something, a pastime, but this is education and it's vital, cause if you fail at this stage that's it y'know, it really got to me .... I was really cheesed off, it didn't give me the motivation to do a good project."

This next sequence is particularly interesting as all three students had been in the same group. Note in particular their account of 'John', who provides the first extract:

['John' felt that he was] *".... more effective in SEM1 because the members were slightly less outspoken .. in YEAR1 there was more of a clash between me and Alex as to who was going to be top, whereas in SEM1 there wasn't ...I feel I put more in than the others, but like I say, it's just because I want to get decent marks* [later in the interview he added] *like I realise I've got to work on letting other people do their work and me doing my own work but at the moment I'm that obsessed with getting good marks ...".*

208

".... John went off and did it all, you feel like you're being pulled along whereas in the second project we all worked together, had more input because we had to do it ourselves ...." S7

"John is very clever, he led the group .. so I actually felt like I didn't put any input into the work and at the end of the day we got a good mark but I did feel like I was riding on their backs really and I wasn't very happy .... **[why?]** *... I didn't know enough, I couldn't argue the things I wanted because John's technical ability is incredible so I just sat there most of the time* - S8 [who went on to describe how she had burst into tears at home and felt like leaving the course]

The negotiation and sense of ease with their roles can also be clearly seen in the following extracts.

".....I tend to be one of the lazy ones, so I do worry about letting others down but ... well I could afford to be much more laid back in this one, everyone else was pushing so it was all right ..." S10

S13 describes two projects:

"....we were just dictated to, in the first year we [meaning her and the other mature female student] *didn't know what we were doing so we just sat back and took it really, Alex made us feel very small ...."*

".... they just didn't turn up for meetings, 'don't give a damn attitude' .... I would turn up for every meeting, it's important for me, I need to get as much information as possible, I know so little that anything I could get y'know ...."

4.3.3 Their accounts of learning to work in groups

There was some suggestion from two students that group work is not something that can be learnt or taught as it is a natural phenomenon, the

exception to this rule being a small number of people who particularly lack social skills.

> *"Group work's okay, but at the end of the day you're going to get your own individual mark so I don't see why we do group work anyway. Y'know, I can but ...* **Why?**
> *well I guess it's for people who don't get on with people very well*
> **[did he feel he was improving at working in groups?]**
> *I probably am but I don't feel like I am, like it was drawing work and writing a report and that's it, just do it I suppose."* S1

> *"I think it's natural to work in groups, you don't learn to work in groups, people are happier in groups, unless, well one in five people maybe want to work on their own but the benefits outweigh, y'know, its just the way human beings are, they prefer to work in groups .....I just fell into working in groups, I didn't have to work at it, unless you're a stand-offish person, you don't have to do anything special ...."* S10

4.3.3.1 The benefits of experience

For the others, the main outcome of learning was familiarity. Familiarity with specific others on the course and with the requirements of the project brief. Further, learning about the topic area helped give confidence in putting ideas forward. Precise details were not forthcoming, it was difficult for them to respond to this and as with the other seven they tended to offer task and technical improvements spontaneously when asked about improvements in group work.

> *"I've been willing to put my ideas forward a lot more, 'cause I've had the experience of the first year ... how to develop the project from a brief summary, I'd not done that before, but because I've done it in the first year it gave me an insight into what to do."* S2

> *"It's just confidence really, knowing more about what you're talking about."* S5

"Now that I know more of the people and what work they do, I can think 'well, that's all right'" S6

"You know how to go about it now, since the first year." S7

"We all knew coming into the second semester that we had to get ideas and work to each other, 'cause we knew what effect it had if we didn't. Having had one group made it easier in the second semester 'cause we knew the problems .... If you know the people, you can put your ideas across better I think, you're not so scared to put ideas in, whether they'd get knocked back or whatever." S9

4.3.3.3 On reflection

Similar accounts of reflection were given by two students, rejecting the notion of reflection about group processes as a conscious post-group event.

"I don't sit there and think about it, but you might think the night before a meeting what you need to say the next day at the meeting, but that's as far as it goes." S7

"Well I've thought, 'keep it up, keep on doing the work and you're on for good marks this year', I don't really think, er, 'oh maybe I should put more effort into my group work', y'know put more input in but I do think about my marks ...." S4

3.4 Personal significance of university and group work

Though there was some resistance to the idea of systematic reflection, it was clear from some accounts that their experience in groups has been thought about in quite some detail. This most clearly came across in the accounts of three of the students and what they share is the sense of importance of being at university and doing as well as they can.

211

One of the students (S6) felt that he generally has a selfish attitude in terms of getting good grades for himself and not really caring about the others, and also that he would like to change this. His actions, though, need to be seen in relation to the personal significance for him of getting good grades. Entering the course straight from several years of work experience, he found the experience of getting high grades as something of a surprise. His sense of surprise and pride that he was routinely getting distinctions for his course work added to his reluctance to relinquish control over the process and quality of work in groups. He also felt that his work experience makes him one of the more able students in the groups he has been in, so that others are likely to pose a threat to his grades.

The two mature women students started the course with no prior qualifications. Their experiences of groups were among the most emotionally described. Their experience of group work in the first year was of feeling overpowered by one student in particular and they both felt belittled by this experience. For them, being on the course itself is described in terms of being much more of a personal achievement and much more of a struggle as they place it within a context of their family responsibilities. They are aware that others see them as weaker members of a team, and the public display of self in groups heightened feelings of self doubt. The significance of things going wrong is much greater for them, and their accounts of group work are much more reflective than the others.

4.3.4. Summary of this section

The verbatim extracts add life to the more abstract presentation of interview data in the previous section. The themes in both sets of data are similar, and in particular the following points were reinforced:

Students on the course had a conditional attitude to group work. Group composition played a major role in their enjoyment and effectiveness in any given group. Generally, enjoyment and effectiveness were greater when there were fewer discrepancies between one's own work values and preferences and those of other members'. The students' interpersonal experience is shaped by

212

their role in the group in relation to the other group members. Roles are always positions of relative influence with which the student may, or may not, be at ease. The particular role of being a 'student' also significantly influenced the dynamics of the groups.

There was some suggestion that learning about group work is a natural process, one which does not need to taught. A major learning outcome of group work on the course was a sense of familiarity with the nature of the tasks and with the abilities and values of other students on the course.

Whilst some students rejected the idea of conscious reflection about group work, other students clearly had dwelt on the subject. Perhaps the most important difference between these students, is the personal significance they attached to being at university and their own academic achievement.

4.4 Observations of group meetings

This section is divided into two, reflecting the structured and unstructured nature of the observations. Before presenting the results, however, it is worth reiterating the purpose of the observations.

The reason for using structured observations was to provide individual students with feedback on their own behaviour in group meetings. However, as explained in the methodology, the training aspect of the research was not carried out, and, in addition, there were logistical problems in trying to observe group meetings. So whilst the structured observations no longer form a major part of the research, it is nonetheless possible to present a general picture of what meetings were like, atleast behaviourally, by pooling the overall scores.

With the move towards a more student-centred methodology, came the increased use of unstructured observations. The unstructured observations took the form of note-taking after the meetings and were typically only half an A4 page long. Used primarily during the second project (SEM2), the notes are included here to help contextualise the rest of the findings presented so far.

4.4.1 Structured observations

A total of twenty two meetings were observed during both projects. This section presents the findings from the ten that took place during the SEM2 project. The reason for excluding the SEM1 observations is that the use of the checklist developed during this period, stabilising at the start of SEM2. From an original list of thirteen behaviours, the researcher added another seven.

Whilst the original observations recorded the behaviour of individuals, the results here have been pooled to provide an overall account of how the behaviours were distributed throughout the SEM2 observations. The table is shown overleaf.

What emerges most clearly from the observations is the task-related nature of group discussions. 'Giving' and 'seeking' information about the task and 'proposing' and 'building' on task ideas were the four most common verbal behaviours and accounted for 60% of all those observed.

'Proposing' and 'building' on ideas to do with the group, on the other hand, accounted for just over a 10th of all behaviours. The vast majority of these concerned the arrangement of future group meetings.

When others were verbally supported, it was twice as likely to be done in a minimal way (e.g. 'yeah', 'O.K.' uh-uh') than with a more elaborate response (e.g. 'that's a good idea', 'I think that's good').

The least frequent behaviours observed were: disagreeing with others, defending/attacking ideas, testing others' understanding and summarising the group's performance overall.

Table R21: Distribution of behaviours observed during SEM2 group meetings

verbal behaviour	total frequency of occurence	% of total behaviours
giving information - task	340	20
seeking information - task	250	15.2
proposing an idea - task	205	12.5
building on idea - task	199	12.1
proposing an idea - to do with the group	99	6.0
summarising - own work	97	5.9
building on idea - to do with the group	74	4.5
supporting others - minimal response	68	4.1
off task talk	56	4.1
summarising - task as a whole	52	3.4
testing own understanding	39	2.4
supporting others - elaborate response	28	1.7
being open	28	1.7
blocking/difficulty stating	21	1.3
shutting out others	21	1.3
bringing in another	21	1.3
disagreeing	16	0.9
defending/attacking	12	0.7
testing others' understanding	11	0.7
summarising - group's performance	3	0.2

4.4.2 Unstructured observations

During the structured observations of SEM2 group meetings, notes were made of events that seemed either typical, or unusual. As this was not the primary intention of the observations, the notes were quite brief. However, those that were made are described below to help provide useful contextual information.

The notes are summarised under two themes: the typical nature of group meetings and exceptional incidents.

4.4.2.1 The typical nature of group meetings

The vast majority of meetings observed were held in the Resources Room, a large office based at the School of Construction, which is home to a technician, a number of trade journals, a photocopier and printer. A smaller number of

meetings were observed in the library, where students would have to huddle together and were unable to talk as freely. Another meeting was observed in a drawing office, where students sat facing a drawing board in a room which also had students working on other assignments.

On average, meetings lasted 30-35 minutes. Students appeared to be taking their work seriously with little joking or talking off-task, and whilst there was little evidence of enthusiastic interaction, meetings were often described in my notes as being 'amicable'. The most frequent words used in the notes to describe the nature of the meetings were 'functional' and 'task-oriented'.

In the notes of the sixth observation, for example, it was recorded that someone had sounded enthusiastic about an idea which was recorded as being the 'first time I've heard enthusiasm!' The major observation then, was the technical, information-exchanging nature of the meetings. It was clear in the majority of meetings the task appeared to be taken seriously and the students appeared well motivated if not overtly enthusiastic as groups.

Enthusiasm for the task itself was in evidence, however, and there were a number of observed accounts of students showing initiative in terms of finding out information from professional sources, getting their work bound professionally, designing their own group corporate logos, even to the extent of using the Latin names of plants in the landscape drawing.

One meeting was characterised as being 'more slap-dash than the others' which illustrates that meetings were by and large focused on the task. In this particular meeting it appeared unusual that the group were talking about social matters during the meeting rather than the task itself.

Meetings tended not to have social preambles but started quite suddenly. Indeed, during one meeting, a student greeted another with 'hello, how are you?' which seemed sufficiently novel for me to have recorded it. The main body of the meetings concentrated on the exchange of information, particularly to do with sizes, measurements and building-materials used. Students did not use pre-written agendas but tended to raise issues as and when required.

217

Typically all members would be involved in discussion though the amount of talk varied. They did not make use of a formal chairperson to steer disucssions, it was quite often the person who had the drawing plans infront of them that took on an informal chairing role.

The end of meetings tended to be the time when future meetings would be arranged and any work needed for those meetings would be highlighted. Meetings also tended to end suddenly with little post-meeting chat.

In the Resources Room students met around a large table at one end of the office and tended to adopt what became referred to in the notes as 'the usual group huddle'. Most often, the plans for the building were spread out in front of one member with the others huddling around to look at them. Occasionally it was noted that it was the same member each time who had the work in front of them. An exception to this general huddle was the group who moved around rather than staying in their seats throughout the meeting - in my notes this was met with the comment 'the group move! - don't think I've seen this moving about before!'

4.4.2.2 Exceptional incidents

Two incidents were quite exceptional, but serve to indicate the strength of feeling that could be aroused during group meetings. One involved a mature female student who had missed a previous meeting, and in whose absence a number of significant alterations to the building scheme had been made. Apparently she had not been kept in touch about the changes and after sitting very quietly for the whole meeting, started to become quite red in the face and then suddenly announced:

> "*as far as I know I've only missed one meeting, will you please let me know if things have changed in future!!*"

She left the meeting following this outburst in a very distressed state. The other members said nothing in reply.

218

The second exceptional incident involved a student who talked to the researcher about being very angry at having to work with another student who did not show interest in the project:

> *"well we asked him if he wanted to have a meeting the other day and he said no and that meeting was for his benefit, so we've got to get on with it, it's a pity its come to that but we're going to lose marks because of him and it's not fair - people like him need a kick up the arse but we can't do that, at least at school there was someone who could do that, so whilst he's doing his prima donna bit we suffer!"*

5.0 Discussion

5.1 A socio-interpretive explanation of transfer and development

Introduction

To account for the development of group skills and the transfer of learning involved in that process, this discussion situates the individual student within their socio-cultural milieu. In doing so, it strongly supports the *socio-interpretive* accounts of learning and transfer provided in the literature review (see for example Pea (1989) and Greeno (1993)). It also supports those theories of experiential learning which see the learner as always being learner-in-social context (Cell, 1984, Jarvis, 1995). The present research builds on this work by providing empirical examples of how development and transfer are shaped socially.

5.1.1 The student learner in context

Before looking at specific examples of improvements in group work, the first half of the discussion shows that it is helpful to place the learning experience at the intersection of three levels: the culture of the course, the dynamics of the groups and the individual student. The model shown in figure D1 below provides the structure for the next section and also reinforces the argument that the individual student has to be placed not only in their project group, but also within the larger context of a cohort of students taking a particular degree course. The student environment offers complex and occasionally conflicting demands for their attention and the sense that students make of this position strongly shapes their motivation in group work.

Motivation is a crucial issue here. To reach a conclusion about development and transfer it is important to understand what the students valued, what they saw as being worthwhile putting effort into, their priorities in terms of learning. By adopting a student perspective and a more in-depth approach than any of the available literature on student groups, the present research offers a significant contribution to this understanding.

221

Figure D1: The student learner in context.
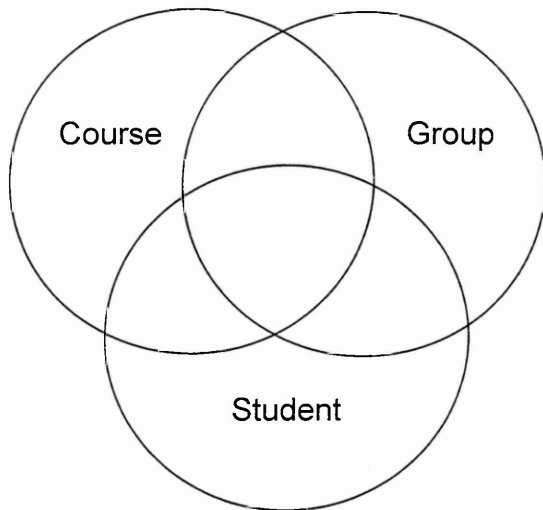
5.1.1.1 The course culture

The learning experience of group work in this research has to be seen in relation to the other demands and concerns that life on the degree course created. Through the day to day negotiation of these demands, the students in this study created their own particular course norms and values. These socio-cultural influences shaped the way that group work was framed in terms of its potential for developing skills. The examples below demonstrate how these concerns created an ethos which was characterised by an individual/technical skills emphasis rather than one based on group/interactive skills. In addition, there was a shared perception of university-life as not being 'real-life'.

In terms of motivation to work, the priority on the course was individually-oriented not group-oriented. Working with others to achieve shared grades contravened the contract that students felt they had with the university which was to do with *their own individual* achievement. Group work, therefore, occupied a uniquely tense position in relation to other student activities.

Whilst the students clearly did help each other and share ideas, *the* motivation in group work was to work towards the achievement of *individual* degree grades

(it will be recalled that 70% of the project assessment was for individual work). One of the crucial course norms then, was a basic, unspoken rule about working in a group. The rule was, that individually allocated tasks would be given priority, but this should not happen at the expense of other group members. So, whilst *'you shouldn't let your mates down'*, it was expected that efforts were concentrated on those aspects of the task which were individually assessed.

The importance of not adversely affecting another's grades also shaped the skills which students generated in the questionnaires as being essential for effective group work. The list of core group-skills generated by the students included 'attending meetings/being punctual' and 'meeting deadlines'. These important skills are not interactive as such, but are more to do with the students' conscientiousness towards group work. In many ways it was more important for students what happened outside of the meetings than it was during them. This finding significantly challenges the initial assumptions of this research which were focused very much on specific interactive skills.

Another important value on the Building-Surveying course was the acquisition of technical knowledge and skills. Students with previous work experience in industry, for example, were held in high esteem for their drawing skills and technical expertise. When asked what they learnt in groups, students freely responded with examples of technical skills, not social skills. So, whilst students recognised the need for group work in industry, and appreciated that 'people skills' were required, learning about the technical side of their degree was what they really felt they were there for. The priority in terms of learning, therefore, was technical not social.

In general, the university was not seen as being 'real life' or 'the real world'. This distinction belonged to the world of employment. In this context it would be appropriate to behave professionally and with enthusiasm. However, on the course it was generally not the norm to show excitement or overt public enthusiasm over project work. There was a sub-text of being 'cool' about work, particularly in full-group tutorials, which was about recognising that this was, at the end of the day, 'only a student project'. This view was held by enough

223

students to create a prevailing atmosphere which manifested itself behaviourally. During the oral presentations, for example, the few who made the effort to break out of the student role and present their work as if they were a professional acting for a client, really stood out amongst the others. It is likely that there was a sense of embarrassment for many in presenting themselves in front of each other 'professionally' rather than as students.

5.1.1.2 The group

Each specific project group formed within this general course ethos. These shared points of reference created some general group dynamics over and above those created by the effects of different composition. The dynamics of these student groups were clearly not like the dynamics of T groups, they were task and individually oriented with norms of interaction shaped heavily by the role of 'student'.

Students experienced difficulties with losing control over the production work and in trying to regain it, the negotiation of roles could be awkward and uncomfortable. Certainly these difficulties exist in other group contexts but they were heightened by the student environment. For example, a significant feature of the groups was that they started with no formal hierarchy or role structure. Whilst there were important differences in terms of informal status, there was also an understanding that they were equal as peers. No student had the legitimate right to assume authority over decision making for example, no student had recourse to official sanctions or rewards, no student had the right to request that poor work be re-done. Adding to these potentially frustrating dynamics was that the student groups operated in an environment which offered increasingly limited opportunities for contact with each other.

The individually-oriented ethos of the course described above also influenced the developmental sequence of the groups. Groups developed in three main stages, a potentially awkward early stage (negotiation of roles, allocation of tasks), the preferred and longest middle stage (progress with individual tasks) and the brief often poorly motivated final stage (group presentation of work).

The desire early on in the group to move on to the less awkward, more familiar middle stage served as a psychological barrier to anyone wanting to prolong, or engage in, the lengthy discussions needed to reach a well argued group consensus.

5.1.1.3 The individual student

Important individual differences were raised in the findings of this research. As far as students were concerned, the most significant differences were less to do with personality (though there were some concerns with over dominant students) and much more to do with academic ability, the importance of being at university, the importance of doing well, previous experience and so on. When a student joins a group, the eventual role they adopt is heavily shaped by their abilities, conscientiousness, previous experience - relative to the other members.

Students experienced their groups from a position of influence, or role in a group. With these different roles, the interpersonal experience of each student varied, and with this, the skills and behaviours being practised or developed. By adopting an interpretive perspective, this research contributes to our understanding of the sense that students made of this position.

In terms of group roles, the mature students with prior work experience were more likely than others to be sought out to give advice or provide feedback about the quality of work. Provided that these students were respected by the rest of the group, they were likely to have been allowed to take on positions of responsibility in the group. For these students then, part of their learning experience was practising the role of adviser or consultant.

At the other end of the spectrum, there were students who felt less motivated or less academically able. These students were less likely to be actively sought out for advice; they experienced group interaction from a position of being less actively involved in important design considerations. A smaller number of students were also content with occupying a back seat role, and so it is quite

likely that they were practising skills necessary to achieve this (by keeping quiet at the right times for example).

This research clearly shows, however, that the learning experience in groups is much more than a matter of skill acquisition in the narrow use of the term. Students were learning what it feels like to occupy a particular role. Did they enjoy being asked for advice, how did it feel to be on the outskirts of the group? For some, the feelings generated were positive, being asked for advice or being responsible for an important decision helped to create a sense of personal confidence. For others, it is clear that group work resulted in less positive feelings.

Unlike the private world of individual assignments, group work is a public arena. What happens in groups is that students are involved in the act of presenting themselves to each other. Their overall abilities, drawing skills, technical expertise, concerns, attitude to work, conscientiousness, ability to express themselves, confidence in ideas - are all on display and all in relative terms to the other group members. A key aspect of the experience of group life was the perception of the student's 'self in relation to others'. Again, this is more than learning the skills needed to interact with other, it is to do with feeling: 'I'm not as clever as them', 'I'm one of the brighter students', 'I enjoy giving advice', 'I could afford to be more bold as my ideas are just as good as theirs' and so on.

5.1.2 Learning, development and transfer

There is no doubt that students were learning from their experience of group work. To experience group work is to be made aware of discrepancies between one's self and others. Students in this sense are clearly learning that not everybody shares their view of standards, deadlines, ways of talking to each other, abilities and so on. They are clearly aware that it is the resolution of these differences that makes group work problematic.

This learning can be likened to the notion of group work schema. Students acquire knowledge of what group work is like, such that they can make general

statements about it ('Oh no not again!', 'I prefer individual work'). In this way, past experience informs future expectations about group work at university.

The key question here is whether they are able to use their learning, to transfer that learning, in order to resolve the difficulties faced in group work? This question is represented diagrammatically in figure D2.

Figure D2: Transfer of learning from SEM1 to SEM2
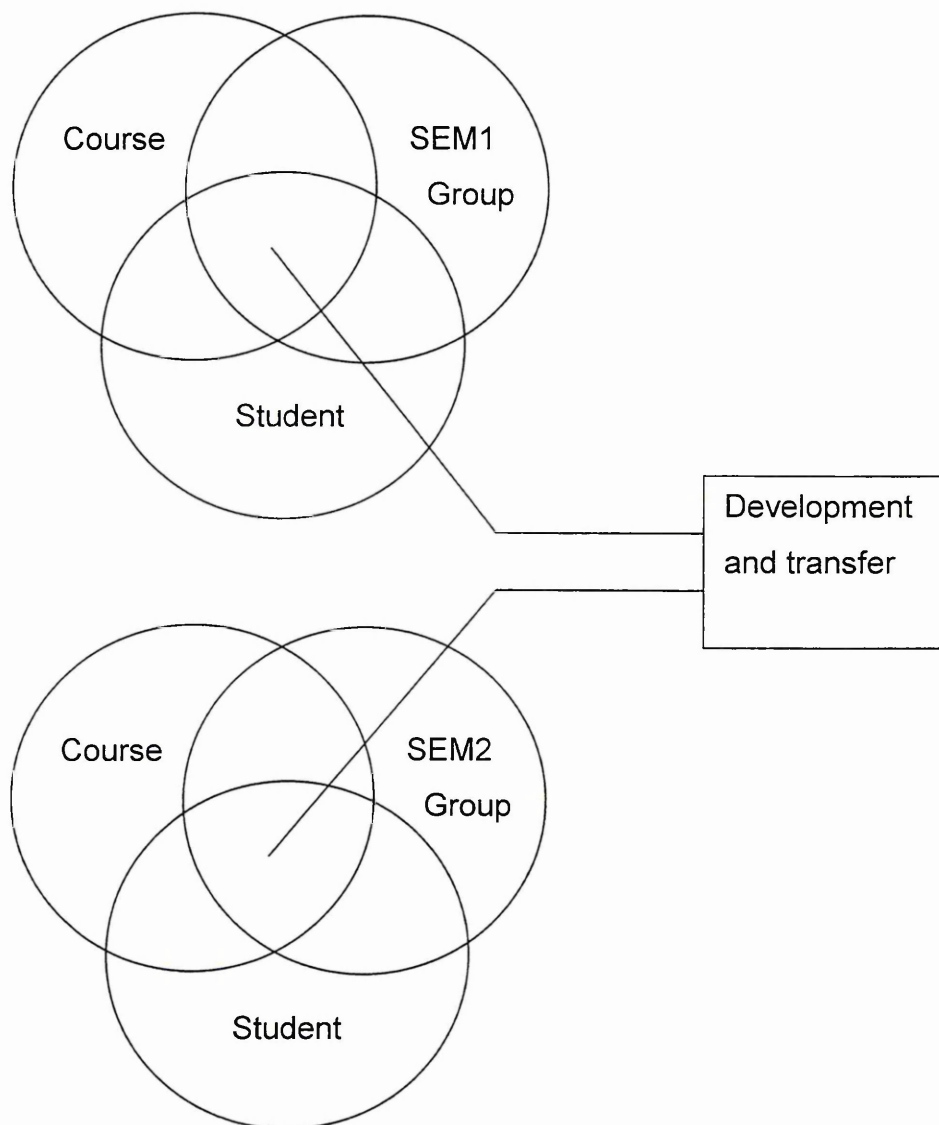
The following discussion examines three examples of how the use of previous learning helped to improve some aspect of group work. In particular, the examples focus on the early stages of the group projects as there is some evidence to suggest that this stage was getting easier. The difficulties of the early stage appear to have been most acutely felt in the first year project, less

so as they became more experienced (for example, it was the first year project that was most often given to provide an example of a bad experience). So, what did students learn that helped them in this process?

Students were helped by 3 key learning areas. The first of these; 'learning about specific others', shows that students felt they were helped by learning specific knowledge about other students rather than any sense of generalised rules about working in a group. The second; 'learning about the requirements of the task', supports the argument that the interpretation of identical or similar features (both on an individual and group level) facilitates the transfer of learning. The final learning area; 'learning strategies to overcome difficulties' is important theoretically as it further demonstrates that development and transfer are socio-interpretive phenomenon. It will be argued that the real 'success' of a transfer depends on making a socially determined value judgement.

5.1.2.1 'It depends' - learning about specific others

With the absence of a formal structure/hierarchy, what happened was that students were involved in a complex interaction whereby group members positioned themselves in terms of how much influence they wished to have and how much influence they wished specific others to have. One factor which made this difficult at first was the lack of knowledge they had about each other. What made the process gradually become easier was an increasing amount of knowledge about specific others on the course. Students needed to know who they could trust to get the work done, whose ideas were likely to be well thought through, who was known to work hard, produce work on time and so on.

So in the first year, students did not know each other and the informal, subtle, negotiation of roles was hard. By the time of the second year SEM2 project, students had acquired more knowledge about each other to the extent that when group membership was announced, they were more able to predict what type of group they thought it would be. Students transferred the knowledge gained through everyday interaction to help them make decisions about their role in the group, how best to approach another member, whether it was wise to trust their decisions and so on.

228

The knowledge gained here was about *specific* others. The negotiation of roles also occurred through interaction with specific others. Likewise, in the questionnaires, the potential success of the group was thought to depend on its specific composition and what made 'attempted changes' inappropriate to do so was because the composition of the group was different. This emphasis on specifics is revealed in the phrase 'it depends who's in the group' which characterised the questionnaire responses. Students clearly felt that one of the main benefits of experience was learning specific information about each other.

The fact that 'it depends' each time is fascinating in terms of development and transfer. It suggests that students made sense of group work in terms of differences in group composition rather than similarities in terms of universal group needs or dynamics. So whist they were *learning about group work* (in terms of their general attitude and feelings towards them, what they expected might happen and so on) it would appear that each group was made sense of uniquely. There are several possible explanations for this.

To experience group work is to be immersed in a particular, specific situation. In the immediacy of this group situation, students were motivated to pay attention to acquiring information to help them solve specific problems. An interesting parallel can be drawn here with the failure of subjects to solve similar problem types because they direct attention to the surface features of the problem rather than their underlying logic.

A further explanation is based on the fact that these students were relatively new to group work. It might be the case then, that at this stage in their development each group does appear to be very different. At the early stages of *learning about* group work then, the characteristic learning may be the acquisition of different examples before any useful general rules can be employed. The argument here is not to rule out the possibility that students were learning (or using) general underlying rules but nonetheless to point out that their accounts of group work are characterised more by learning specific knowledge.

5.1.2.2 Transfer of learning about the task

In contrast to the discussion above, this 'learning area' suggests that students did see some similarities in group work, particularly to do with the task briefing. Students were less likely to consult the tutor about the task-briefing (deadlines, standards etc.) as the second year progressed. This strongly suggests that students were able to see the deliberate similarities in the task brief each time and that this helped provide them with a set of benchmarks for progress, standards, deadlines and so on. Uncertainty about the task was a critical factor in the first year group experience and a major reason for the negative outlook with which students started the second year. In terms of transfer, the perception of identical elements is clearly applicable, seeing the similarities helped students to plan and predict work.

The most effective 'attempted changes' (what will you try to do differently next time?) from the questionnaire responses were to do with planning their own work, and more specifically with starting their own work earlier. Attempted changes to do with role or input tended to be less effective because the dynamics of the next group no longer required the change. It is likely then, that students perceived more obvious similarities in the task than in group membership and that this encouraged the transfer of learning to help them plan their work.

5.1.2.3 Transfer of problem solving strategies

There is also evidence from the interviews that a number of students learnt strategies to cope with the difficulties of early group meetings. For example, in the first year, one student learnt that if he left the initial design up to other people, there was no guarantee it would be done quickly or to a standard that he felt was good enough. His response to this in the second year was to suggest to each group at the start that, if they consented, he would work alone to do the initial design. There are two interesting points here.

Firstly, the issue of transfer. His strategy was applied to both groups during the second year, so in this sense, it was transferable. He was only able to do this

however, because other students consistently rated him highly for his quality of work and past work experience. These features of the situation were perceived to be the same. Again, the perception of identical elements is evident, both in his perception that the same problem would occur and in the others' perception that he was a very able student. This is significant theoretically as it supports the socio-interpretive argument that transfer is more than a matter of individual control. In group work, others have to allow you to transfer.

The second point also lends support to the idea that questions of development and transfer involve interpretations which are socially determined. The 'success' of the transfer above, depends on whether you adopt a student or tutor's perspective. The strategy used by this student reduced the need for others to work together. It is quite likely that the other group members actively wanted this to happen as it removed the problem of early, awkward negotiations. It also meant that the student developed a strategy which resulted in him taking extra work and responsibility. He felt that this was worthwhile because of the guarantee of work quality. From the point of view of skill development, however, it may mean that the difficulty he had in trusting others to produce work, or with working with less able members is not addressed. Whether a transfer is 'successful' or not, therefore, involves a value judgement.

Other students developed a transferable strategy to do with task allocation. Rather than involve themselves in lengthy negotiations about who should do what (based on their skills or abilities) they pulled tasks out of a hat. What made this transferable is that group members shared a desire to reduce the awkwardness of early negotiations and increase the time they could spend working on their individual tasks. Again, what encourages the transfer is a shared perception of similar features.

As above though, the 'success' of this transfer involves a making a value judgement. From a student perspective, this strategy was seen as a fair and equitable way of resolving a group-based problem. From a tutor's perspective, the outcome may be less favourable in that it served to avoid the complexities of group negotiations that students should be actively experiencing, not avoiding.

231

The final point in this section relates to the question of what this research has called *group work skills*. From a developmental point of view, the above examples are interesting in that they have been described as strategies rather than as skills. It is perhaps a difficult distinction to maintain, offering one's skills or suggesting a solution, for example, might well be seen as 'skilled' group behaviour. What is significant with these examples, though, is that they involve the reduction of interaction rather than resolving its complexity. An initial assumption of this research was that the students' learning would be based on behavioural/interactive skills but it is clear that this is too narrow a perspective to provide an account of what students learn as a result of their group experiences.

5.2 Returning to the literature review

Having discussed the theoretical contribution of the research, attention will now be paid to the implications of the thesis for the literature which was reviewed. Reference will therefore be made to the four major sections of: transferable skills in HE, the study of transfer, experiential learning and experiential learning in groups.

5.2.1 Transferable skills in Higher Education

A significant point made in the literature review was that claims made about transferable skills in HE were not based on a sound research footing. This study addresses a serious need for work to carried out in the area.

The discussion here focuses on the other major theme of the literature review; the terminology of skills-based education.

Various attempts were provided in the review to classify group skills. It is clear that the phrase *group skills* is much easier to assert than it is to define. An important implication of this research though is to add a student-dimension to the debate. If students were specifying a typology of group skills it is likely that they would want to pay attention to underlying attitudes as well as specific behaviours. For example:

> *Work in a way that allows others to fully participate, does not hinder them or their grades.*

It is also likely that the list would include skills that were not specifically interactive, but which nonetheless, are important in terms of group effectiveness, perhaps the most obvious examples here would be:

> *Attend pre-arranged meetings on time (or inform group of absence).*
> *Produce work on time to meet group deadlines.*

The benefit of a student typology would be that it might help to address skills which are sensitive to the issue of working with peers, for example: how to suggest ideas without sounding big-headed or, how to criticise another student's work without upsetting them.

It is also clear that the term 'skill' does not in itself capture what it means to be able to work effectively on a group project. For want of a better phrase the term has been used throughout the thesis. It has been used, however, within the context of a broader understanding of group work. The ability to work in groups does require skilled behaviour, individual behavioural skills are involved but there are other considerations.

As shown above, for example, the goals and values of a group member are essential ingredients. It is important not to let others down, it is important to respect the rights of other students to do their work. Strategies are also involved in group work. Whether the strategy is to assume a prominent position, or to let others take responsibility, in many ways it is the strategy which dictates which interactive behavioural skills are needed. The term skill can also remove the students' emotions from group work. How comfortable, happy, included or excluded a student feels in their role is an important aspect of group life.

So, the term transferable-skill as applied to group work can be problematic. It can be used to imply that individuals carry with them their set of portable skills, yet, as this research shows, skilled behaviour is not solely a matter of individual control. Group values, norms, the attitudes of other people are important in inhibiting and encouraging behaviour.

Ultimately, the use of *core skills* or *key skills* may be less loaded than *transferable skills*. These phrases can be used to mean that certain skills are important because they are needed and found in a wide variety of situations. The emphasis here becomes that skills like group work are important, rather than reifying them as portable, durable properties of individuals.

5.2.2 The study of transfer

This research addresses a need for studies of transfer to be conducted in-situ. In doing so, it strongly supports the socio-interpretive accounts of learning and transfer provided by Pea (1989) and Greeno (1993). The research builds on their work by providing empirical examples of how transfer is shaped socially.

For example, the classic transfer notion of identical elements has been useful in this discussion but the emphasis has to be on their perception rather than their reification. It is the perception and interpretation of similarities that is important. An obvious example here is that there is evidence to suggest that students saw similarities in terms of the task for each project. There are also less obvious examples, for some students, what might be the same in each group project is a feeling that others will not be able to produce work of a suitably high standard.

The findings of this research also show that judgements about transfer are socially determined. The success of some transferred strategies for example was shown to be dependent on whether a student or tutor perspective was adopted. The same argument can be applied to the constructs of near and far transfer, the judgement about distance must ultimately lie with the individual learners. Transfer research is dominated by researchers defining both the learning topic and the transfer environment. This research shows that there is much to be gained from investigating the *outcome* of learning experiences from the learners' perspective.

The concept of boundary crossing is also useful. It can be argued, for example, that students were being asked to step out of role, to negotiate with each other as if they were a professional building surveying team. Their unwillingness to cross this boundary is evident in the view that university life is in some ways not real, that they were *only* working a student project. It is also evident in their unwillingness to present ideas during the oral presentations as if they were presenting to a client.

5.2.3 Experiential learning

It is important to appreciate that students do learn from their experience of group work. The literature on experiential learning is very useful in helping to explain that this learning takes place on many levels. The notion of *incidental learning* for example, is very important as a great deal of significant learning takes place in this way. As a by-product of their task-based discussions, students learn that group work is difficult, that others are different to themselves, that they may/may not feel comfortable in groups. What we cannot afford to assume, as this research shows, is that students necessarily learn to behave differently, in ways that would positively overcome these difficulties.

There is a danger in assuming that the experiential learning cycle is automatic, that skills develop automatically and tutors in HE just need to allow it to happen. If developing group skills requires 'active experimentation', this, in turn, requires emotional resources and a climate which encourages the individual to experiment with new behaviours. As has been shown, there are other issues vying for the students' attention and motivation than learning how to deal with group problems.

The present research supports the work of both Jarvis (1995) and Cell (1984), not only because they provide a variety of experiential learning outcomes but because they place the learner in a socio-cultural milieu. Cell also makes a useful distinction between active and reflective interpretation. Students had some resistance to research questions about reflection, preferring to see themselves as problem solving in situ as and when they occurred. As Cell argues, this emphasis on active interpretation is more likely to be subject to biases as students are caught up in the immediacy of their situation.

It has also been useful in this research to draw on theories of organisational learning. The University can be seen in organisational terms with its own values, cultures and practices. Socialisation into the role of student has been shown to shape the way group situations are framed in terms of learning.

5.2.4 Experiential learning in groups

This research has met a need for a more in-depth study of learning in student groups. Existing research lacks depth and tends to be based exclusively on end-of-course questionnaires.

Clearly, the dynamics of student groups are not like the T groups which dominate the literature here. Feedback from others, freedom to experiment, psychological safety, these important dynamics for personal development are not the characteristics of student groups. Students certainly supported each other, helped each other and there was a keen sense of solidarity, however, the pre-occupation with individually assessed task areas and the emphasis on learning technical skills did not create a climate which was greatly conducive for skills development.

The potential for learning is quite considerable in group project work as being in a group involves the experience of discrepancies. However, the students in this research worked in a general course climate in which group members certainly experienced interpersonal difficulties but were not encouraged to discuss them. Nor were they encouraged to share their feelings or get in touch with their implicit schemas about groups. Their ideas, concerns and feelings about each group therefore were left implicit. Developing skills in groups requires more than just the experience. Participation in itself is not enough.

The effect that the presence of others can have has been discussed in terms of transfer and development being social phenomena. It has been shown that others can encourage or discourage the display of skilled behaviour. The accounts of social *facilitation* in the literature review are a useful way of looking at this. What this research has done is to show how the specific dynamics of student groups can discourage the practice of new skills, particularly those which might be seen as 'professional' skills. Many students found it difficult to try and break out of 'student' ways of behaving. The risk of ridicule in front of peers was also evident in some students' accounts of feeling inhibited from making suggestions.

The concept of the *learning milieu* has clearly been useful in the discussion of this research. The role of being a student, of working in a university context as opposed to the 'real world' is significant. The complex demands on students, their priorities and values are fundamentally important in understanding the way group work was interpreted.

5.3 Implications for group skills development in Higher Education

Introduction

The personal development potential of group work is substantial. This potential, however, needs to be placed within the context of HE. The students in this research experienced group work within a curriculum-driven environment, where the constraints of the timetable, demands of other assignments and modes of assessment created a task-based, technical ethos with the emphasis on individual-achievement. The tutor who designed the group project was also constrained by the same environment. Whilst the tutor was highly enthusiastic about the use of group work, his academic background was a technical one and at times he felt uneasy (personal discussion) at the prospect of using group work without having had training in facilitating group methods.

So, whilst it is appropriate to be informed about the developmental power of groups (by the literature on T groups for example) it has to be acknowledged that the culture of Higher Education (and of specific degree courses) at present inhibits this potential. Working within these constraints, the following implications for skills development in HE are outlined.

5.3.1 Encouraging reflection

The students in this research clearly experienced problems and discrepancies resulting from their need to work with others. Their thoughts and feelings about this experience, however, were not, as a matter of course, made explicit to the others in the group or the unit tutor. In effect, the students' implicit schemas about group work, their working assumptions about the other group members, their concerns and biases were not challenged. As a result, it can be stated with confidence that the students were learning *about* group work but with less confidence that they were learning *how to* work in groups more effectively.

The implication of this finding is that students' development would benefit from a process which encouraged them to make their thoughts and feelings explicit.

Now, this is where the discussion needs to be firmly rooted in context. Ideally, this sharing of thoughts and feelings would take place in a group facilitated discussion with a supportive, psychologically safe atmosphere. In HE though, the skills, interests, training and expectations of a lecturer's role are simply not congruent with this idea. Some tutors may be comfortable with the idea of facilitating a discussion, others not. Those who are less comfortable with the idea should not attempt it.

A less 'extreme' version of the above might be for groups to have regular reviews with their tutor. During these reviews the groups could be encouraged to talk about the task whilst at the same time being encouraged to think about their processes.

A non-discursive method of encouraging reflection might be for students to have access to a workbook which prompts them to consider questions about their own and their group's processes. It is important that these texts be sensitively written, in the sense that they should resonate with students' experience. It is likely, for example, that students will find group work difficult at times, the workbook would need to acknowledge this. The workbook would also need to ask relevant questions about their concerns over assessment, how they act in the early discussions about task allocation and so on. To encourage the transfer of learning, the workbook could also ask questions which encouraged students to make connections between the groups that they have been in.

In short, to encourage students to build on their existing skills, some form of context-sensitive process is needed which encourages them to reflect, analyse and express their thoughts and feelings about group work.

5.3.2 Designing the group project

Working with others can be very stressful. Two major sources of anxiety are uncertainty about the task and uncertainty about the others in the group.

The project designed in this research met many important criteria. For example, students were given information about assessment, indicative deadlines, where

they could meet and a task that could be completed within the time allocated. Moreover, the students in this research were encouraged to make connections between the group projects by the use of a standard format for the project design. By keeping the format standard, students appeared to be less anxious about the task as the second year progressed. The perception of similarities between the projects contributed to a sense of certainty about what to expect, what standards were needed, which tasks needed to be completed by when and so on.

Even with a well-designed project, however, students still experienced great difficulties. It emerged that some tasks were preferred over others, that work could be carried out much more independently than the tutor anticipated. The disproportionate assessment weighting in favour of individual tasks may have lessened students considerable concerns about the potential unfairness of group work but also created less enthusiasm for the most co-operative aspects of the project, most notably the group presentations.

Designing group projects is very complex and requires careful consideration of assessment weighting, the nature of the task itself, allocation of group members, support and information for students, the availability of time and space for group meetings and the role that group work may have on other units.

It is important to prepare well. If the task is poorly thought through, students will pay attention to this and it is likely that blame will placed on the tutor or with group work generally, rather than the inherent difficulties of working in a group of others. Poorly designed group projects also contribute to the 'bad name' that group work can have. A valuable aim of using group work ought to be to encourage students that working with others can work, that it can be effective and enjoyable. For this reason also, group work should not be over-used. The experience of settling into a group role can be stressful, this will be even more so if students are required to work in more than one group project at a time.

5.3.3 Changing the course culture

During this discussion, the influence of the social environment has been

241

stressed. An important implication from this research is that for group work to be effective, consideration needs to be paid to the climate in which students work. To capitalise on the potential of group work, a shift in culture may be required on some degree courses. The scale of this shift is, of course, flexible. One could argue, for example, that to give group work more credibility, a major shift is needed towards valuing collective student activity. At present, however, this sits uncomfortably within a system which accredits individuals.

Given that this situation is unlikely to alter significantly, students should at least be provided early on with information about the role that group work plays on their course. The aim of providing such information would be to make it clear to students at the start of the degree that group work is involved, why it is used and how much of their total grades it contributes to. In terms of shifting culture, this move might help to overcome the perception that group work contradicts the contract the students have with the university as regards their own individual assessment and accreditation.

There are other small practical steps which can be taken to create a shift in the atmosphere of a cohort of students. One of the issues in this research that the unit tutor wanted to overcome was the perception that this was 'only a student project' and to encourage the students to practise 'being a professional'. As a result of this research, the Building Surveying course planning team decided to review the oral presentations. Rather than presenting in front of the tutor and their peers, students now present their team work in front of the tutor and an outside professional. This change of context has, according to the tutor (personal communication), resulted in an increase in attendance and in the overall quality of professionalism displayed.

The aim of any attempt at culture change should be to create a climate in which group work is received more positively. Students actively make sense of their experiences of group work in relation to the wider demands of student life. It is important, therefore, that students first experiences of group work are positive because it is during their early experiences that shared ways of looking at group work are established. The norms and values associated with group

work are established early on and influence the experience of subsequent groups.

5.3.4 Providing support

Their status as peers often means that students feel they have no influence over group members who are not contributing to the group. Students need to know what to do if they are experiencing difficulties with other group members. A tutor cannot control for clashes of personality, but could, for example, put into place a mechanism for dealing with consistent absentees (a simple group meeting register might work here). The key to making such mechanisms effective it is to present them in such a way that students feel they have a legitimate right to expect certain standards of behaviour from each other. The students in this research were reluctant to raise the issue for fear of 'telling tales'.

To help deal with concerns about the reliability of meetings, students must be able to contact each other and have access to a reliable time and place to meet. It cannot be assumed that students will be able to arrange meetings outside of class time. It is particularly important to take into account the diversity of the student body as students may need to organise and pay for travel / child care.

Tutors can also provide support by acting as a consultant for the groups to use to check their progress. The tutor in this research has since adapted his tutorial style from being the clear 'provider of information' to being more of a group consultant. This was achieved by allocating specific tutorials during the semester for group progress reviews.

All the suggestions in this section can be seen as a recommended culture shift in which tutors design group work which is sensitive to student concerns. Tutors need to recognise that group work can be difficult and that students need information and support.

5.4 Implications for future research

This research has been successful in studying development and transfer from a student perspective. Interpreting the sense that students made of group work has revealed more than any published research what it is like to be a student working on a group project.

The focus on sense-making has been crucial and it is perhaps worth reiterating the following points.

1. So little is known at present about the nature of student group work that the present research benefited from being more exploratory and student-centred.

2. Until the research community knows more about what it is like to be in a student group, we cannot afford to make grand claims about developing skills which transfer to the workplace.

All research has its own boundaries and scope and it is from this position that the following implications are raised for future research.

This research focused on one unit of one degree course at one university. From my own experience of teaching and discussions with other colleagues, I believe it raises issues which appear across different discipline areas. However, there is a need for further studies to investigate the extent to which there are general student group dynamics. Studying different courses at different universities is essential in terms of further investigating the influence of the learning milieu which has been given prominence in this discussion.

This research focused on personal development over a one-year period. It is perhaps over ambitious to expect to find significant evidence of development over this time. Therefore, there is a need for future research to track students longitudinally in terms of their development in working in groups.

This research rejected the use of a quasi-experimental approach, but it is worth considering if there is potential for adopting a more controlled form of study. Group work offers plenty of scope for the more experimentally based researcher but is immensely difficult because of the quantity of variables involved. Not even considering individual differences, such research would need to operationalise; assessment method and weightings, the task nature, duration of the project, allocation method, group size, perceptions of support, and tutor role. It may, however, be possible to group together these key variables in an attempt to investigate their relationship with each other.

In keeping with the above, behavioural measures may also be appropriate for future research but only if it makes sense to specify particular behaviours. If students were learning a particular approach to negotiating, counselling or interviewing for example, it may be possible and appropriate in these contexts to specify behavioural techniques which are of interest and relevance to both tutor and students. Less structured observations are very rewarding in term of gaining insight into the learning milieu.

It has been argued in this research that students 'were clearly learning about group work'. Further research is needed to examine this claim in terms of the nature of the learning and the extent to which it changes with more group experience. The use of repertory grids, based on Kelly's (1955) Personal Construct Theory may provide a useful methodology in this respect. The method helps to make explicit the ways in which people construe the world, in this sense student's schemas, assumptions and expectations about group work. By collecting numerical data about the constructs it would also provide a way of examining change.

This research focused on development and transfer within the university. The crucial debate for many concerns the transfer of learning between university and employment. I have argued that it was first necessary to examine the experience of group work at university before assuming anything about the transfer of such learning. However, there is useful work to be done examining the transition between the two contexts. So far, the study of change between these two contexts has been studied in terms of graduate career transition and

work place socialisation. The focus here though has not been to look specifically at the effect of transition in terms of changes in confidence or ability to display skills.

The present research also suggests that there is much potential for research which examines the process of socialisation into the role of student. 'Being a student' meant different things to the students involved in this study and was important in terms of influencing group dynamics.

Finally, this research concentrated on one area of what are referred to as *transferable skills*. It is important to see if other skill areas (information technology, numeracy, written communication) are influenced by the same dynamics of being a student and the culture of student courses. Research into these skill areas has much to gain from interpreting the sense that students make of their experiences and even more to gain by moving research beyond the end of unit questionnaire.

Abson, D. (1994). The effects of peer evaluation on the behaviour of undergraduate students working in tutorless groups. Foot, H.C., Howe, C.J., Anderson, A., Tolmie, A.K. and Warden, D.A. *Group and Interactive Learning.* Southampton: Computational Mechanics Publications.

Allen, M. (1991). *Improving the Personal Skills of Graduates.* Interim Report. Personal Skills Unit: Sheffield University.

Argyle, M. (1967). *The Psychology of Interpersonal Behaviour.* London: Penguin Books.

Argyris, C. and Schön, D.A. (1974). *Theory in Practice: increasing professional effectiveness.* San Francisco: Jossey-Bass.

Ashworth, P.D. and Saxton, J. (1990). On 'Competence'. *Journal of Further and Higher Education,* Vol.14, No.2, pp. 3-25.

Ashworth, P.D. (1996). *Qualitative Research Methods.* Paper presented to Fourth International Improving Student Learning Conference, University of Bath.

Atkins, M., Beattie, J. and Dockrell, W.B. (1993). *Assessment Issues in Higher Education.* School of Education: University of Newcastle Upon Tyne.

Atkins, M. (1995). What should we be assessing? in: Knight (op cit).

Bailey, C. (1984). *Beyond the Present and the Particular.* London: Routledge and Kegan Paul.

Baldwin, T. and Ford, J. (1988). Transfer of training: a review and directions for future research. *Personnel Psychology,* Vol.41, pp. 62-105.

Bales, R.F. (1970). *Interaction Process Analysis: a method for the study of small groups.* Cambridge, Mass: Addison-Wesley.

Barnett, R. (1990). *The Idea of Higher Education.* Buckingham: SRHE & OUP.

Barnett, R. (1992). *Improving Higher Education.* Buckingham: SRHE & OUP.

Baron, R.S., Kerr, N. and Miller, N. (1992). *Group Process, Group Decision, Group Action.* Buckingham: OUP.

Barrow, R. (1987). Skill talk. *Journal of Philosophy of Education,* Vol.21, pp. 187-95.

Bassok, M. and Holyoak, K.J. (1993). Pragmatic knowledge and conceptual structure: Determinants of transfer between quantitative domains. In: Detterman, D.K. and Sternberg, R.J. (Eds.) *Transfer on Trial: Intelligence, cognition and instruction.* New Jersey: Ablex Publishing Corporation.

Belbin, R.M. (1981). *Management Teams: Why they succeed or fail.* London: Heinmann.

Berne, E. (1971). *A Layman's Guide to Psychiatry and Psychoanalysis.* London: Penguin.

Bion, W.R. (1968). *Experiences in Groups.* London: Tavistock Publications.

Birmingham Polytechnic. (1990). *A Study of Personal Transferable Skills Teaching in Higher Education in the UK.* School of Computing and Information Studies, Birmingham Polytechnic.

Blagg, N. (1991). *Can We Teach Intelligence?* New Jersey: Lawrence Erlbaum Associates.

Boud, D. and Pascoe, J. (1978). *Experiential Learning: developments in Australian post-secondary education.* Sydney: Australian Consortium on Experiential Education.

Boud, D. (1989). Some competing traditions in experiential learning. In: Warner Weil, S. and McGill, I. (Eds.) *Making Sense of Experiential Learning: diversity in theory and practice.* Milton Keynes: SRHE and OUP.

Bradshaw, D. (1992). Classifications and models of transferable skills. In: Eggins, H. (1992). *Arts Graduates: their Skills and their Employment.* London: Falmer Press.

Bramley, P. (1991). *Evaluating Training Effectiveness.* London: McGraw-Hill.

Bridges, D. (1993). Transferable skills: a philosophical perspective, *Studies in Higher Education,* Vol.18, No.1, pp 43-51.

BTEC (1986). *Common Skills and Core Themes.* London: BTEC.

Cacioppo, J.T. and Petty, R.E. (1982). The need for cognition. *Journal of Personality and Social Psychology,* Vol. 42, pp. 116-31.

Callaghan, M., Knox, A., Mowatt, I. and Siann, G. (1994). Empirical projects and small group learning. In: Foot, H.C., Howe, C.J., Anderson, A., Tolmie, A.K. and Warden, D.A. *Group and Interactive Learning.* Southampton: Computational Mechanics Publications.

Campbell, L. and Ryder, J. (1989). Groupsense: when work in groups does not add up to 'group work'. *Pastoral Care in Education,* Vol.7, pp. 22-30.

CBI. (1990). *Towards a Skills Revolution.* London: CBI.

Cell, E. (1984). *Learning to Learn from Experience.* Albany: State University of New York Press.

Cohen, A.M. and Smith, R.D. (1976). *The Critical Incident in Growth Groups: theory and technique.* California: University Associates Inc.

Conway, R., Kember, D., Sivan, A. and Wu, M. (1993). Peer assessment of an individual's contribution to a group project. *Assessment and Evaluation in Higher Education,* Vol.18, No.1, pp. 42-56.

Cook, T.D. (1979). *Quasi-Experimentation: its ontology, epistemology and methodology.* London: Houghton-Mifflin.

Cook, T.D. and Campbell, D.T. (1979). *Quasi-Experimentation.* London: Houghton-Mifflin.

Cuthbert, K. (1994). Facilitating understanding of group dynamics. In: Thorley, L. and Gregory, R. *Using Group-based Learning in Higher Education.* London: Kogan Page.

Cuthbert, P. (1994). Self-development groups on a diploma in management studies course. In: Thorley, L. and Gregory, R. *Using Group-based Learning in Higher Education.* London: Kogan Page.

Dawson, C., Lord, P. and Baggott, J. (1994). The effects of group composition upon students' perceptions of their learning. In Thorley, L. and Gregory, R. (1994). *Using Group-based Learning in Higher Education.* London: Kogan Page.

De Bono, E. (1981). *CoRt Thinking Lessons.* Oxford: Pergamon Press.

De Corte, E. (Ed.) (1989). Acquisition and transfer of knowledge and cognitive skills. *International Journal of Educational Research.* Vol. not known. pp. 603-711.

Detterman, D.K. and Sternberg, R.J. (Eds.) (1993). *Transfer on Trial: Intelligence, cognition and instruction.* New Jersey: Ablex Publishing Corporation.

Douglas, T. (1993). *Basic Groupwork.* London: Routledge.

Drew, S. (1998). *Key Skills in HE: background and rationale.* SEDA Special No.6. Staff and Education Development Association. Birmingham.

Earl, S. E. (1986). Staff and peer assessment - measuring an individual's contribution to group performance. *Assessment and Evaluation in Higher Education,* Vol.11, No.1, pp. 60-9.

Engeström, Y., Engeström, R. and Kärkkäinen, M. (1995). Polycontextuality and boundary crossing in expert cognition: Learning and problem solving in complex work activities. *Learning and Instruction,* Vol. 5, pp. 319-36.

Eraut, M. (1989). Initial teacher training and the NCVQ model. In: Burke, J.W. *Competency Based Education and Training.* Lewes: Falmer press.

Feuerstein, R., Rand, Y., Hoffman, M. and Miller, R. (1980). *Instrumental Enrichment.* Baltimore: University Park Press.

Fielding, N.G. and Fielding, J.L. (1986). *Linking Data.* London: Sage.

Foot, H.C., Howe, C.J., Anderson, A., Tolmie, A.K. and Warden, D.A. (1994). *Group and Interactive Learning.* Southampton: Computational Mechanics Publications.

Further Education Unit. (1986). *Assessment, Quality and Competence, Staff Training Issues for NCVQ.* London: FEU.

Fleming, D. (1991). The concept of meta-competence. *Competence and Assessment,* Vol.16, pp. 9-12.

Gadamer, H-G. (1975). *Truth and Method.* Sheed and Ward.

Garland, D. (1994). The UPshot programme: improving group work skills for business and accounting students. In: Thorley, L. and Gregory, R. *Using Group-based Learning in Higher Education.* London: Kogan Page.

Georgenson, D.L. (1982). The problem of transfer calls for partnership. *Training and Development Journal,* Vol.36, pp. 75-8.

Gibbs, G. (1994). *Learning in Teams: A student manual.* Oxford Centre for Staff Development.

Giorgi, A. (Ed.) (1985). *Phenomenology and Psychological Research.* Duquesne University: Humaties Press.

Gist, M.E., Bavetta, A.G. and Stevens, C.K. (1990). Transfer training method: its influence on skill generalisation, skill repetition and performance level. *Personnel Psychology,* Vol.43, pp. 501-23.

Grant, A. (1994). Group project work: two Enterprise case studies. In: Thorley, L. and Gregory, R. *Using Group-based Learning in Higher Education.* London: Kogan Page.

Green, S. (1990). *Analysis of Transferable Personal Skills Requested by Employers in Graduate recruitment Advertisements in June 1989.* Personal Skills Unit: University of Sheffield.

Greeno, J.G., Smith, D.R. and Moore, J.L. (1993). Transfer of Situated Learning. In: Detterman, D.K. and Sternberg, R.J. (Eds.) *Transfer on Trial: Intelligence, cognition and instruction.* New Jersey: Ablex Publishing Corporation.

Guba, E.G. and Lincoln, Y.S. (1989). *Fourth Generation Evaluation.* Newbury Park. CA: Sage.

Guzkowska, M. and Kent, I. (1994). Facilitating team work in the curriculum. In: Thorley, L. and Gregory, R. *Using Group-based Learning in Higher Education.* London: Kogan Page.

Harris, R.G., Bramhall, M.D. and Robinson, I.M. (1994). Development of group skills using a linked assignment. In: Thorley, L. and Gregory, R. *Using Group-based Learning in Higher Education.* London: Kogan Page.

Harvey, N. (1991). British research into skill: What is going on? *The Psychologist: Bulletin of the British Pyschological Society,* No.4, pp. 443-48.

Heidegger, M. (1962). *Being and Time.* London: Blackwell.

Henry, J. (1989). Meaning and practice in experiential learning. In: Warner Weil, S. and McGill, I. (Eds.) *Making Sense of Experiential Learning: diversity in theory and practice.* Milton Keynes: SRHE and OUP.

Hind, D.W.G. (1994). *Transferable Personal Skills.* London: Business Education Publishers.

Hindle, B.P. (1993). The 'project': putting student controlled, small group work and transferable skills at the core of a geography course. *Journal of Geography in Higher Education,* Vol.17, No.1, pp. 11-20.

Hodgkinson, L. (1996). *Changing the Higher Education Curriculum: towards a systematic approach to skills development.* Milton Keynes: OUP.

Horney, K. (1942). *Self Analysis.* London: Routledge and Kegan Paul.

Hunter-Grundin, E. (1985). *Teaching Thinking: An evaluation of Edward de Bono's classroom materials:* London: Schools Councils Publications.

Hyland, T. (1994). Experiential learning, competence and critical practice in higher education. *Studies in Higher Education,* Vol.19, No.3, pp. 327-39.

Jarvis, P. (1995). *Adult and Continuing Education: theory and practice.* London: Routledge.

Jaques, D. (1994). *Learning in Groups.* London: Kogan Page.

Jessup, G, (1991). *Outcomes: NVQ's and the Emerging Model of Education and Training.* London: Falmer Press.

Judd, C.H. (1908). The relation of special training to general intelligence. *Educational Review,* Vol. 36, pp. 28-42.

Kelly, G.A. (1955). *The Psychology of Personal Constructs.* New York: Norton.

Kemp, I.J. and Seagraves, L. (1995). Transferable skills - can higher education deliver? *Studies in Higher Education,* Vol.20, No.3, pp. 315-328.

Kennett, D.J., Stedwill, D.B. and Young, A.M. (1996). Co-operative learning in a university setting: evidence for the importance of learned resourcefulness. *Studies in Higher Education,* Vol.21, No.2, pp.177-86.

Kirkpatrick, D.L. (1979). Techniques for evaluating training programs. *Training and Development Journal.* Vol.33. No.6, pp.52-6.

Knight, P. (1995). *Assessment for Learning in Higher Education.* London: Kogan Page.

Kolb, D. (1976). *Learning Style Inventory; technical manual.* Newton Mass: Institute for Development research.

Kvale, S. (1993). *Issues of Validity in Qualitative Research. Sweden: Studentlitteratur.*

Larkin, J.H. (1989). What kind of knowledge transfers? In: Resnick, L.B. (Ed.) *Knowing, Learning, and Instruction: Essays in honor of Robert Glaser.* New Jersey: Lawrence Erlbaum Associates.

McGill, I. and Beaty, L. (1995). *Action Learning.* London; Kogan Page.

Miles, M.B. (1971). *Learning to Work in Groups: a program guide for educational leaders.* New York: Teachers College Press, Columbia University.

Miles, M.B. and Huberman, M. (1984). *Qualitative Data Analysis: A sourcebook of new methods.* Beverley Hills: Sage.

Marsick, V.J. and Watkins, K.E. (1990). *Informal and Incidental Learning in the Workplace.* London: Routledge.

Mathews, B. (1994). Assessing individual contributions: experience of peer evaluation in major group projects. *British Journal of Educational Technology,* Vol.25, No.1, pp. 19-28.

Morgan, G. (1983). *Beyond Method: Strategies for social research.* London: Sage.

NCVQ. (1993). *Personal Skills - Working With Others: Levels 1-5.* National Council for Vocational Qualifications.

Newman, J.H. (1853). *The Idea of a University.* Oxford: Oxford University Press.

Noe, R. (1986). Trainee's attributes and attitudes: neglected influences on training effectiveness. *Academy of Management Review,* Vol. 11, pp. 736-49.

Oates, T. (1992). Core skills and transfer: aiming high. *Educational and Training Technology International,* Vol.29, No.3, pp. 227-39.

Oatley, K. (1980). Theories of personal learning in groups. In: Smith, P.B. *Small Groups and Personal Change.* London: Methuen.

Papert, S. (1980). *Mindstorms: Children, computers and powerful ideas.* New York: Basic Books.

Parlett, M. and Hamilton, D. (1977). Evaluation as illumination: a new approach to the study of innovatory programmes. In: Hamilton, D. (ed.) *Beyond the Numbers Game.* London: Macmillan.

Parsons, D.E. and Drew, S.K. (1996). Designing group project work to enhance learning: key elements. *Teaching in Higher Education,* Vol.1, NO.1, pp. 65-80.

Pea, R. (1989). Socialising the knowledge transfer problem. *International Journal of Educational Research.* Vol. not known. pp. 639-63.

Phelan, P., Davidson, A. L. and Cao, H.T. (1991). Students' multiple worlds: negotiating the boundaries of family, peer and school cultures. *Anthropology and Education Quarterly,* Vol. 22, pp. 224-50.

Polkinghorne, D.E. (1983). *Methodology for the Human Sciences.* New York: Albany State University.

Rackham, N. and Morgan, T. (1977). *Behaviour Analysis in Training.* London: McGraw-Hill.

Reason, P. and Rowan, J. (1981). *Human Inquiry: A sourcebook of new paradigm research.* Chichester: John Wiley and Sons.

Reed, S., Ernst, G. and Banerji, R. (1974). The role of anology in transfer between similar problem states. *Cognitive Psychology,* Vol. 6, pp. 436-50.

Rentsch, J. (1994). What you know is what you get from experience. *Group and Organization Management,* Vol.19, pp.450-75.

Reynolds, M. (1994). *Groupwork in Education and Training.* London: Kogan Page.

Robbins Report. (1963). *Higher Education: Report of the committee under the chairmanship of Lord Robbins,* Cmnd 2154. London, HMSO.

Salomon, G. and Globerson, T. (1989). Skill may not be enough: The role of mindfulness in learning and transfer. *International Journal of Educational Research.* Vol. not known. pp. 623-37.

Sheffield Hallam University. (1995). *Ft/Pt Bsc (Hons) Building Surveying Student Course Guide.* School Of Construction. Sheffield Hallam University.

Singh, B.R. (1995). Co-operative learning group work and the development of students' ability to communicate through purposeful talk. *Westminster Studies in Education,* Vol. 18, pp.47-62.

Singley, M.K. and Anderson, J.R. (1989). *The Transfer of Cognitive Skill.* Cambridge: Harvard University Press.

Smith, D. and Wilson, H. (1992). The development and assessment of personal transferable skills during work-based placements. *Assessment and Evaluation in Higher Education,* Vol.17, No.2. pp. 195-208.

254

Smith, P.B. (1980). *Small Groups and Personal Change*. London: Methuen.

Smith, R. (1987). 'Skills: the middle way'. *Journal of Philosophy of Education,* Vol. 21, No. 2. pp. 197-201.

Sternberg, R.J. and Frensch, P.A. (1993). Mechanisms of transfer. In: Detterman, D.K. and Sternberg, R.J. (Eds.) *Transfer on Trial: Intelligence, cognition and instruction.* New Jersey: Ablex Publishing Corporation.

Tajfel, H. and Fraser, C. (1986). *Introducing Social Psychology.* London: Penguin Books.

Tannenbaum, S. and Yukl, G. (1992). Training and development in work organisations. *Annual Review of Pyschology,* Vol. 43, pp. 399-441.

Tate, A. and Thompson, J.E. (1994). The application of enterprise skills in the workplace. In: Haselgrove, S. (Ed.). *The Student Experience.* Buckingham: SRHE and OUP.

Thompson, P. and McHugh, D. (1991). *Work Organisations: a critical introduction.* London: Macmillan.

Thorley, L. and Gregory, R. (1994). *Using Group-based Learning in Higher Education.* London: Kogan Page.

Thorndike, E.L. and Woodworth, R.S. (1901). The influence of improvement in one mental function upon the efficiency of other functions. *Psychological Review,* Vol. 8, pp. 247-61.

Thorndike, E.L. (1906). *Principles of Teaching.* New York: Seile.

Topping, K. (1992). Co-operative learning and peer tutoring: an overview. *The Psychologist,* Vol.5. pp.151-7.

Tuckman, B. and Jensen, M.A.C. (1977). Stages of small group development. *Group and Organisational Studies,* Vol.2, No.4.

Voss, J.F. (1989), Learning and transfer in subject-matter learning: a problem solving model. *International Journal of Educational Research.* Vol. unknown. pp. 607-22.

Wagner, L. (1995). A thirty year perspective: from the sixties to the nineties. In: Schuller, T. (Ed.). *The Changing University?* Buckingham: SRHE and OUP.

Warner Weil, S. and McGill, I. (1989). (Eds.) *Making Sense of Experiential Learning: diversity in theory and practice.* Milton Keynes: SRHE and OUP.

Webb, N.M. (1982). Student interaction and learning in small groups. *Review of Educational Research,* Vol.52, No.3, pp. 421-45.

Wexley, K.N. (1984). Personnel training. *Annual Review of Psychology,* Vol.35, pp. 519-51.

Winstanley, M. (1992). Group work in the humanities; history in the community, a case study. *Studies in Higher Education,* Vol.17, No.1. pp. 55-63.

Wolf, A. (1991). Assessing core skills: wisdom or wild goose chase? *Cambridge Journal of Education,* Vol. 21, No.2, pp. 189-201.

Woollard, A. (1995). Core skills and the idea of the graduate. *Higher Education Quarterly,* Vol.49, No.4, pp. 316-25.

Worchel, S. (1994). You can go home again: Returning group research to the group context with an eye on developmental issues. *Small Group Research,* Vol.25, No.2, pp. 205-24.

Appendix 1: Observation notes of a group meeting

The following two pages show the notes taken during the observation of a group meeting. They show both structured and unstructured observations. Each meeting has a set of notes in this format.

Group no / meeting no	Time go	Time stop	Duration	room	date
sem 2 g7 no1	1.05	1.28	23	321	8.3.95
Student numbers	36	35	44	47	Totals
Proposing task	4	6	10	0	20
Proposing group	0	8	9	1	18
Building task	5	7	8	2	22
Building group	3	4	3	3	13
Supporting full	0	0	1	0	1
Supporting minimal	0	0	0	1	1
Disagreeing	0	0	3	0	3
Defending/Attacking	1	0	0	0	1
Blocking/Difficulty Stating	0	0	1	0	1
Open	0	1	0	0	1
Test understand own	0	0	0	0	0
Test understand other	0	0	1	0	1
Summarising group	0	0	1	0	1
Summarising own	3	4	2	2	11
Summarising task	0	0	0	0	0
Seeking Information	3	10	4	4	21
Giving Information	3	8	6	4	21
Shutting Out	0	0	0	0	0
Bringing In	0	0	1	0	1
Off-task talk	2	2	3	2	9
Total	24	50	53	19	146

BEHAVIOUR ANALYSIS

Missed a section because of interruptions, also the group split into two at a couple of stages making it difficult to concentrate, plus who do you focus on? At 1:28 36 left the meeting to go to the library 35 and 44 were then talking together about the landscaping of the project - was this still a group meeting? I did not code this interaction.

OBSERVATIONS

Group took 3/4 minutes to get started, subdivided after 20 minutes or so then got back together when they were discussing the next meeting - this took a long time for them to plan. They agreed on a 10 minute meeting the next day and then a full meeting later on. One other student was at the table at the time, room was quite busy.

The group seemed to be working at quite a pace - they were covering quite a lot of ground, talking about different topics rather than labouring over 1 or 2. Were aware of approaching deadline.

36 - very quiet, took a passive role, withdrew form meeting by looking away almost day - dreaming into space - asked me half way into the meeting if I knew they were having a meeting. had been talked into taking minutes by 47, 47 'volunteered' him so to speak not in a harsh way but apparently knowing that 36 was a bit of a soft touch? In any case 36 hadn't been taking minutes as the group discussed this and commented that they'd have to make them up later - they laugh at this!

47 - in a shaping role, had the paper work infront of him

35 - team working concerned over the next meeting, very knowledgeable about landscaping and was giving 44 the most detailed information about plants and shrubs, including Latin names - attention to detail. 44 seemed to appreciate this advice and overall appeared to be less knowledgeable/confident than 47 or 35.

Not a relaxed meeting, a lot of different things going on (the subdivisions and variety of topics)

Appendix 2: Questionnaire 1

The following ten pages show the first of the three questionnaires used. Revisions to the other two questionnaires are detailed within the main body of the thesis (see Methodology 3.4.5 and 3.4.6).
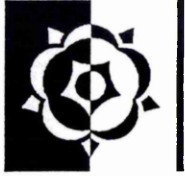
Questionnaire No 1.

Important notes

1. The information in this questionnaire will be used for research purposes only. It will not be shown to any other party in a way that you can be individually identified.

2. The scales used in this questionnaire have a 1 - 4 rating. It is important that you use the extreme ends of this scale - try not to rely only on the middle scores.

Personal details

Name	
Tutorial group (circle appropriate)	A B C
Group project number	
Today's date	

SECTION 1

number, duration and location of your group meetings

How many meetings did your group have:

with all 4 members present _____

with only 2 or 3 present _____

Were these meetings evenly distributed throughout the 9 weeks of the project?

☐ Yes

☐ No

If NO, please explain further

```


```

Do you think the number of meetings you had was:

☐ Too Many   ☐ About Right   ☐ Too Few

Fill in the following:

Our longest meeting lasted approximately _____ mins

Our shortest meeting lasted approximately _____ mins

On average our meetings lasted approximately _____ mins

Where were the majority of your meetings held?

☐　　University library

☐　　Canteen

☐　　Resources room (445)

☐　　Group members house

☐　　Other - please specify　_____

Were there any extenuating circumstances that prevented you from attending meetings?

☐　Yes

☐　No

If YES, please explain further

```
┌─────────────────────────────────────────┐
│                                         │
│                                         │
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│                                         │
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│                                         │
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```

Overleaf is a list of some of the main things that people do in group meetings.

How far does each item describe what you personally did in your group meetings?

Read through the list and answer by using the 1-4 scale provided:

Scale

4 = This is something I often did in our meetings

1 = This is something I rarely did in our meetings

How far does each item describe what you personally did in meetings?

		Did rarely			did often
1.	Putting forward a new idea or suggestion (however big or small) to do with the task	1	2	3	4
2.	Building on or developing an idea once it has already been put forward	1	2	3	4
3.	Saying something which clearly shows support for someone else	1	2	3	4
4.	Disagreeing with others (clearly, and in a reasoned way)	1	2	3	4
5.	Being defensive about your own ideas or attacking ideas from other people	1	2	3	4
6.	Dismissing a suggestion or idea without offering alternatives	1	2	3	4
7.	Being open within the group - about feelings, admitting mistakes or lack of knowledge about an area	1	2	3	4
8.	Checking whether you or someone else in the group has understood what has been said, agreed etc.	1	2	3	4
9.	Summarising your part of the project for the group, letting them know what you have done to date	1	2	3	4
10.	Seeking information from others - e.g. sizes, facts and figures	1	2	3	4
11.	Giving information to others - e.g. sizes, facts and figures	1	2	3	4
12.	Interrupting others - shutting them out, talking over them	1	2	3	4
13.	Bringing in people into the discussions, making sure all were involved	1	2	3	4
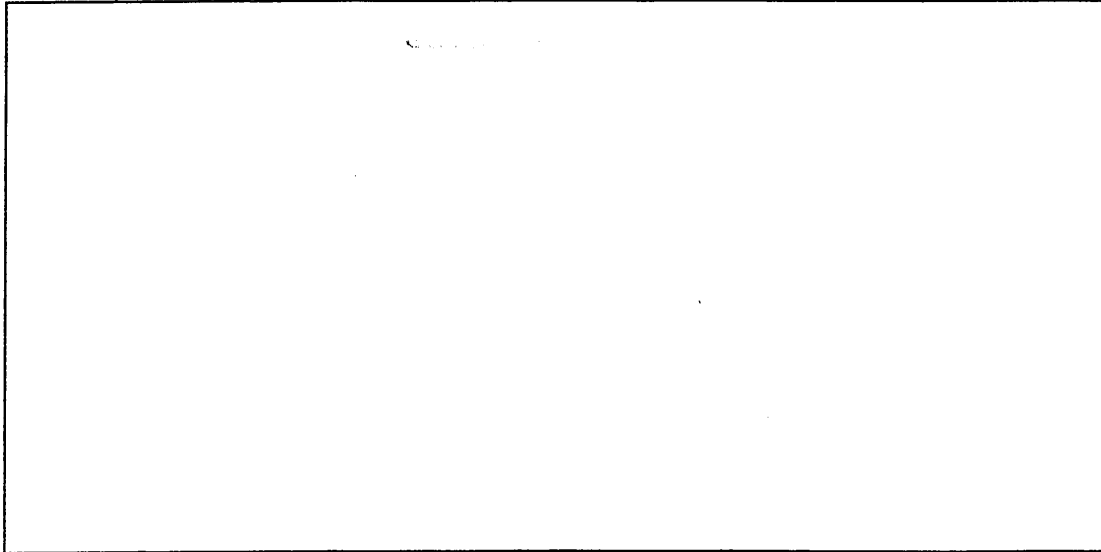
SECTION 3

what you learnt about group work
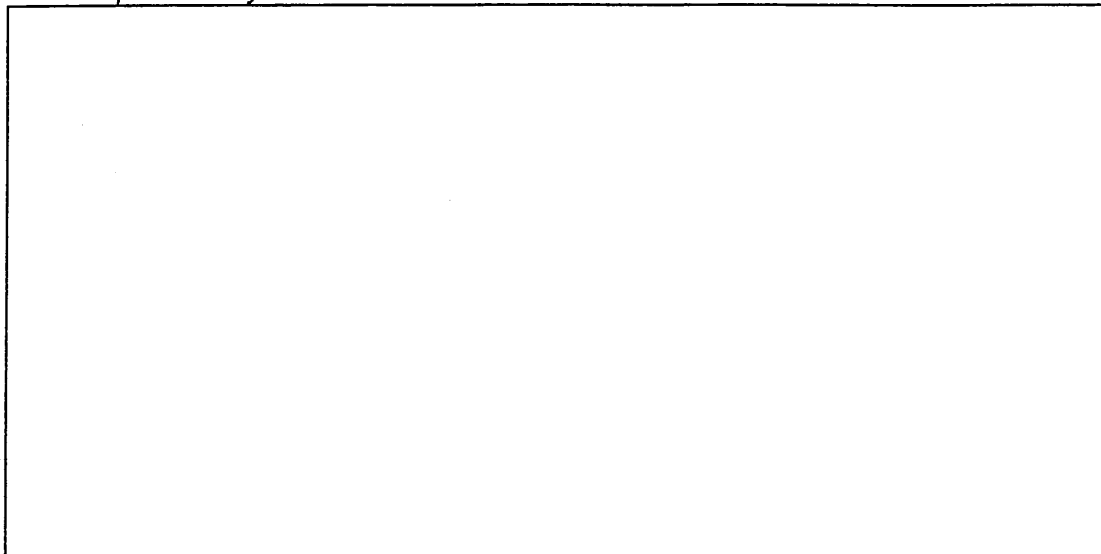
From your experience of being in the present group; what would you encourage your next project group to do in order to be effective?

be as specific as you can

Besides encouraging the above what will you try to do differently in the next group project?

be as specific as you can

How would you rate how much each group member did of the following?

Enter the first name of each group member in the shaded boxes (give initial if two names the same)

Fill in the rest of the table by writing in a number for each member including yourself

Scale 1 = did this rarely   4 = did this often   (2 & 3 if in between)

				you
Attending meetings / being punctual				
Producing work of good quality				
Co-ordinating your work with others				
Listening to what others said				
Giving positive feedback to others				
Paying attention to deadlines				
Encouraging a sense of team spirit				

Do you feel that you were personally more or less effective in this group than in other groups you have been in?

☐ More effective

☐ About the same
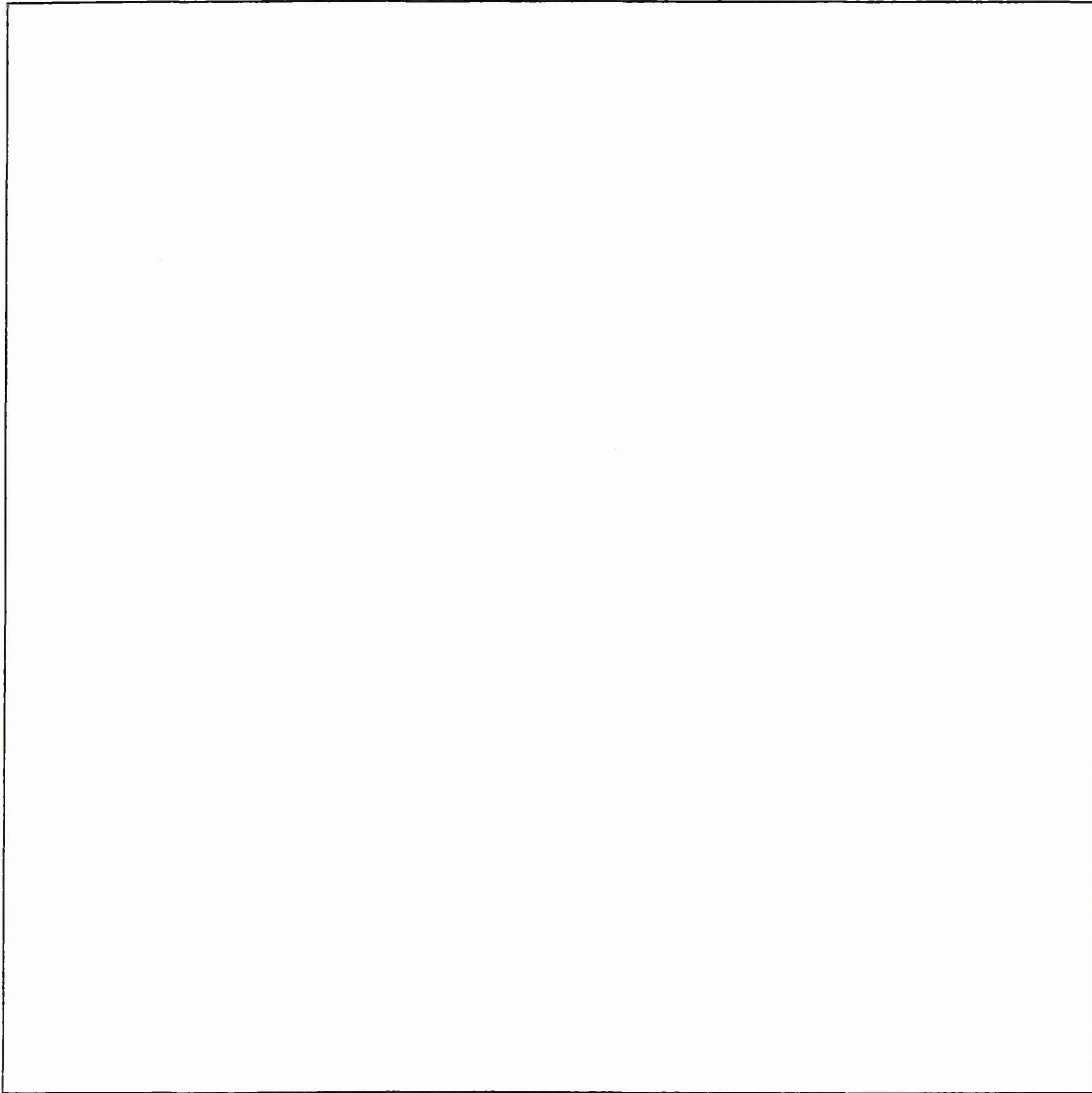
☐ Less effective

Why do you think this was?

SECTION 5

other comments

In the space provided below please feel free to add anything that you feel is important or of interest that hasn't been covered in the questions so far

Thank you for your time

Appendix 3: Interview analysis stage one - transcript

The following three pages provide an extended sample of initial interview transcript. For reasons of confidentiality, full transcripts do not appear. Each of the interviews were documented in this format.

1. [I start with talking about the role of a building surveyor and whether I was right in thinking it was like a jack of all trades type of role]

I've yet to find out [yeah] I went to a lecture with the first years 'Everything you needed to know about building surveying but were afraid to ask' [really?] yeah, me and 16 went and sat with the first years [at the back? [laughs]] yeah

and you still don't know? [laughs]

they just gave us a talk on [tape unclear for a second] when I went on work experience they just seemed to dabble in everything, didn't really need to know a lot about anything just looked up whatever you needed to know

2. **I mean in a way although it might be unsettling its quite a good position isn't it?**

I think so , you can do anything

3. **that's it, especially with the economy like it is in construction. [pause] So, to get us started the two projects that I'm particularly interested in the low rise one last semester can you remember who you were in the group with?**

(S44), (S43) (S45)

4. **right and in this high rise one who were you with there?**

(S46), (S34) (S39)

5. **right, little reminder there cos I know its been quite a while since the first semester**

yeah I know

6. **and you've done 55 000 different pieces of work since then so it might serve as a nice reminder of what you've been doing, erm, on that questionnaire that you've just filled in I was asking you which one of those two groups you thought you were more effective in, what was your response to that?**

that one

7. **semester two? Can you, can you explain why that is?**

in the first one everybody knew what they were doing and they done it and got on with it and I was having to keep up with them and do it and ask them questions about what was happening, why they were doing this and why they were doing that, this one - nobody would make a decision, nobody on anything, I would ask a question - 'don't know' 'well what are we going to do about this? have you got any suggestions?' - 'no I don't know' so I was impatient I was wanting to get on and get something done and they weren't, they didn't seem bothered about comparing to make sure they were getting the information right or passing information on and I felt as if I was a little bit more bossy this time, I was actually took over a bit not dominate [no, no] but had a bit more to say about it about what was going on in this one than I did the last one

8. **so you felt, you were pleased with that then were you?**

if it wasn't me, and it had to be done but its better that I've done that I suppose

9. **so something about that second group then prompted you to sort of get up and get things started is that what you're saying?**

[pause] erm, didn't consciously think about it just done it, just, they were annoying [laughs]

10. **ok, why were they annoying?**

cos you've got all clever people there and they just wouldn't make a decision they waited for somebody else to make one

11. those three there? perfectly competent but just wouldn't..

yeah and they didn't seem to be taking it seriously, they were like 'oh its only ten percent' or whatever it was, they weren't really bothered so if something didn't tie up with us 'it doesn't matter nobody's notice' and that's not me, I want to know what's going on, why and how and ...

12. why is it not you?

cos I'm efficient [laughs] I'm a pain in the backside I like things to be right I don't see any point in doing it if you're going to do it wrong like some people would specify a product that they'd just made up, and they've made this absolute load of rubbish up as this product and say if it gives you a U value for some glass and gives you a brochure they just like knock a couple of units off to make it look better and that's not me its not right, I would like rather use the proper stuff and work round the problem, not in this group that was somebody else doing that, they just didn't really seem bothered about it, I think because it wasn't as many marks as last year nobody was really prepared to put the same effort in for less marks

13. yeah that's something that's cropped up once or twice

yeah I'm not surprised

14. did it not dampen your kind of ....

I thought about it but I'm terrible, if something's got to be done its got to be done as best as I can, spend twice as long as everybody else on it

15. how, so you said that you felt more effective? How does that make you more effective, were you more effective because somebody in that group had to take, had to make some decisions

somebody had to, somebody had to try and do a leader role I mean I didn't do it I didn't sit down and say 'right, this is what we're going to do!' but I was always asking somebody for something, trying to see if they're getting their work done, if they'd passed it to so and so erm and I'd say 'well are we going to do this?' - 'well I don't know' - 'right we will' and that's something I'd never done in that other group the first one

16. and how did you feel about doing that?

what? me? I felt awful

17. did you? why?

because I'm frightened of making decisions, I know less than the rest of them and by me making the decision they could be getting their work wrong, I don't like that but I'm realising now that you've just got to do it to get the work done and out of the way ....

18. and so that's quite a brave thing to do then isn't it if you don't like doing that

its is for me

19. for you yeah, if you don't like doing that kind of thing, did you feel, did you feel quite pleased with yourself at the end that you did it?

I never thought about it, I was pleased that the work was done and out of the way but I do realise that I've done something different

20. I just wondered whether it left you with a sense of feeling of 'yeah I could do a bit of that next time' or 'I'm never doing that again'?

I think maybe I could do it again now, its not that, I wasn't bossy or over powering by any means but I just felt that I had more to do with it and I wasn't just following what everybody else was doing and getting my work done and in I actually had more control about what happened with the things, but well maybe next time I won't be so frightened to put ideas forward

21. and in that first group, presumably you still had this er perfectionist streak, if you want to call it that, is it fair to call it that?

not as severe as that! [laughs]

22. not as severe as that but you like to do things the best you can
yeah I don't think theres any point in doing it otherwise
23. right erm how did that go on in the first project ....
well they just seemed to do their own individual thing more and the first group
was nice to work with but, they just went away and you had to you were left to
your own devices and you just had to go and ask them questions and stuff
whereas this one seemed, we tried to get more together y'know in the design
and stuff that one (SEM1) I went away and designed the floor plan and then
everybody took the floor plan off that but this one we tried to like sit down and
work together as a group which I don't think worked as good but at least we
tried something different
**24. so its still nonetheless in that group, erm did you prefer that in a way
because you could get off and do your own thing? [pause] I remember
you talking last time about not liking the beginning of a project where
you have to get the ideas going**
that one, I had to do the initial design but because I was doing the steel frame
this time I didn't have to do it so I wasn't as pressured so I didn't feel as bad
in this one but in the first one I felt it was me and I had to do it and didn't
know who to ask and whether they were interested and I felt as if I do it
wrong or if I make a mistake everybody else is going to be wrong, the
pressure was definitely off in the second one
25. did that help?
definitely cos I didn't have to make the initial decision we talked about the
general design and that and it was much easier
**26. so, in a way is it, was it something just to do with the other people in
that second group or was it something to do with your, a change in
attitude that made you act slightly differently than you had done
before?**
a mixture of both I think, people in the group made us change my attitude, I had
to do it for me, not for them I had to just do it so I could get on with my work
and feel better
**27. and the motivation is so that you can produce a best a piece of work as
you can do? and how is it that I've got to ask you this one, you said, I
remember you saying in that first group that erm one of things you
didn't like was, I don't know whether it was to do with people having to
rely on you and feeling that you didn't know as much as they did cos of
your background, and yet you come up with the best marks in the
group, how you square those two things?**
don't know [laughs] bet Y feels sorry for us
28. but he doesn't, I mean he wouldn't do that
I don't know, I don't feel as though I deserved that mark I don't feel as if I'd done
any better than anyone else
**29. just, just struck me as being curious that's all, do you still feel that now
even though you've probably got the top marks in the whole group I
would have thought**
I don't know I think it's like because I do something and then I go and ask Y and
then I do it again and that's because I spend so much time on it like two or
three times as much as anybody else, whereas a lot of people just do it at the
last minute and don't really care whether its right or wrong, its not that I know
it, its just that I spend that much time on it
30. is that similar with you in other ....
everything
31. at school or, in anything you do in hobbies or whatever?

Appendix 4: Interview analysis, stage three

The following three pages show an abbreviated example of stage three analysis of one interview. Stage two, it will be recalled, was hand-written, and an example of this is included in the main body of the thesis (methodology p.138).

Categories generated from interview with S45 version 2 - 5.2.96

goal/value - in SEM1 group

not to let others down [45/6]

not to be let down by others [45/46]

general attitude to GW

neither negative or positive - ambivalent? T [10]

sarcastic anticipation/trepidation [8/47]

something to be done as part of the course [9]

luck determines potential for mis-match of work styles [48]

recognition of GW as a different way of learning [13/53]

examples

more self directed than being given set work to do [13]

SEM1 group as useful for own learning [53]

problem situations in GW

mismatch of work styles [48]

example given

satisfied with pass grade versus higher grade seekers [48]

solution/general rule

largely unable to make lower motivated students work R [48]

intervention shouldn't be needed [50]

in others own interests to work hard [50]

classification of others

satisfied with pass grade vs goal to achieve high(er) grade [48]

past experience of GW

    relatively little experience in project groups [29]

        outcomes

            difficulty in knowing own typical behaviour [29]

            increasing familiarity with demands of gw [48]

                example given

                    range of others work styles [48]

    initial reaction to SEM1 coloured by poor group in year one [8]

    poor group in year one

        examples given

            work left till late in project [8/25]

            group as whole not well motivated [8]

            generally poorly functioning group [8]

            own lethargy induced by returning from summer holidays [11]

            work produced on isolated/individual basis [25/26]

            work produced was at times incompatible [26]

SEM 1 group

    membership

        knew others beforehand but had not worked with [14]

    expectations of others

        positive expectations of others [16]

            reasons given

                knowledge/familiarity with others [16]

                knowledge that others produced good work [16]

                early display of willingness to work for group [18]

                    example

                        members volunteering work early on [18]

characterised by:

high quality work of others [36]

others more enthusiastic/willing to work than year one group [8]

work generally produced on time [41]

feedback generally given to others [41]

co-operative problem solving **R** [14/18]

trusted others to meet deadlines [43]

tactful, consensus seeking interactive style [18]

listened to each other's input [39] - link to interdependent??

reasons given

perceived to be worth listening to / valid [39]

help to improve grades [39]

more actively interdependent than year one group [21/43]

examples

more communicative than year one group [21/28/39]

offered/received constructive criticisms [21/24]

helping each other not just self [21/24]

deadlines negotiated between members [43]

results

improved own work and others [24]

better marks [21]

more functioning as 'a group' [21]

23

Appendix 5: Interview analysis, stage four.

The following three pages show an abbreviated example of stage four analysis of one interview (a full version is approximately 15 pages long). Each interview has a written stage four analysis like the one below.

Summary of second interview with S42

Version 1 - 3.5.96

What account does 42 provide of others' attitude to group work and information about the course in general?

42 felt that the course as a whole were less willing to work in SEM1 than they had been in SEM1. The possible reason for this being that the SEM2 project was worth less marks, 42 was not surprised that this had been suggested to the researcher in other interviews.

the timetable

The course was not as 42 expected it to be and 42 has made some informal comments to tutors, particularly regarding the timetable. The timetable meant that students were only scheduled to attend one and a half days a week. 42 made the comment to the tutors that one felt one could be doing a part time degree or on day release instead.

The effect of the timetable was that 42 felt it was harder to get motivated, this being true for the course as a whole - unless you were an exceptional student (like S11) then the normal routine was not to spread work evenly but to leave it till late on as there were five days in between lectures.

A further point is that the SEM2 timetable did not allow time for consulting with peers. Previously it was commonplace to exchange ideas and information with others in between lectures but now 42 felt that the work was done on a much more individual level and suggested that grades would suffer as a result.

on timing of work

42 described the course as being 'like a farce' at times. The example 42 gave was of a piece of work recently given out that had to be handed in one week before the exams. This was seen as 'ridiculous' and in a reference to acknowledging that a few people on the course copy work from each other and don't take the course seriously -'something's got to give'.

on lectures

42 feels that 42 learns more from some lecture/rs than others. 42 stated a preference for one lecturer (x) because at the end of these lectures 42 has written own notes of the material. Other lecture/rs were seen to be less beneficial, Structures for example, where 42 is given very large amounts of material and the tutor chastises mistakes when they have only been studying a topic for a short while. Another less effective tutor told the course to go away and read and learn a whole book, the book contains difficult and new equations that 42 finds off putting and predicts that half the students will fail the unit.

Generally 42 feels that they are expected to learn large amounts of material in too limited a time. 42 recognised that the design of the course as a whole was an

26

attempt to reduce time for material and felt that lack of time was a significant problem. 42 predicted poor final grades for the course as a whole.

on course improvements

42 felt that not much was learnt in the technology tutorials. 42 wanted a more sit down and teach approach, 'I want to learn things', by which was meant that 42 wanted information on paper to learn and memorise, for example to be told definitively what different types of roof there are. 42 wanted information on paper so it could not be forgotten unlike just being told things.

Tutorials generally could be a waste of time, 42 felt that students on the course know and are able to use the library and that material was better coming form tutors.

on 'A' level background

On the above points 42 saw a possible connection between own attitude and an 'A' level background which had more of a spoon feeding approach. The transition from 'A' levels to university was described as being a 'terrible' shock. In relation to HND students, where the work is generally more intense than a degree course, 42 felt that 'A' levels students start with a lower knowledge base such that they had to reach much further in order to get to the same level of grades. This was one reason given as an explanation of why 42 feels works harder than others on the course. Having to work harder than others to get the same grade can be 'disheartening'.

What account does 42 provide of him/herself and of him/herself in relation to others on the course?

own work ethic / style

42 described own approach to work as 'efficient' more jokingly as being a 'pain in the backside' for others but rejected the researcher's suggestion of having a perfectionist streak as a little too severe. 42 feels that there is no point in doing work unless it is done to the best of own ability felt was 'terrible' in this respect. 42 feels that spends twice as long as others on work typically starting before them and taking longer to complete the work. Described self as panicking towards the deadline and that staying up till 3 in the morning was not especially unusual. Felt that own levels of concern over work do fluctuate however, from being stressed to being blasé. Generally the beginning of a semester is a stressful time as this is when work is given out (SEM2 was less stressful).

42 said was 'frightened' to commit pen to paper until certain of the accuracy of what 42 was saying - the deadline forces 42 to hand in work but likewise does not like handing it in unless certain it is correct. 42 prefers to have reassurance from others that own work is correct being critical of work that produces entirely on own. Feels that work should be done correctly - others for example have made up specifications in a project to avoid having to solve a problem, 42 feels that - would rather solve the problem and use the correct specification.

27

Found it hard to understand others on the course who do not put the effort in, and some of these 42 felt were 'wasting everybody's time'. On one SEM2 project (with the same group) 42 made two of the others in the group (S34 S46) go back and revisit a building so that 42 could gain practice of a measuring task and ensure that the work they produced was correct. Previously the group had copied their answers from another group as all the members bar 42 had either had experience of measuring or were prepared to copy rather than do it for themselves. 42 'needs' to know that answers are correct.

In terms of the group work 42 described self as being 'frightened' of making decisions - the concern being that if own decision is wrong then this could have a negative impact on the groups work.

on high grades

When asked about reluctance to make decisions even though 42 got high grades 42's first reaction was to jokingly suggest that tutorY felt sorry. However, 42 generally felt that 42 did not 'deserve' the high grades given to self for the SEM2 project work - that own work was not qualitatively better than the others. Approach in work is to consult the tutor for advice on what has done and then make alterations in the light of the advice. Also feels that 42 spends two to three times longer on the work than others - others are known to leave work till the last minute and not care greatly about it.

42 made the connection (when prompted) between own approach to work at Uni and 'everything' 42 did. 'I just work'. Approach was similar in 'A' levels but not as extreme. Remarked that uni was completely time consuming to the exclusion of other activities. Felt that own work is done to a standard that is 'reasonable'.

What account does 42 provide of group processes in the SEM2 group?

The SEM2 group experienced difficulties due to the restricted timetable. S39, for example, went home after lectures and was only available to meet on one afternoon a week. The timetable caused problems for other groups too.

In the meetings the talk was characterised by little critical or thorough discussion of ideas and 42 felt there was a lack of decision making in the group as a whole. [see own effectiveness for more]

comparison between SEM1 and SEM2

IN the SEM1 group 42 felt that the other members knew more about the task area and could therefore work with confidence on a more independent basis. As a result, felt that they were ahead and that 42 had to follow them and was forced to ask them about what was going on generally and about what they were doing on their tasks. 42 thought this was a 'nice' group to work with but that 42 was left to work individually. Furthermore, the task allocated to 42 was crucial to the early design and the other members subsequent work - felt 'pressured' and with some anxiety about making a mistake which could have a negative impact on their work. 42 felt as though 42 had to be more self reliant in SEM1 and was uncertain who to ask for help or if they would be interested.

Appendix 6: Interview analysis, stage five.

The following four pages shows a sample of the summary tables produced during stage five of the analysis. The full list of table is approximately seventy pages long and comprises thirty eight separate tables, the example shown is longer than average but indicates the discursive nature of the process.

Discussion

> Have so far concentrated on the reciprocal relationship in terms of grades and quality - what else is there? Return to table 5 - expand it. Table below shows in more detail what they find difficult or frustrating about working in groups and an interpretation of the issues raised by each student.

Table 9. Further reservations about group work - challenges and problems.

S38 - rather than being difficult, S38's attitude to group work was more in terms of being 'fed up' with it. [1] This was presented in the interview as an academic argument, that tutors had thrown them into group work, that its role should be questioned but there is evidence to suggest that he might feel fed up with it for a more personal reason. In the second interview, he explains that his design for the building was chosen [26] - the significance being that it was the first time this has happened despite his feeling that he had constantly been working in groups since college. [1] His design wasn't chosen particularly for its merit (he felt) but because other designs were not available at the time [26]. It is likely therefore that S38 has not had a particularly influential role in student project work (doing the initial design is more likely to lead to a more influential role because others seek clarification, ask questions etc.). In relation to his school experience he talks of not getting good grades, and being picked on by others as a result [15] - he talks of not being concerned with academic achievement but admires those who obtain it consistently [13]. He talks of being more concerned about relationships within the group rather than quality of work [15] and agreed with the researcher that he was driven more by the norms of the group than an internal drive to achieve (to which he added that he hadn't got one) [16]. - *The sense of repetition then, might be one of his position in the group - his lack of power to influence. Of the past repeating itself.*

He also discusses a problem in the SEM1 group in which he failed to produce a piece of work on time which caused some problems for the group [25] and that not producing work on time was more of a consistent pattern for him [2] - he felt should have learnt to not do this by now but he hadn't [30] - *a discrepancy between his own view of what he should have done and what he really did.*

S39 - recall that S39 finds it difficult to work with those who he sees as being a threat to his own grades [2] - so what is the difficulty? First suggestion is that he does not like the erosion of his own grades that he feels consistently happens in group work [1, 12]. - *Identical elements - individual merit as a value? repetition* He also discusses that he dislikes giving feedback to people about their work and tries to avoid doing this because he assumes that people are likely to react negatively to it [17] - *a felt difficulty, interpersonal opportunity to learn?* He also talks about feeling frustrated in YEAR1 when another member did the initial design but did not do it as well as he thought it should have been and the subsequent alterations caused delays to the whole project [4] - *an example of reciprocal effect on grades and a discrepancy between his way of doing things and someone else's - loss of control over the process*

S37 - one of the things he finds hard is to work with others who are not willing to work *loss of control - discrepancy between his way and their way of working/concern for work quality* he also dislikes it when he has had to produce work that should have been done by others, he is willing to do this to ensure it gets done well but would rather not have to he also dislikes it when help is not mutual - *discrepancy between how he feels things should be done (equal contribution, mutual help) and how they have been* - However, he is the only one of the seven to say that working in groups was a good way of getting know other people on the course which is also partly why he states a preference for working with different people every time, the other reason being that he feels is easier to interact with others who are less well known [15]
S42 - feels in many ways that it is harder for him to have a positive input into the group because he feels he knows less than the others, as such he dislikes having to make decisions on the groups behalf, lacks the courage of his convictions and also disliked giving criticisms - *interpersonal difficulties based on perception of self in relation to others, confidence,* [1, 2, 27] he also talked about not liking asking others for help as he felt he should be able to be more self reliant and he dislikes others having to rely on his information as he feels he's 'not that good yet' [17] - *discrepancy between ideal self and public display of self?* He also finds it frustrating when others won't try [2] - *loss of control - reciprocal relationship*
S40 - presented neither an overtly positive or negative attitude to group work [1], the reservations he did had hinged upon the YEAR1 project where some of the work was incompatible but he attributed this to his own sense of lethargy after the Summer holidays [4] - he also thought it was a matter of luck whether you ended up in a group with others who were not well motivated *loss of control - reciprocal relationship* [2] but overall his experience of group work had been 'reasonably smooth' and had not met anyone he did not like working with [3] - *lack of discrepancy?* he felt it hard to answer generalised questions about him in groups because he felt he had little experience so far - *interviewee's style - attitude not a function of amount of experience (compare this with S42 who was also new to group work)*
S41 - generally positive attitude to group work, usually enjoys them but has some reservations, he likes to know early on that the other members are going to do the work in a dependable way and not leave it till the last minute - *loss of control, discrepancy between his way and their way of working* [1,2] he expressed a strong sense of dislike for one particular member (not one of the seven but a student mentioned several times by them as being well known for having an over-dominant style) - *discrepancy, difference* [4,5] in response to the ideal group question he talked about not having thought about how others might affect him [15]
S44 - mentioned the difficulties he had encountered in student groups in terms of organising meetings, his annoyance at others not turning up when arranged when he felt they had no excuse not to (this did not happen on the HNC when group members could self select) - *discrepancy between how he feels things should be done and how they are by others, past group work as source of comparison* that he would rather just have himself to rely on *loss of control* [1] lower motivation and standards at university compared to work [1] - *past biography, work experience as a source of comparison* and the threat of losing marks *reciprocality* [1] he also talked about criticising others, though he feels he can do this in a tactful style he feels uncomfortable with the prospect of potentially hurting others feelings [17] - *interpersonal difficulty linked with concern for quality of work*

31

Findings

Discrepancy - one theme that characterises their reservations about group work is that it has presented in the past a number of discrepancies between their view of what should happen and what seems to them to be happening in actuality.

The discrepancy can be between an ideal view of what their self should be doing and what happened/happens. For example, S38 felt he should have learnt to produce work on time but failed to do this in the SEM1 group. S42 felt that he shouldn't have to ask for help but he recognises that he still needs to.

The more common type of discrepancy is that between their own ways of working and those of the other group members. For example, S39's dissatisfaction with another members initial design scheme, S37's difficulty in working with those who do not share his willingness to work, and when his view of group work as demanding equal contribution and mutual help does not happen, S42's frustration with others who won't try, S41's preference not to leave the work till the last minute or the discrepancy between his view of a more egalitarian approach to groups and the dominant group member in the first year, S44's annoyance at others not turning up when they have no excuse. S40's account is less influenced by clear, strongly felt discrepancies, almost by a lack of them.

Part of the reciprocal nature of group working is experiencing discrepancy. Discrepancies are likely to have been paid more conscious attention to - they are more likely to have been brought up in the interviews because of this and also more likely to be made available for reflection. How to deal with such discrepancies form major learning opportunities about how they work and how others work in groups.

Loss of control - tied up with the notion of discrepancy between self and others is the sense of loss of control. The discrepancy is the manifestation of the loss of control in the reciprocal nature of group work.

Interpersonal communicative difficulties - S39, S42 and S44 raise communicative issues in terms of their reservations about group work. All three focus on the difficulties of criticising others work. S39 is the only one to say that he actually avoids giving feedback because of this. For S44 and S39 both say they are uncomfortable with the prospect of hurting others feelings and tend to assume that others will react negatively to criticisms. S42 dislikes giving criticisms, for the same reason he dislikes making public decisions, because he lacks confidence in the accuracy and usefulness of his own ideas. Only these three highlight concerns about interpersonal communication, note that they also share a concern for work quality and that the aspect of communication they raise is to do with using their own knowledge and ideas to try and influence others. Concern for quality of work is likely to heighten any personal difficulties involved in criticising others, giving feedback or influencing group decision making. It is also more likely that those with such a concern will more often be in the position of having to practice doing this.

S37, who also shared this greater concern for work quality does not highlight any communicative difficulties - rather he states that he finds it easier to communicate with people he has not worked with before. He also briefly talks of group work as being useful in getting to know people on the course. It is possible then, that these two points serve to compensate the difficult nature of group work.

Past biography as a source of comparison and meaning making - how the past is used. Prospect of repeating past experiences shapes their reservations, the past is used as the starting point for making sense of the present group. Memory of negative events transfer?

For S38, his experience so far suggests that he has not been in a position of influence in group projects, manifesting in his sense of repetition and boredom with the idea of group work.

For S39, past group work has resulted in lower grades, he sees this as a fairly consistent pattern (an identical element for group work?) - perhaps for him then, more of a sense of struggle is triggered by the prospect of group work.

S44 compares university group work to his knowledge of the workings of an architects office, motivation and standards at university are less favourable when compared with work. Likewise, when compared to HNC (where they could choose their own groups) the randomly selected degree groups are less effective.

Despite his reservations, S37 prefers the type of work that he knows will be involved and the prospect of working with different people.

S41 has usually enjoyed group work, S40's experience has been 'reasonably smooth' - neither of them provide any tangible sense of hardship, or frustration though this doesn't mean they found it easy.

S42 has had the same amount of experience as S38, but reactions are much stronger. So its the memory of the experience rather than the amount of experience that is significant.

Individual merit - contributing to S44 and S39's preference for individual work is a value that they place on their own individual work being awarded merit.

Follow up

I have used the expression 'loss of control'; do they perceive it as a loss of control - what do they do when faced with a clear discrepancy? Do they see it as an opportunity to learn? Do they feel they can influence events?

influence - S44, S37, S39, S42, all been in influential positions, S41 and S40 not, S38 never and consistent pattern, does this shape learning? More than just a concern for work its also ability and perception of ability by others (INSERT IN EARLIER TABLE) heighten experience, shape role in groups, experience of influence or experience of lack of it.

Appendix 7: Research diary.

The following 5 pages show a sample of the research diary which was kept throughout the analysis of the interviews. The complete diary is approximately 90 pages long, regular copies and updates were kept with one member of the supervisory team.

7.2.96

[p41]

now then, his perception or my interpretation - its all mixed up! (about flair/initiative) - this is how I see it not necessarily how he sees it - though it is 'there' in the interview - so what am I producing here in the sheet 2 documents - not phenomenological because I have offered interpretations? mix of factual and perceptual, what they did - what he did - what he thinks - what I think he means - clear this up

interpretative research - follow up Ashworth references on the subject - need to sort this business out this week. What have I produced? The big question.

I suspect it will be a mix of descriptive and interpretation.

Anyway - interpretive research 'aims to show ways of making sense of experience' I am not aiming to describe the others life worlds faithfully but I do want to know what being in a group is like for them, what sense have they made of their experience - what themes are collective/socio-cultural and what themes are more individual. My emphasis is not purely on their life world as described - but on their interpretation of their experiences and in what I see to be relevant in them in relation to learning and transfer - it will be an interpretation based on the available ways of seeing that I have - blurred notes these but an issue which needs me to pick out and refine what I'm on about - see what I wrote earlier about filtering - interpretation is involved in all stages of - experiencing the 'group project' in the first place - in expressing it to me and in my subsequent writing up of what the interviews mean - what they mean to me coming from certain more/less implicit assumptions and knowledge of theories of learning, transfer, group dynamics and so on.

8.2.96

Yes, this is the next thing to clear up - what are the sheet 2's?

They are my interpretation of what the student means. They are expressed in my words. I have generated the themes under which I have positioned examples/components of the general theme. The categories are not explicitly mentioned by the student but reflect my line of questioning - some categories however are not specifically related to a question, for example - 'past experience of gw' , 'attitude to task', 'own effectiveness' are clearly linked to my questions on the subject, whereas - 'general rules about group work', 'work preferences', 'self in relation to others', 'uni versus work context' are less so. The category of 'research notes' is probably the most original in the sense that these are notes which have been triggered by reflection on the process rather than the content of the interview. There is no doubt that my questions are clearly reflected in the categories - this should come as no surprise, afterall I was starting the interviews with a list of fixed questions based on a more or less implicit schema of what I took to be potentially the most influencing factors, (will make a list of these)

The examples under the category headings need a title:

Taking my lead from Dey,

"Category - a concept unifying a number of observations, or bits of data, having some characteristics in common"

"Bit of data - a part of the data which is regarded as a separate 'unit of meaning' for the purposes of the analysis"

So for now I shall call them bits - no I won't - I'll call them units of meaning because that's what they are - however this could get confused with meaning units - which are associated with a particular epistemology, so I'll call them units of data, bits of units, itsy witsy teeny weeny little bits of data, thingies, bits. Bits. No, units of meaning is more representative of what I think they are. hmm

So under the categories - which are loosely labelled at this stage. Indeed this is a thing I want to talk about. The categories are, at one and the same time, loosely labelled yet fixed enough to work with. Its a constant process of not being content with the sheet 2's but having to work with them to compare, contrast and hopefully make meaning from. This is not an easy position for anyone with a perfectionist streak - there are always going to be richer readings if you stick at it - but I suppose the process is limited by sensitivity to experiences, biases and time. Its probably more important in terms of 'validity' to make sure that there is nothing in the units of meaning that should not be there than it is to spend hours trying to see if there is anything which isn't in them but should be - a desirable end but one with limits.

The next stage will be to read the interviews again and see what is missing, hopefully I can make sense of these things - I don't mean topic things so much as things which come from the whole of the interview but become lost in the process of condensing it. It would be easy to give myself a hard time over this - indeed I have been doing - but I wonder if this is going to happen anyway - in reducing and re-organising the interview is there not going to be an inevitable loss of - connecting threads, between the lines things - now that's interesting - my suspicion is that its these - between the lines type of things that are lost - are these things actually there or are they the inferences that the reader/researcher draws when reading the transcript. Afterall, the phenomenon of primacy effect, halo effect etc. is well documented and our understanding of a text is shaped not only by our general knowledge of the world and our knowledge of reading but by our understanding of that much of the text that we have read so far - the process of analysing paragraph by paragraph was to avoid these leaps and inferences as far as possible though it is likely that there are some themes which aren't spurious inference but really are there to be seen in the text if you look at it as a whole. * This I shall do in the morning.

*Dey (1993) writes that "you can't make an omelette without breaking eggs. And to extend the aphorism - you can't make an omelette without beating the eggs together. Analysis too involves breaking data down into bits, and then 'beating' the bits together" Well - I'm not sure about this but its nice to read someone talking about the process that I'm working on. Must also compile my list of analogies and metaphors for qualitative research.

So the units of meaning are predominantly expressed in my language - with the aim of reducing/preserving the students meaning of the paragraph as far as possible.

Their expressions written in my words under my category headings. no there is something here

e.g.

1 knowledge of others attitude to GW (S46)

2   mixed reaction - some enjoy some intensely dislike

3   significant numbers prefer individual work

4   cause

5   some groups have functioned poorly

6   curiosity about others opinions on GW

line 1 = my category

line 2 = nearly verbatim description of 46 reaction

line 3 = as above

line 4 = my addition to show where the previous statement has come from

line 5 = my interpretation of 46 meaning - quite close to original

line 6 = something 46 expresses indirectly rather than says directly

yes so sometimes its not a direct expression of an opinion but my interpretation of an indirect expression?

lets test another one out still from S46 them2.doc

1.attitude towards members

2   positive satisfaction with membership [9/5/33/34]

3   positive expectations of others [9]

4   loyalty to others [31/33]

5   trust to produce work on time [58]

How accurate is this?

1 - these statements are all about his attitude towards the members of the group in general terms. Except for 4 which is the basis of several categories?

2 - he states this explicitly in all 4 paragraphs

3 - he states this closely - "I thought it would work out well"

4 - well, now, my interpretation is that because he doesn't want to give low marks in the peer assessment that this is about loyalty to the group - much more of an interpretation on my behalf - and not an easy one - my notes on this are lengthy and loyalty appears in 'these' - there are other things going on here about the dislike of peer and self assessment but the word 'loyalty' is getting there - "I don't like putting a mark on other people's work especially when they're in your own group, and how can you mark yourself?" "yes. I don't want to give a 1 or 2" to the others when I prompt him if his scores reflect the fact that the group were good or whether he just doesn't want to give low marks. Fear of disloyalty I mentioned in my notes? but its something to do with the belonging in a group - the pressure, forces in the group make him uneasy about being critical of their work.

5 - this is very close to his statement

Conclude from this that the process of putting their words into my words is highly complex - sometimes their meanings will not be as clear (I mean this in a general sense - I suspect that other readers of the transcript would have similar difficulties over what I have termed loyalty.

{This ties in with the argument that meaning is negotiable as Dey (1993) writes and that "interpretation and explanation are the responsibility of the analyst - it is his or her task to develop a meaningful and adequate account; the data merely provide a basis for the analysis, they do not dictate it" p39 so its up to me to produce my account and I am in a better position than most because of my familiarity with the context of the group work projects}

I wonder if its worth highlighting those units of meaning which are more tentative than others. Time consuming but could be a worthwhile checking procedure. The problem is as I said earlier - the sheet 2's will never be finished, there is no 'perfect' result but there is much to be said for reviewing them. I have done this once already - maybe I should leave it or do it one more time making a note of the tentative - more inferred units of meaning? I do want to move on and need to in terms of my timetable.

Theres also no way of knowing from my isolated categories and units of meaning which are more significant to the student or indeed to my account.

Appendix 8: Student and researcher ratings of behavioural checklist.

The following three pages show the statistical calculations for rank order comparisons between the ratings using the behavioural checklist. They show both the students' ratings, the researcher's ratings and a comparison of the two.

Spearman's Rho (ρ) shows the degree of correlation between two sets of ranks where each rank in one set has a related partner in the other set. The higher the value of ρ the more positive the correlation.

1. Student ratings for both SEM1 and SEM2.

Table A1: Rating scores and rank order for SEM1 and SEM2 meeting behaviours as rated by the students

Semester 1	Rating	rank	Semester 2	rating	rank
Seeking information	3.48	1	Seeking information	3.43	1
Giving information	3.29	2	Putting forward ideas	3.26	2
Showing support	3.12	3	Summarising	3.13	3
Putting forward ideas	3.04	4	Giving information	3.05	4
Summarising	2.98	5	Building on others' ideas	2.97	5
Building on others ideas	2.9	6.5	Showing support	2.85	6
Being open	2.9	6.5	Checking understanding	2.8	7.5
Bringing in	2.8	8	Being open	2.8	7.5
Checking understanding	2.74	9	Bringing in	2.59	9
Disagreeing	2.23	10	Disagreeing	2.49	10
Defend/attacking ideas	2.0	11	Defend/attacking ideas	1.95	11
Dismiss suggestions	1.55	12	Dismiss suggestions	1.56	12
Interrupting	1.40	13	Interrupting	1.31	13

Table A2: Calculations for Spearman's rho - students ranking of their behaviour in SEM1 and SEM2

Behaviour	SEM1 rank	SEM2 Rank	rank difference	rank difference squared
Seeking information	1	1	0	0
giving information	2	4	2	4
showing support	3	6	3	9
putting forward ideas	4	2	2	4
summarising	5	3	2	4
building on others ideas	6.5	5	1.5	2.25
being open	6.5	7.5	1	1
bringing in	8	9	1	1
checking understanding	9	7.5	1.5	2.25
disagreeing	10	10	0	0
defend/attacking ideas	11	11	0	0
dismiss suggestions	12	12	0	0
interrupting	13	13	0	0

$\sum d^2 = 27.5$
$6 \sum d^2 = 165$
$n^3 - n = 13*13*13-13 = 2184$
$6 \sum d^2 / n^3 - n = 165/2184 = 0.075$
$1 - 0.075 = 0.925$
Spearman's $\rho = 0.925$

Critical value for $p<0.005$ where $n = 13$ and test is one tailed is 0.703.
Co-effecient is significant.

2. Researcher ratings for SEM2 project

TableA3: Researcher's observations of SEM2 showing totals and rank order.

Behaviour	total	rank
Giving information	340	1
Putting forward ideas	304	2
Building on others' ideas	273	3
Seeking information	250	4
Summarising	152	5
Supporting	96	6
Checking understanding	50	7
Being open	28	8
Dismissing ideas	21	10
Interrupting	21	10
Bringing in	21	10
Disagreeing	16	12
Defending/attacking	12	13

3. Comparison of student and researcher ratings for SEM2

Table A4: Calculations for Spearman's rho, researcher's observations of SEM2 and students rating of behaviours in SEM2.

Behaviour	*SEM2 observed rank*	*SEM2 student rank*	*rank difference*	*rank difference squared*
Seeking information	4	1	3	9
giving information	1	4	3	9
showing support	6	6	0	0
putting forward ideas	2	2	0	0
summarising	5	3	2	4
building on others ideas	3	5	2	4
being open	8	7.5	0.5	0.25
bringing in	10	9	1	1
checking understanding	7	7.5	0.5	0.25
disagreeing	12	10	2	4
defend/attacking ideas	13	11	2	4
dismiss suggestions	10	12	2	4
interrupting	10	13	3	9

$\sum d^2$ = 48.5

$6 \sum d^2$ = 291

$n^3 - n$ = 13*13*13-13 = 2184

$6 \sum d^2 / n^3 - n$ = 291/2184 = 0.133

1 - 0.075 = 0.867

Spearman's ρ = 0.867

Critical value for $p < 0.005$ where n = 13 and test is one tailed is 0.703.
Co-effecient is significant.

Appendix 9: Student ratings of effective group work skills

The following three pages show the statistical calculations used when comparing the students' ratings of effective group skills. The criteria, it will be recalled, were generated by the students themselves. The tables show ratings for self assessment, peer assessment and then a comparison of self and peer assessments.

1. Self assessment

Table A5: Rank order correlations of self assessment of effective group work practices in SEM1 and SEM2

Semester 1	Mean rating and rank	Semester 2	mean rating and rank
Attending meetings/on time Listening to others Paying attention to deadlines Producing good quality work co-ordinating work with others giving positive feedback encouraging team spirit	3.64 [1] 3.38 [2] 3.28 [3] 3.19 [4] 3.07 [5] 3.04 [6] 2.92 [7]	Paying attention to deadlines Attending meetings/on time Listening to others Producing good quality work Giving positive feedback co-ordinating work with others encouraging team spirit	3.60 [1] 3.55 [2] 3.52 [3] 3.36 [4] 3.18 [5] 3.15 [6] 2.92 [7]

Table X: Calculations for Spearman's rho, self assessment of effective group work practices in SEM1 and SEM2.

Effective group work practice	SEM1 rank	SEM2 Rank	rank difference	rank difference squared
Attending meetings/on time	1	2	1	1
Listening to others	2	3	1	1
Paying attention to deadlines	3	1	2	4
Producing good quality work	4	4	0	0
co-ordinating work with others	5	6	1	1
giving positive feedback	6	5	1	1
encouraging team spirit	7	7	0	0

$\sum d^2 = 8$

$6 \sum d^2 = 48$

$n^3 - n = 7*7*7-7 = 336$

$6 \sum d^2 / n^3 - n = 48/336 = 0.142$

$1 - 0.142 = 0.858$

Spearman's ρ = 0.858

Critical value for $p<0.025$ where $n = 7$ and test is one tailed is 0.786.
Co-effecient is significant.

2. Peer Assessment

Table A6: Rank order correlations of peer assessment of effective group work practices in SEM1 and SEM2

Semester 1	mean rating and rank	Semester 2	mean rating and rank
Attending meetings/on time	3.51 [1]	Producing good quality work	3.37 [1]
Producing good quality work	3.39 [2]	Attending meetings/on time	3.36 [2]
Paying attention to deadlines	3.23 [3]	Paying attention to deadlines	3.35 [3]
Listening to others	3.19 [4]	Listening to others	3.31 [4]
giving positive feedback	2.97 [5]	co-ordinating work with others	3.09 [5]
co-ordinating work with others	2.92 [6]	giving positive feedback	2.99 [6]
encouraging team spirit	2.71 [7]	encouraging team spirit	2.60 [7]

TableA7: Calculations for Spearman's rho, peer assessment of effective group work practices in SEM1 and SEM2.

Effective group work practice	SEM1 rank	SEM2 rank	rank difference	rank difference squared
Attending meetings/on time	1	2	1	1
Listening to others	4	4	0	0
Paying attention to deadlines	3	3	0	0
Producing good quality work	2	1	1	1
co-ordinating work with others	6	5	1	1
giving positive feedback	5	6	1	1
encouraging team spirit	7	7	0	0

$\sum d^2 = 4$

$6 \sum d^2 = 24$

$n^3 - n = 7*7*7-7 = 336$

$6 \sum d^2 / n^3 - n = 24/336 = 0.071$

$1 - 0.142 = 0.929$

Spearman's $\rho = 0.929$

Critical value for $p<0.025$ where $n = 7$ and test is one tailed is 0.786.
Co-effecient is significant.

3. Comparing self and peer assessment of effective group practices

Table A8: Rank order correlations of self and peer assessment of effective group work practices in SEM1 and SEM2.

Total self ratings	mean rating and rank	Total peer ratings	mean rating and rank
Attending meetings/on time	3.59 [1]	Attending meetings/on time	3.43 [1]
Producing good quality work	3.28 [4]	Producing good quality work	3.39 [2]
Paying attention to deadlines	3.44 [3]	Paying attention to deadlines	3.29 [3]
Listening to others	3.45 [2]	Listening to others	3.25 [4]
Giving positive feedback	3.11[5.5]	Giving positive feedback	2.98 [6]
Co-ordinating work with others	3.11[5.5]	Co-ordinating work with others	3.00 [5]
Encouraging team spirit	2.92 [7]	Encouraging team spirit	2.65 [7]

TableA9: Rank order correlation for self and peer assessment totals

Effective group work practice	self rank	Peer Rank	rank difference	rank difference squared
Attending meetings/on time	1	1	0	0
Producing good quality work	4	2	2	4
Paying attention to deadlines	3	3	0	0
Listening to others	2	4	2	4
Giving positive feedback	5.5	6	0.5	0.25
Co-ordinating work with others	5.5	5	0.5	0.25
Encouraging team spirit	7	7	0	0

$\sum d^2 = 8.5$

$6 \sum d^2 = 51$

$n^3 - n = 7*7*7-7 = 336$

$6 \sum d^2 / n^3 - n = 51/336 = 0.151$

$1 - 0.142 = 0.849$

Spearman's $\rho = 0.849$

Approximate 84% agreement between peer rating scores for SEM1 and SEM2.

Critical value for p<0.025 where $n = 7$ and test is one tailed is 0.786.
Co-effecient is significant.