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Knowledge sharing in Higher Education

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Knowledge Sharing in Higher Education

Bejan David Analoui

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

July

2015

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Abstract

The use of student group working has become prevalent within higher education, and is often adopted within the discipline of Business and Management where it has been recommended as an effective vehicle for the sharing and development of students' tacit and explicit knowledge.

Within this thesis it is contended that a greater understanding of students' experiences and perceptions of knowledge sharing during group work will assist educators in designing pedagogic activities that enhance knowledge sharing, potentially increasing students' learning and attainment.

Few scholars have investigated knowledge sharing amongst students during group work within the United Kingdom. Within this thesis, the field of knowledge management is adopted as a theoretical lens to explore knowledge sharing during group work amongst business and management students enrolled on taught programmes within Bangor Business School, Bangor University.

The first study presents the results of a quantitative survey that explores the relationship between undergraduate and postgraduate students' interpersonal trust relationships and their willingness to share and use tacit knowledge during group work.

The second study presents the results of focus groups undertaken with undergraduate and postgraduate students. The study focuses on exploring students' experiences and perceptions of interpersonal trust relationships, tacit knowledge sharing and group allocation methods during group work.

The third study presents an action research project concerned with influencing explicit knowledge sharing and use amongst undergraduate students enrolled on a third year undergraduate Human Resource Management module. It presents the design, implementation and evaluation of a pedagogic activity intended to influence electronically mediated inter-group explicit knowledge sharing.

Individually and as a composite, these three studies present insights into students' experiences and perceptions of knowledge sharing during group work. Based on the findings, a number of recommendations for educators, and the wider business and management community are offered, and opportunities for future research are highlighted.

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Chapter 1: Introduction

1.1. Preamble and overarching research aim

The adoption of knowledge management as a theoretical lens for investigating knowledge sharing within higher education has recently gained some ground (see for example, Chowdhury, 2005; Lin, 2007; Sackmann and Friesl, 2007; Yuen and Majid, 2007; Wangpipatwong, 2009; Hassandoust and Perumal, 2011; Majid and Wey, 2011; Yaghi et al, 2011; Popov et al., 2012; Wei et al, 2012; Zaqout and Abbas, 2012; Chikoore and Ragsdell, 2013; Chong, Teh and Tan, 2014; Rahman et al, 2014). My own interest was 'ignited' in the winter of 2010 when delivering tutorials for a second year Undergraduate Business Information Systems (BIS) module at Bangor University.

On that particular day I was seeing students to discuss drafts of their assignments, and was faced with three students with three very different reports. One was well structured, one was well researched, and one had very little to commend it with respect to academic rigour, but was nonetheless insightful, demonstrating a clear grasp of BIS concepts.

While I looked over the work I noticed that the three students were fairly friendly, they discussed the previous night's antics, their boyfriends, the new car that had been bought by a class mate and even, where they might spend their summer holidays together. When asked whether they would like their feedback privately, or in a group - they opted for the latter. I went through, offering my thoughts and recommendations. I finished by asking the three if they were friends. They were. I asked if they knew each other well. They had known each other since their first year at Bangor University. Have you, I asked, discussed your reports with each other? No, they had not. Why, I asked? They weren't sure - but appeared somewhat shocked by the question.

Had they been able to identify what was good in each other's work, and the deficiencies in their own, then perhaps their drafts would have been produced to a higher standard. Importantly, my feedback would perhaps have then been even more useful - enabling them to progress beyond the sum of their collective rather than individual ability.

I instructed them to have a look at each other's work – and resolved to think more deeply about the role of knowledge sharing (and knowledge management) within higher education. A number of questions immediately came to mind:

Why didn't these students share their work (explicit knowledge) and insights (tacit knowledge) with each other? Why was the notion so apparently outrageous to them? Would there be benefits to increasing the knowledge sharing behaviour between students? What would the difficulties be?

The aim of this three paper doctoral thesis is to investigate these questions, which can be subsumed under an overarching research aim:

- To investigate and explore knowledge sharing amongst students within the context of higher education.

The three papers presented in this work form my first (and as of the time of writing, best) investigations into this topic.

1.2. Organisation of the chapter

The purpose of this chapter is to elucidate the theoretical and conceptual basis of the work, and to provide the reader with requisite background knowledge to navigate the remainder of the thesis. The remainder of this chapter is organised as follows:

Section 1.3 presents an overview of the relevant topics and concepts that are used throughout this work. Thus, it contains an overview of the field of knowledge management, definitions of knowledge and knowledge sharing, and discussion of the uses of group work in higher education.

Section 1.4 outlines the researcher's contentions regarding the relevance of adopting knowledge management as a theoretical lens for investigating knowledge sharing during group work in higher education.

Section 1.5 discusses the overall rationale for conducting the work. In this section the individual contributions of each of the studies is not presented, but the overall research rationale for pursuing the broad topic is outlined.

Section 1.6 contains a discussion of the researcher's *journey* through the exploration of research philosophy. The section explains the (rather dramatic) changes in research approach adopted in the three studies.

Section 1.7 describes the organisation of the remainder of the thesis.

1.3. Knowledge management, knowledge sharing and group work in higher education

The purpose of this section is three-fold. First, the field of knowledge management is introduced - the discussion focuses on the origins of knowledge management; the increasing interest in knowledge management amongst the academic and practitioner communities; and the different ways in which knowledge management can be approached and defined. Second, mechanisms of knowledge sharing are outlined. Third, the literature on group working in higher education is discussed.

1.3.1 Origins of knowledge management

Wiig (2000) holds that knowledge and intellectual capital play two vital functions in enterprises: knowledge is a fundamental resource necessary for effective functioning and also serves as an asset which can be used for sale or exchange. While it is clear that knowledge has always been important to the process of work, Ahmed, Kok and Loh (2002) argue that it was in the 1980s that the importance of managing knowledge began to be recognized. Similarly, Wiig argues that it was not until the mid-1980s that "...individuals and organizations began to appreciate the increasingly important role of knowledge in the emerging competitive environment" (1997:6). However, while this may be seen as the starting point of interest in the topic, others such as Hislop (2009) have suggested that it was in the mid-1990s that widespread interest in the topic amongst academics, policy makers and those engaged in business activities became apparent.

Determining the origins of this widespread and increasing interest is not easy; commentators such as Wiig (2000) point to a long history and a variety of origins including philosophical thinking, consideration of the expertise required for work performance, the thoughts of educators and business leaders, and the driving forces of the new *knowledge economy*.

Neef (1999), a proponent of the argument for the latter origin of knowledge management, argues that the importance of knowledge management can only be understood as causally related to dramatic changes in the global economy. He argues that in the 1980s a major "jump-shift" occurred as the business environment changed, highlighted by improvements in computer technology, internet connectivity, just-in-time management techniques, a de-layering of workforces and outsourcing of non-core work processes, and foreign investment in so-called "Tiger Economies"; this was a time where the pace of change increased rapidly. While Neef (1999) presents a set of interrelated factors that account for this change, the dominant theme throughout is improvements in technology which led to greater communication, the creation of electronic marketplaces, the up-

skilling of employment, aspects of globalisation, and changes in the nature of work and work organisations. Knowledge management appears in this new economy as a “response to new computer-based communications technologies, employment up-skilling, globalization, and the growing dominance of the new knowledge-based marketplace” (Neef, 1999:78).

Along similar lines, others such as Hislop (2009) draw on Bell’s (1973) analysis of the post-industrial society and its examination of the changes in social and economic life as the driving force for the occurrence of the discipline of knowledge management. The argument runs that there has been a shift from the industrial society that focussed on the production of tangibles (manufacturing and fabrication) to a post-industrial society that is focused on the provision of services. In this post-industrial society the service sector is said to be the largest source of employment and, crucially, it is argued that knowledge and information became increasingly significant in many aspects of socio-economic life; knowledge and theoretical knowledge in particular are argued to be of greater utility in the service sector, which is characterized by roles such as research and development, medicine, formulation of government policy, architecture, and so on. At the crux of both these arguments is that society and the economy have seen significant changes, and that as a result knowledge as a resource has become increasingly important. This in turn explains the increased interest and importance of the field of knowledge management – as a way to manage the knowledge-resource. However, assessing these arguments is not an easy task, and while evidence for their respective premises can easily be marshalled (in the form of official statistics and documents which detail changes in organisational forms, technological infrastructure, employment statistics, and so on), it is not clear that the acceptance of these respective premises necessitates the acceptance of their conclusion – that knowledge is of increasing importance to work.

One commentator who argues vehemently against this analysis is Grant, who states: “The idea that we have moved from an economy based on land, labour and capital to one based on knowledge is **nonsense** (2000:31 – emphasis added). He argues conversely, that all major human achievements have been based on the use of knowledge, highlighting the building of Stonehenge in 2000 B.C. which coincided with economic growth resulting from introduction of agriculture (a knowledge revolution) as an example.

Further, he accepts that while knowledge may have been accumulated over time and its growth may have been exponential it does not mean that knowledge plays a fundamentally different role in today’s economy than in the past. Rather, it is simply that a greater stock of knowledge facilitates a

higher level of productivity. In contrast to Bell's (1973) analysis of the importance of knowledge to work, Grant (2000) argues that it is not clear that knowledge is of any more importance to those involved in occupations that may now be considered *knowledge intensive* than those that may be seen as more traditional. The researcher would hold with this position; it is evident that individuals involved in traditional craft occupations such as blacksmithing require a significant stock of practical knowledge (such as how hard to strike particular metals to achieve a given end) and theoretical knowledge (such as which metals are most appropriate for a certain purpose) for the completion of work tasks. In this view, knowledge is equally important now, as in the past.

However, Grant's (2000) arguments do share commonalities with Neef's (1999), although Grant (2000) argues that there is nothing fundamentally different about the economy, he points to the sheer accumulation of knowledge by society, the rapid pace of innovation and the advent of digital technologies as having significant implications for the way in which organisations seek sources of value in the modern economy.

Regardless of whether one accepts that socio-economic changes are a driving force behind the recognition of the importance of knowledge as a resource and an interest in knowledge management as a way to manage that resource, it is clear that both academics and practitioners have recognized its importance. Indeed, the terms *knowledge worker* and *knowledge work* are now in common parlance.

The term *knowledge worker* was first coined by Drucker (1959), he defined knowledge workers as those that work with intangible resources; a more recent definition characterizes knowledge workers as those who are responsible for creating new knowledge, or for whom the use of knowledge is a dominant aspect of their work (Davenport and Prusak, 1998). Similarly, *knowledge work* can be understood as work that is intellectual in nature, and knowledge intensive workplaces can be understood as workplaces in which most of the work undertaken is of an intellectual nature (Alvesson, 2001).

Recently, Waller and Holland (2009:254) have argued that "Knowledge is becoming the critical asset, arguably the most critical asset in the company. Knowledge within an organisation has always been important but relevant knowledge is even more important today than even ten years ago due to the intense pressures currently felt by businesses."

Waller and Holland (2009) are not alone in this view; other researchers have placed great importance upon knowledge arguing that business-related knowledge is *the most important* factor for determining an organisation's competitive advantage (Drucker, 1989; Kock Jr, McQueen and Baker, 1996; Bogner and Basnal, 2007) and that knowledge is now the primary asset for organisations (Sewell, 2005; Spender and Scherer, 2007).

This recognition of the importance of knowledge is not only to be found in academic circles but has also been highlighted by practitioners, and this is demonstrated in studies conducted by KPMG (2003) and others.

The importance of knowledge management is clear; knowledge management is said to help organisations maintain or gain a competitive advantage, by making the way in which knowledge is acquired and transferred throughout an organisation more effective (Offsey, 1997; Bollinger and Smith, 2001). Knowledge transfer, or alternatively knowledge sharing, is the major theme of this work, and the researcher's contentions as to the importance of knowledge sharing and the various benefits it can create for students (and by extension educators) within the context of higher education are discussed in section 1.4.

1.3.2 Approaches to knowledge management

While there appears to be a widespread recognition of the importance of knowledge and knowledge management, there is little consensus as to how knowledge management should be approached. Wiig (1997) argues that there is no generally accepted common approach to managing knowledge, and, drawing on a number of different sources, Wiig highlights three main approaches, which in the present work the researcher has termed the Technological, Social and Holistic approaches:

1. The technological approach deals with the management of explicit knowledge through the use of technology; the primary focus is on knowledge acquired from people, that is made available in computer knowledge bases, knowledge-based systems, and knowledge that is made available over technology-based networks using e-mail and other tools.
2. The social approach focuses on the management of 'intellectual capital' in the forms of structural capital and human capital in people.
3. The holistic approach for managing knowledge has a broader focus and includes all relevant knowledge-related aspects which affect the enterprise's viability and success. It encompasses both the Technological and Social approaches undertaken in the enterprise.

Each of these different approaches may have their supporters, but it is the researcher's contention that the appropriateness of each is likely to depend upon contextual factors, such as the type of knowledge resource that is important and the way in which it is expected to contribute to competitive advantage. This is the general theme of Hansen, Nohria and Tierney's (1999) seminal work which discusses two approaches to knowledge management: codification and personalisation (see Table 1.1 below):

Table 1.1: The Codification and Personalisation framework

Knowledge Strategy	Codification	Personalisation
Use of knowledge in the business	Competitive advantage through knowledge reuse	Competitive advantage through knowledge creation
Relevant knowledge management process	Transferring knowledge from people to documents	Improving social processes to facilitate sharing of knowledge between people

Source: Adapted from Hansen, Nohria and Tierney (1999) and Hislop (2009)

As is evident in Table 1.1 above, the central notion is the way that knowledge is to be managed (and knowledge management approached) should depend upon the nature of the knowledge type resource and what the management of it is expected to achieve.

Similarly, remarks could be made about the way in which the study of knowledge management is approached – the way in which any study is approached will depend upon the type of knowledge that one is examining and its use. The present work examines knowledge sharing within the context of group work undertaken as part of business and management courses within higher education.

The first two studies examine factors influencing tacit knowledge sharing, while the third examines explicit knowledge sharing through the electronic medium. Thus, drawing on the above approaches to knowledge management, the present work can be said to adopt the social approach in the first two studies and the holistic approach in the third.

Given the importance of the type of knowledge that is to be managed to the way in which one approaches the practice of knowledge management, it is necessary to consider different definitions and typologies of knowledge. The following sub-section discusses different definitions of knowledge and the different ways in which the discipline of knowledge management can be defined.

1.3.3. Defining knowledge and knowledge management

The researcher is in agreement with the sentiments of Wiig (2000) that the intent of knowledge management is to manage knowledge practically and efficiently, and that this therefore requires a clear understanding of the concept of “knowledge”.

Questions surrounding the nature and use of knowledge have a long history (Wiig, 2000) and this has given rise to various ways of defining knowledge, the following are considered in this section:

- Knowledge as Justified True Belief
- Knowledge as Distinguished from Information and Data
- The distinction between tacit and explicit knowledge

1.3.3.1. Knowledge as justified true belief

The definition of knowledge as justified true belief (JTB) can be traced as far back as Plato’s dialogues, and is argued by Nonaka and Konno (1998) to be the dominant definition of knowledge within analytical western philosophy. While the precise details of the JTB definition can vary amongst authors, the classic interpretation of the schema is offered by Gettier in his now seminal 3 page paper, ‘*Is Justified True Belief Knowledge?*’ which appeared in *Analysis* in 1963.

According to this definition, an individual S knows a proposition P if, and only if:

“P is true,
S believes that P, and
S is justified in believing that P.” Gettier (1963:121)

To give an example, an individual S knows the proposition P ‘New York is larger than Paris’ if:

1. New York is in actuality larger than Paris
2. S believes that New York is larger than Paris
3. S is justified in believing that New York *is* larger than Paris

Prima facie this definition may seem robust, however Gettier provides examples¹ of cases in which all three conditions hold, but it would be counterintuitive to suggest that the justification for believing the proposition should hold. For example, Gettier offers the case in which both Smith and

¹ Commonly known as “Gettier cases”

Jones have applied for a job. Smith, it is argued has a justified belief that Jones will get the job, and that Jones has ten coins in his pocket. Thus, Smith has the justified belief that the man who gets the job will have ten coins in his pocket. However, Jones does not get the job, rather it is Smith who gets the job, and unbeknownst to Smith, Smith has ten coins in his pocket. Therefore, Smith's justified belief 'The man who will get the job has ten coins in his pocket' is true, but does not appear to be knowledge.

Although various amendments can, and indeed have been made to this schema, the definition of knowledge as JTB is not adopted in the present work. This is not for technical reasons, but rather due to its lack of utility within organisations and within the context of study.

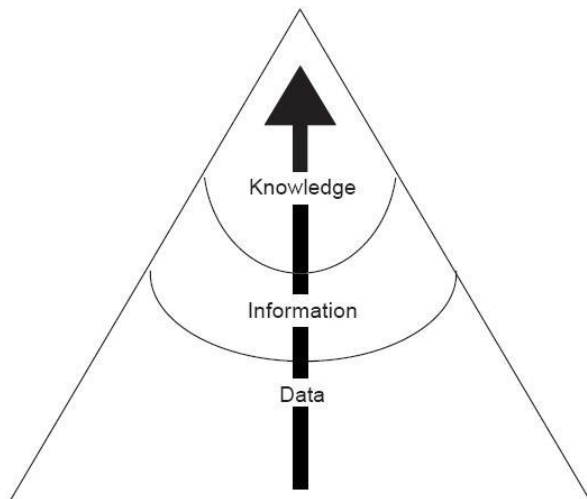
Indeed, as noted earlier, it is the researcher's contention that the purpose of knowledge management is to manage knowledge practically and efficiently, and it would seem that proposing such stringent conditions on how knowledge is defined prior to its management is impractical.

1.3.3.2. The data information knowledge hierarchy

A different method for defining knowledge, which is often seen as more practical, is it to distinguish knowledge from information and data. This is often achieved through the use of an analytical framework, termed the knowledge-information-data hierarchy (see Figure 1.1) which is founded in traditional Information Technology methods (Braganza, 2004). The purpose is to distinguish between these different resources in such a way that they can be managed effectively.

This method for defining knowledge benefits from being more practical than the JTB method highlighted above, and is often argued to be of use to managers within organisations who often receive too much data (Gunnlaugsdottir, 2003), and not enough of the correct information (Edmunds and Morris, 2000).

Figure 1.1: The knowledge-information-data hierarchy



Source: Adapted from Braganza (2004:348)

However, this method can be difficult and complex, and the distinctions between data, information and knowledge can become confused (Kock Jr, McQueen and Corner, 1997). This definition of knowledge is rejected within the present work as it is too broad – thus limiting its practicality. Indeed, comparing the definitions of data, information and knowledge offered by Zack (1999) (see Table 1.2) with the tacit/explicit knowledge distinction in section 1.3.3.3 reveals that the latter distinction provides more specific, practical definitions of knowledge which in turn provides further insights into the manner in which knowledge should be managed.

Table 1.2: Zack's (1999) knowledge-information-data hierarchy

Type	Definition
Knowledge	Knowledge is that which one comes to believe following a process of accumulating information and the application of experience, inference or communication
Information	Information is data within a meaningful context
Data	Data are facts or observations without context (i.e. not directly meaningful)

Source: Adapted from Zack (1999)

1.3.3.3. Tacit and explicit knowledge

The most practical and common way of defining knowledge is with the tacit-/explicit-knowledge distinction (Pathirage, Amaratunga and Haigh 2007). There are numerous ways of conceptualizing tacit and explicit knowledge; some see tacit and explicit knowledge as not distinct entities, but rather as integral to each other as two necessary dimensions of knowledge – with tacit knowledge forming the basis of all knowledge (Polanyi, 1966), whereas other see them as separate types of

knowledge (Nonaka and Takeuchi, 1995; Nonaka and Konno, 1998). As McAdam, Mason and McCrory (2007) note, this conceptual distinction between tacit and explicit knowledge as distinct types of knowledge, and as dimensions of one type of knowledge, is the basis of a key dichotomy within the knowledge management literature.

It is the researcher's contention that the tacit/explicit knowledge distinction provides an adequate and appropriate theoretical framework with which to accomplish this task. However, there are a variety of different ways in which tacit knowledge can be defined and understood. A number of authors have written considerable and lengthy treatises on the nature of tacit knowledge. The following discussion outlines the key thoughts of a number of authors. Gourlay (2006a) has noted that Michael Polanyi is considered the authority on tacit knowledge - and so it is arguably sensible to start with his conception of tacit knowledge.

Polanyi's argues that "we know more than we can tell" (1966:4), and states that while this seems obvious enough, it is difficult to specify precisely what is meant by it. As an example of knowing more than we can tell, he notes that we can recognize a human face amongst thousands, but cannot account for how we recognize it. He notes that "all descriptive sciences study physiognomies that cannot be fully described in words, nor even by pictures" (Polanyi, 1967:5). Thus all descriptive sciences are concerned with tacit knowledge.

In defence of the position that we know more than we can tell, Polanyi (1966) describes a number of psychological experiments. For example, Eriksen and Kuethe (1956, cited in Polanyi, 1966) exposed subjects to electric shocks when the subject uttered specific words. In time, the subject learnt to avoid such words but on questioning was not aware of this, and was unable to account for it. Thus, Polanyi (1966) argues the subject gained a skill but was not able to account for its use, and thus knew more than they could tell.

Polanyi (1966) argues that tacit knowing involves two things - the two terms of tacit knowing. With respect to the study cited above, the shock word forms the first term of tacit knowing, and the electric shock itself forms the second term. We know, Polanyi argues, the second term specifically (that is, we can specify what it is), but our awareness of the first term is only known by our awareness of it for attending to something else, and so our knowledge of the first term remains tacit. Polanyi calls the first term the *proximal term*, and the second the *distal term*. Thus, on Polanyi's (1966) view tacit knowing involves attending from the proximal term to the distal, and while we have knowledge of the proximal term - it is tacit knowledge that we cannot express.

Polanyi (1966) distinguishes four aspects of tacit knowing, the functional, the phenomenological, the semantic and the ontological.

With respect to the functional aspect of tacit knowing, Polanyi (1966) states that in the case of a practical skill we are relying on our awareness from the joint exercise of numerous muscles that perform elementary movements to the skill that is being performed. However, it is not usually possible to specify the elementary movements as these are attended from, to the entire skill. The phenomenological aspect of tacit knowing is that “we are aware of that *from* which we are attending *to* another thing, in the *appearance* of that thing” (Polanyi, 1966:11). Thus, although the subject in the experiment described above may not be aware of the shock symbol, they are aware of an apprehension that is aroused in them by its utterance. The semantic aspect of tacit knowing is concerned with meaning, Polanyi argues that when a subject described in the experiment above feels apprehension in the presence of a shock symbol, it can be said that they know the shock symbols in terms of their meaning: “It is in terms of their meaning that they enter into the appearance of that *to* which we are attending *from* them” (Polanyi, 1966:12). A further example is offered with respect to countenances, a particular countenance is the meaning of its features. Finally, the ontological aspect of tacit knowing establishes a meaningful relationship between the proximal and distal terms:

“the proximal term represents the *particulars* of this entity, and we can say accordingly, that we comprehend the entity by relying on our awareness of its particulars for attending to their joint meaning” (Polanyi, 1966:13).

Polanyi (1966) argues that we come to understand the joint meaning of particulars through a process of *indwelling*, that is, by dwelling in the particulars that we attend from them to the whole. For Polanyi (1966), it is only by indwelling that we can understand joint meanings - if one focuses on particulars, the joint meaning is lost. For example, with respect to a countenance, in focussing solely on a nose, one loses the meaning of the countenance as a whole, indwelling

“...relies on interiorizing particulars to which we are not attending and which, therefore, we may not be able to specify, and relies further on our attending from these unspecifiable particulars to a comprehensive entity connecting them in a way in which we cannot define” (Polanyi, 1966:24).

Polanyi (1966) terms the integration of particulars, as *interiorization*, and interiorization is not restricted to visual phenomenon, and awareness. Indeed, he argues that one can also identify

oneself with particular teachings - such as moral theory, and then make those theories the proximal term from which one attends from.

It is important to note that on Polanyi's (1966:21) view, all knowing is tacit knowing:

“the true knowledge of a theory can only be established after it has been interiorized and extensively used to interpret experience. Therefore: a mathematical theory can be constructed only by relying on *prior* tacit knowing and can function only *within* an act of tacit knowing, which consists in our attending *from* it to the previously established experience on which it bears.”

He argues that the explicit description of, for example, a skill, cannot replace tacit knowledge. He offers the example of the skill needed to drive a car - he suggests that the skill of a driver cannot be replaced by a thorough explanation, and explication of the theory of how a car works, and is to be driven. Nonetheless, in Ryle's (1949) terms (see below), Polanyi (1967) argues that knowing how and knowing what (propositional and explicit knowledge) are always present together and have a similar structure. Moreover, Polanyi (1966) argues that all knowledge is embodied, and it is only through the body that we can have knowledge: “... we are *relying* on our awareness of contacts of our body with things outside for *attending* to these things” (Polanyi, 1966:15-16).

Ryle (1949) also argues strongly for the importance of tacit knowledge. Ryle (1949) uses the terms *knowing how* and *knowing that*, the former is concerned with practical, embodied skills, while the latter is concerned with propositional or explicit knowledge. Ryle (1949) argues that knowing how is not reducible to knowing that. Thus for Ryle, the intelligent performance of a skill does not require the dual operation of having and considering propositional knowledge, and the execution of the performance. He notes that "Intelligent practice is not the step-child of theory" (Ryle, 1949: 27).

The converse view, Ryle terms the *intellectualist legend*, which he explicates as follows:

"The chef must recite his recipes to himself before he can cook according to them; the hero must lend his inner ear to some appropriate moral imperative before swimming out to save the drowning man; the chess-player must run over in his head all the relevant rules and tactical maxims of the game before he can make correct and skilful moves" (Ryle, 1949:30).

Against this legend, Ryle (1949) offers an infinite regress. The regress runs as follows: if one considers that an operation (such as a chess move) can be both intelligent and unintelligent, and that every intelligent operation requires a prior intelligent theoretical operation (considering what

an intelligent chess move would be), then this latter intelligent operation would require yet another prior intelligent operation, and so on, *ad infinitum*. Ryle (1949: 32) states that: "The regress is infinite, and this reduces to absurdity the theory that for an operation to be intelligent it must be steered by a prior intellectual operation"

Ryle (1949) argues that knowing how is dispositional, that is, it is the proneness or propensity to act in a certain way. Ryle (1949) distinguishes between knowing how, the chance performance of an operation, and habit. Ryle (1949) notes that an action that is performed with intelligence and skill may be identical to one that is performed by chance, for example, the chance move on the chessboard made by the uninitiated may also be the intelligent and skilful move of the grand master chess player. Therefore Ryle (1949) argues that we should not judge whether someone has performed a skill intelligently by examining the act itself, rather we should look beyond the act. The important issue is to understand whether someone has the ability or disposition to perform the act - and this requires examining a range of performances. With respect to habit, Ryle (1949) argues that habit is learnt through repetition, while skill is learnt through training. Training, he argues, involves the modification of performances (following the exercise of intelligence) to achieve desired results.

Ryle (1949) argues that individuals can learn know how by practice - and may be guided by example and criticism. Thus, for Ryle (1949), knowing that (explicit knowledge) may play an important role in gaining or acquiring know how. Indeed, he proposes that explicit knowledge may be necessary for the acquisition of knowing *how*. Ryle (1949) provides the example of performing the breast stroke. One needs to understand the instructions given to learn but does not then need to be able to recite the instructions when swimming the breast stroke. Further, the ability to recall or express propositional knowledge is not necessary. Ryle (1949) argues that someone knows how if they can act accordingly, observing any necessary criteria - even if they cannot express those criteria. They may even have been taught those criteria through explicit instruction and then later forgot the instructions as the skill developed.

Furthermore, Ryle (1949) notes that the capacity to perform a skill or operation does not necessarily involve the ability to formulate or communicate that knowledge explicitly. He offers the example of a sailor who can tie knots, and can discern if they have been tied correctly by someone else - but may not be able to describe them.

Thus, it is evident that there are some similarities between the views expressed by Polanyi (1966) and Ryle (1949). Both scholars are in agreement that tacit knowledge is important - and both argue that holding tacit knowledge does not require, and is not reducible to explicit knowledge, or knowing

that. However, while Polanyi (1966) argues that all knowledge is tacit, Ryle (1949), arguably, holds to a less extreme view, namely, that tacit knowledge does not require explicit knowledge. Whether Ryle (1949) should be interpreted as holding that all knowledge is reducible to tacit knowledge (or know how), or that tacit and explicit knowledge are distinct, is a matter of contention amongst contemporary philosophers. Indeed, Fantl (2008) states that Ryle can be interpreted as holding to both the former and latter positions.

Ryle's (1949) conception of know how is not without criticism. Beckett and Hager (2002) have argued that this conception of know how has been of little value, as it does not account for knowing how in many complex work-based team situations. Such situations they suggest are not amenable to Rylean classification. Further, they argue that the literature on know how is not clear on what people actually do when they engage in *knowing how*.

Beckett and Hager (2002) develop their own conception of knowing how, arguing that it is fundamental to practice and effectiveness in the workplace. They argue that people develop know how, "...a type of knowing what to do in practice that is evident in their various intentional actions" (Beckett and Hager, 2002:5). They emphasise the performative aspect of know how, arguing that it is in the "...intelligent 'doing' that people show (that is, display) their competence, skill, capacity or capability with respect to the matter at hand" (Beckett and Hager, 2002:36).

As with Ryle (1949) they do not hold to the dual operation of thinking of an act, and performing the act. Beckett and Hager (2002:40), reject Cartesian dualism and the privileging of pure mind, arguing for the embodied nature of know how, that stems from the embodied nature of a person "It is the person, not merely the mind, which is significant, and persons are inevitably embodied"

They argue for the importance of knowing why - the ability to make judgements in relevant contexts that lead to appropriate action. They further stress the conative, affective and cognitive aspects of judgement - it is the whole person, with their feelings, aims and thoughts that makes the judgement on how to act - that is put know why into practice. This also highlights the intentional aspect of know why - on their view, know why is always intentional - when one finds oneself acting, it always intentionally. For Beckett and Hager (2002) know why is developed through practice and reflection on what did, and did not work well. Further, they note that an act is only skilful, intelligent and useful if it is appropriate to the context.

Beckett and Hager (2002) are highly critical of the notion of tacit knowledge, highlighting that it tends to obscure efforts to understand and enhance learning in the workplace. On their view, much of what is considered tacit knowledge can and should be made explicit. They suggest that the one of

key issues with the notion of tacit knowledge is its ambiguity, and state that the following have all been considered tacit knowledge in the literature:

- "Knowledge that cannot be put into words
- Knowledge that can be explicated only with difficulty
- Craft secrets
- Intuition (intuitive knowledge)
- Bodily knowledge"

(Beckett and Hager, 2002:120).

Thus, Beckett and Hager's (2002) views on tacit knowledge are in stark contrast to those of both Polanyi (1966) and Ryle (1949). Gourlay (2006a) has also expressed concerns with the manner in which tacit knowledge is conceptualised. He has argued that although there is widespread consensus that tacit knowledge is important and fundamental to human knowing, it is nonetheless underspecified. In his review of the literature that makes use of the concept of tacit knowledge he notes a number of contradictions and ambiguities in the ways in which the term is used:

1. Tacit knowledge is described as personal and private and so is treated at the individual level, or it is viewed as collective and so treated at the group or organisational level
2. There is general agreement that tacit knowledge is acquired through direct experience of what it is about, for example through on the job training. However, others argue that we are biologically predisposed to certain kinds of knowledge
3. Tacit knowledge is described as essential for competent performance but also may contain naive or wrong theories.
4. At the organisational level tacit knowledge is said to be the source of innovation and creativity, but as it is manifested in tradition is also a conservative force
5. Tacit knowledge may or may not be translated into explicit knowledge. Some scholars believe that it cannot be while others believe that it can but only with difficulty

Based on his review of the literature, Gourlay (2006a) argues that the phrase 'tacit knowledge' has been used to label or distinguish three distinct types of knowledge:

1. That which can be articulated - either before or immediately after the action. Gourlay (2006a) argues that the use of the term 'tacit' when applied to knowledge that can be articulated is an error - by definition, tacit knowledge cannot be articulated.
2. That which is felt or intuited, but does not lead to any observable behaviour or action, or the outcome of those actions. He argues that these are non-testable claims to know - as opposed to

observable behaviour or outcomes which can be tested. Gourlay argues that "If we admit unobservable behaviours - particularly people's claims to have thoughts and feelings - there would seem to be no limits to what would count as tacit knowledge since all that would be required would be someone's claim". (2006a:64).

3. Finally, instances where behaviours or actions have been undertaken but the actors who undertook the behaviours were unable to give an account. Gourlay (2006a) argues that some such tacit knowledge comes through experience of the action it underpins, whilst some may have been communicated explicitly and then become tacit through repeated use and routine.

For Gourlay (2006a), it is only this latter category of empirical phenomenon for which he wishes to reserve term 'tacit knowledge'. On this view, empirical phenomena are evidence of tacit knowledge, if they are not otherwise observable but assumed to be underpinned by knowledge.

As an example of such tacit knowledge, Gourlay (2006a) cites the example of the Russian scientists who investigated the Q of Sapphire (Collins, 2001 - see below) - their discovery was not accepted in the West, as their results were not replicated by other scientists. However, when they demonstrated their experiment to a British team of scientists it became apparent that the way in which they set up the experiment up was important - this was where the novelty in the experiment lay. The Russian scientists were unaware of this; they were just setting the experiment up in the "normal way".

Concerned with what he has termed tacit knowledge Gourlay (2006a) argues that evidence suggests that it can be acquired through experience of the action it underpins, and through independent experiences in other prior contexts. With respect to whether tacit knowledge can be transferred, Gourlay (2006a) argues that the issue can be usefully reframed in terms of whether a functionally equivalent description of behaviour can be made. If this is possible, the relevant behaviours can be carried out by others, leading to the acquisition of tacit knowledge.

Collins (2001) presents a broader view on tacit knowledge than - arguing there are five different forms of tacit knowledge, some aspects of which may be expressible and passed on in codified form. Collins (2001:72) defines tacit knowledge as:

“...knowledge or abilities that can be passed between scientists by personal contact but cannot be, or have not been, set out or passed on in formulae, diagrams, or verbal descriptions and instructions for action”.

Collins (2001) applies the idea of tacit knowledge to the lived world of experimental scientists. He explains how the measurement of the Q of sapphire made in Russia in the 1970s was not accepted in

the West until 1999. In part, he considers this to be due to a failure of tacit knowledge transfer amongst Western and Russian scientists. He provides empirical evidence of the manner in which the types of tacit knowledge described below were passed on by personal contact between teams of Russian and British scientists.

While the conceptions of tacit knowledge explored above were primarily concerned with establishing what tacit knowledge *is*, that is, the nature of tacit knowledge. Collins (2001) work is primarily concerned with exploring and explaining how tacit knowledge can be transferred. Inherent in Collins (2001) definition of tacit knowledge is that it can be passed on by personal contact, for example whereby person B spends time with person A, or person A works in person B's laboratory for a period of time. Collins (2001) suggests five kinds of tacit knowledge that can be transferred through such contact:

First, *concealed knowledge* - this type of tacit knowledge is evident when someone does not wish to tell what they know to others, or when this is a shortage of space/time for explanation and description.

Second, *mismatched salience* - this type of knowledge is passed on when persons A and B have different ideas about what is important. Scientific experiments contain numerous variables, and so for example, person A doesn't realise that person B needs to be told to do something a certain way, and person B doesn't know what questions to ask. The problem is removed when persons A and persons B are able to watch each other work.

Third, *ostensive knowledge* - ostensive knowledge is passed on by "direct pointing, demonstrating or feeling" (Collins, 2001:72), and conveys information that cannot be conveyed in codified form.

Fourth, *unrecognized knowledge* - person A has knowledge that is important, but does not recognise that they do. For example, person A performs an experiment in a certain way, and person B copies the procedure during a visit and so performs it in the same way. Neither person's realises the importance of what has been passed on. Collins (2001) argues that much unrecognised knowledge becomes recognised as fields develop.

Fifth, *uncognized/uncognizable* knowledge - humans do things without knowing how, that is they rely on uncognized abilities. The same is true of scientific experiments and similar which are often not fully understood when first undertaken but rely on the abilities of the experimenter. Such abilities are passed on only through apprenticeship. Collins (2001) notes that whether all uncognized knowledge will one day be cognized, or is uncognizable is a matter of debate, but suggests this is

unimportant. First, either such knowledge will become cognizable through physical explanation of the brain and body, or not. If not, it is still uncognizable now. Second, new experiments involve uncognized knowledge, as they pass through phases of not being entirely understood.

There are a number of similarities and differences between the conception of tacit knowledge expressed by Collins (2001) and those expressed by Ryle (1949) and Polanyi (1966). Collins (2001) notion of uncognizable knowledge, fits with Polanyi's (1966) notion of knowing more than we can tell. In agreement with Ryle (1949), and Beckett and Hager (2002), Collins (2001) notion of tacit knowledge, implies that there is no need for corresponding explicit knowledge, all tacit knowledge can be acquired (even if the acquisition is not recognized) without explicit instruction. The importance of personal contact is also a feature shared by Ryle (1949) and Collins (2001) conceptions of tacit knowledge - as highlighted, both note the importance of apprenticeship and social contact as means of transferring tacit knowledge. Indeed, Collins (2001) argues that it is through social interaction that things which were not obvious become obvious, stating that this is the case for concealed knowledge, ostensive knowledge and mismatched knowledge. Furthermore, he argues that social contact spreads knowledge that is still tacit - scientists can learn the new experimental language associated with a field although they cannot set it out. Collins (2001) also states that this also applies to unrecognized knowledge (while it stays unrecognized), and uncognized/uncognizable.

Arguably, the key difference between Collins' (2001), and Polanyi's (1966) and Ryle's (1949) conceptions of tacit knowledge is that for Collins (2001) some tacit knowledge can be made explicit, and then transferred without the need for personal contact. Collins (2001:73) states that "As we understand more science we learn to make explicit elements of our knowledge which we did not know we knew"

The discussion of the nature of tacit knowledge is not just of philosophical interest, but is one which has practical significance. The manner in which concepts are interpreted by researchers will lead to different operationalizations, and so to different theoretical contributions (Frankfort-Nachmias and Nachmias, 1997). While the debate about the nature of tacit knowledge is contentious - there is apparent widespread agreement about what amounts to explicit knowledge. The following table (Table 1.3) outlines various definitions of tacit knowledge and explicit knowledge offered by a number of contemporary knowledge management researchers.

Table 1.3: Different definitions of the tacit and explicit knowledge

<u>Author(s)</u>	<u>Tacit Knowledge</u>	<u>Explicit Knowledge</u>
Nonaka and Konno (1998)	Highly personal and hard to formalise. Includes subjective insights, intuitions and hunches. Deeply rooted in an individual's actions and experience, as well as their values and ideals. Difficult to share.	Expressed in words and numbers. Shared in formulae, documents and the like. Readily transmitted between individuals formally and systematically.
Haldin-Herrgard, (2000)	Obtained through internal individual processes such as experience and is stored in human beings. Direct interaction, action learning and practical experience suitable for sharing.	Can be stored in a mechanical/technological way, easy to share.
Stenmark (2001)	Difficult to articulate, exists in people's hearts and minds and manifests itself through actions.	Codified and captured in manuals, procedures and rules. Easy to share.
Maier and Mosley (2003)	Personal expertise, not formally recorded and unofficial. Includes facts that give rise to organisational memory and includes values, intuitions, biases and trust that caused employees to think and act.	Recorded information, intelligence and expertise. Examples include: organizational databases and warehouses
Hislop (2009)	Inexpressible in a codified form, subjective and personal, context specific and difficult to share	Can be codified, objective and impersonal, context-independent and easily shared

Source: Adapted from Nonaka and Konno (1998), Haldin-Herrgard (2000), Stenmark (2001), Maier and Mosley (2003), Hislop (2009)

It is apparent from reviewing these definitions that there is a great deal of consensus as to the nature of explicit knowledge, indeed common to all these definitions is the notion that explicit knowledge is easy to codify and also to share; examples of explicit knowledge include such things as numbers, data, scientific formulae and manuals (Nonaka and Konno, 1998).

While of significant interest, the conceptual debate about the nature of tacit and explicit knowledge is beyond the scope of this research and is arguably not a matter which needs to be resolved. Whether tacit and explicit knowledge are dimensions of all knowledge, or whether they are distinct types of knowledge, is arguably unimportant - what is of importance is to arrive at a definition of knowledge that is sufficiently broad to encompass different characteristics of knowledge while also being specific enough to be operationalised. Given the divergent opinions about the way in which tacit knowledge is to be defined (Beckett and Hager, 2002; Gourlay, 2006a; McAdam, Mason and McCrory, 2007) and the importance of definition for operationalizing concepts to be used in

research (Frankfort-Nachmias and Nachmias, 1997) it is necessary to take a practical approach to the task of defining knowledge. This is necessary to ensure that during research design and field work the researcher is able to recognize, and distinguish between, different types of knowledge.

Nonaka and Konno (1998) present a broad definition of tacit knowledge - that consists of two dimensions, encompassing both practical embodied skills, and subjective beliefs and insights. On this view, tacit knowledge can be understood as consisting of two dimensions, the technical and cognitive – and these have become commonly accepted definitions within the knowledge management literature.

The technical dimension of tacit knowledge can be described as “know-how” - which is the skills and practical expertise an individual has gained (Nonaka and Konno, 1998; Stenmark, 2001; McAdam, Mason and McCrory, 2007), i.e. the ability to put “know-what” into practice (Brown and Duigid, 1998). Examples of this dimension of tacit knowledge include skills which are largely embodied skills such as the blacksmith's ability to work metal, the expert communicator's use of non-verbal interpersonal communication skills, and the chef's ability with the knife. The cognitive dimension of tacit knowledge can be described as being constituted of the mental models, values, beliefs, subjective insights and ideals that an individual holds (Nonaka and Konno, 1998; McAdam, Mason and McCrory, 2007). Examples of this dimension of tacit knowledge include the explicit or implicit values and beliefs a management consultant holds about the best way to restructure an organisation, the insights a mentor can provide for her mentee, and the ideals an academic holds with respect to the best manner in which she believes it is best to teach students, and mentor junior colleagues. It is important to note that tacit and explicit knowledge can also be conceived of as existing at the individual, group and organisational levels (see for example Grant, 2000) – and this point is returned to below.

Nonaka and Konno's conception of tacit knowledge is preferred for a number of reasons. First, it has been arrived at empirically and used successfully to examine tacit knowledge sharing, and knowledge creation (Nonaka and Konno, 1995). Second, it admits of operationalization and measurement, one can ask for individuals to demonstrate their practical skills, and ask them to report their beliefs and values. Finally, it could be argued that it is these two dimensions of tacit knowledge that are developed through the process of university education. For example, group work in higher education has been argued to provide a forum for challenging beliefs about reality (Gregory and Thorley, 1994), the sharing of ideas and experiences (Boud, 2001) and developing practical skills (Livingstone and Lynch, 2000)

Thus, the distinction between explicit and tacit knowledge which has been proposed by Nonaka and Konno (1998) and explicated within this section is to be adopted within this work, as it provides a specific and practical method for distinguishing between different types of knowledge.

1.3.4. Defining knowledge management

Having placed the approach to knowledge management adopted by this work within its theoretical context, and having adopted definitions of knowledge, it is necessary to also comment briefly on how knowledge management is to be defined and understood.

As with the other conceptual issues covered in this chapter, there are multiple definitions and interpretations of knowledge management (Wiig 2000; Hislop 2009; Yahya and Goh 2002; Wang 2006), and this is arguably due to the variety of perspectives and schools of thought regarding knowledge management (Yahya and Goh 2002) – a number of which have been discussed within this section.

Table 1.4 below details a variety of different definitions of knowledge management and while they have some substantial differences, it is clear that there are some commonalities as to how knowledge management should be defined.

Table 1.4: Different definitions of knowledge management

Source	Definition
Hislop (2009)	An umbrella term for a range of practices utilised to manage the knowledge of an organisation's workforce
Groff and Jones (2003)	The tools, techniques, and strategies utilized to retain, analyse, organize, improve and share business expertise
Yahya and Goh (2002:458)	A process of "leveraging of knowledge as the means of achieving innovation in process and products/services, effective decision-making, and organisational adaptation to the market."

Indeed, from these commonalities it is possible to construct a broad definition of knowledge management. First, the central feature of all these definitions is that knowledge management consists of practices and processes. The second is that these practices involve the management of knowledge contained within or outside a specific context (typically an organisation), and the final commonality is that these processes and practices are directed toward some specific end.

Thus, based on these considerations, for the purposes of the proposed research, knowledge management is to be defined broadly as:

The practices and process of managing knowledge within or outside a specific context to achieve stated objectives

Within this section, the origins of knowledge have been discussed, the importance of knowledge and knowledge management to organisations has been highlighted and different approaches to knowledge management, and methods of defining knowledge and knowledge management have been presented.

The following section examines the broad aims of management education, and the role of group work within higher education.

1.3.5. Knowledge sharing

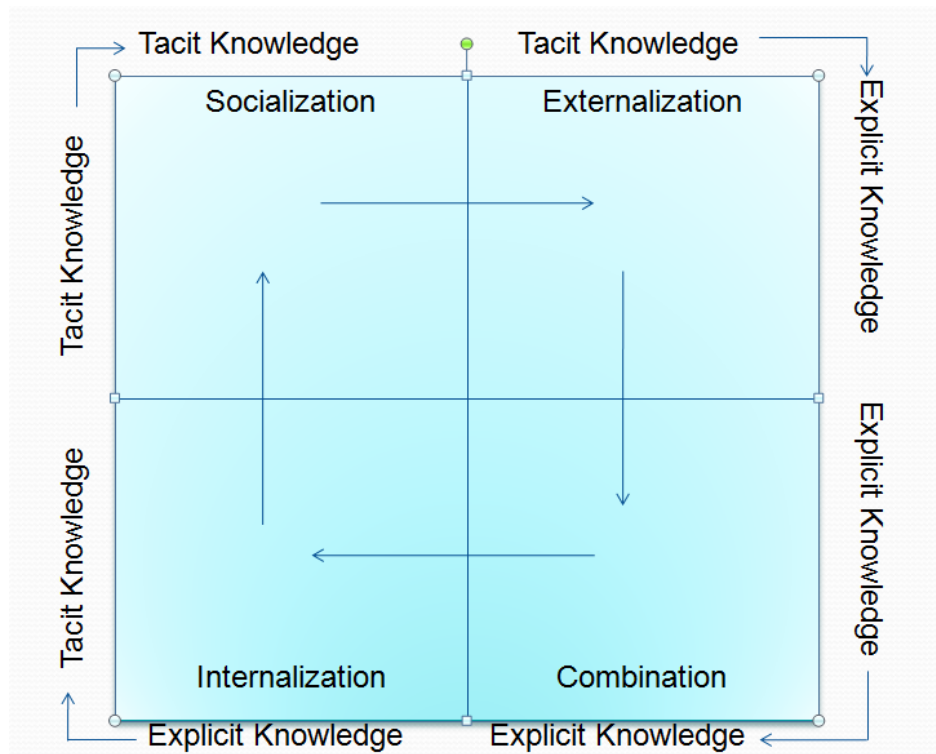
It was noted in the previous section that knowledge management can help an organisation maintain or gain competitive advantage. Within this section, the importance of tacit knowledge sharing to organisations is highlighted through an examination of its role in two specific processes: knowledge creation and organisational learning. However, it is noted that knowledge sharing (of all forms) has been argued to be a key process in knowledge management activity (Martensson 2000; Barth 2003; Maier and Mosley 2003; Hislop 2009).

1.3.5.1. Knowledge sharing and knowledge creation

Nonaka and Takeuchi (1995) highlight two processes for the sharing of tacit knowledge: socialization and externalization. As described by Nonaka and Konno, these two processes are both founded in the concept of *Ba* - “a shared space which serves as the foundation for knowledge creation” (1998:48). According to their theory, *Ba* can take different forms, being physical (such as an office), virtual (such as through teleconferencing) or mental (such as shared experiences or beliefs). Nonaka and Konno (1998) write that it is in these different shared spaces that knowledge is embedded, and is acquired through one’s experiences, or reflections on the experiences of others.

Importantly, these spaces also provide the platform for knowledge creation (Nonaka and Konno, 1998) which is said to take place through the interaction of tacit and explicit knowledge (Nonaka and Takeuchi, 1995). According to Nonaka and Konno (1998), knowledge creation takes place via four phases of tacit and explicit knowledge conversion: Socialization, Externalization, Combination and Internalization (described below) –commonly referred to as the SECI model of knowledge creation (see Figure 1.2).

Figure 1.2: The SECI model of knowledge creation



Source: Adapted from Nonaka and Konno (1998:43)

The *socialization* phase involves the capturing of tacit knowledge through individuals' physical proximity to each other, or relevant contexts, direct interaction, engaging in joint activities and spending time together. This process is only possible if one allows the self to be freed to encompass the larger self which includes the tacit knowledge of others – as Nonaka and Konno note, this larger self “means that we empathise with our colleagues...rather than sympathizing” (1998:42). Socialization is also a lengthy process, “Long years of apprenticeship allow newcomers to understand others' ways of thinking and feeling” (1998:42).

Tacit to explicit knowledge transfer takes place in the *externalisation* phase. This can involve either the translation of tacit knowledge into comprehensible forms using techniques such as expressing one's ideas as words or images, the use of metaphor, analogies, narratives or dialogue, or the use of deductive and inductive inference, or abduction on the part of the individual with whom tacit knowledge is supposed to be shared.

The *combination* phase is a process which involves the conversion of explicit knowledge into sets of more complex explicit knowledge. Of import in this phase are the communication, diffusion and systematization of explicit knowledge. This phase relies on three key processes. The first is the collection and combining of internal and external knowledge. The second is the dissemination of this knowledge throughout the organization using such methods as presentation and meetings. Finally,

the processing of this knowledge enables it to be presented in more useable forms, such as documents detailing plans and reports.

The *internalization* phase is the final phase of the model and involves the internalizing of new explicit knowledge, which becomes the organisation's new tacit knowledge. There are two important dimensions to this phase; the first is that explicit knowledge is used in the actions and practices of the organisation and its members, through changes to such things as working practice, or organisational strategy. Second, the new explicit knowledge can be used in virtual situations (such as simulations and experiments) as a way to teach individuals the new methods and concepts that have been created.

Thus, according to Nonaka and Konno (1998), it is through this cyclical model of the conversion of tacit and explicit knowledge at the individual and organisational level that new knowledge is created.

This model of knowledge creation is important for the present work as it highlights that tacit knowledge is an important asset for organisations who are involved in new knowledge creation (Merx-Chermin and Nijhof 2005), and details for two modes of tacit and explicit knowledge sharing - socialization and externalization.

Although the SECI model provides a comprehensive theory of new knowledge creation within organisations it has come under criticism from different authors (see for example, Tsoukas, 2003; Gourlay, 2006b). Gourlay presents a vehement criticism of the model, writing in his paper that "Nonaka's proposition that knowledge is created through the interaction of tacit and explicit knowledge involving four modes of knowledge conversion is flawed" (2006b:1415). While his criticisms of the SECI model are numerous, it would appear that his main concerns are that the model suffers from a lack of empirical support, is unnecessarily complex, and that there are conceptual difficulties with making tacit knowledge explicit.

Interestingly, there is another stream of thought evident in the knowledge management literature that criticises the notion of tacit-tacit knowledge sharing but argues in favour of making tacit knowledge explicit. For example, Politis argues that

"Transferring knowledge from one person to another *requires* that tacit knowledge be converted into explicit knowledge through sharing experience, dialogue discussion, know-how and teaching" (2003:56) [Emphasis added]

Indeed, despite the misgivings of some with respect to tacit-tacit knowledge sharing it does seem a matter of agreement amongst some contemporary researchers that tacit knowledge can be shared, and the consensus seems to be that direct communication between individuals is an important part of this process (Haldin-Herrgard, 2000; Politis, 2003, Peroune, 2008).

Politis' (2003) concern with the notion of tacit-tacit knowledge sharing is arguably well founded. The concepts of transfer and sharing carry with them the intuitive sense that an object (in this case knowledge) is being given from one person and received by another. Indeed, it seems counter intuitive that one can gain beliefs, values, opinions, subjective insights (the cognitive dimension of tacit knowledge), and skills (the technical dimensions of tacit knowledge) by a process of direct transfer from another individual.

However, this is not what the socialization mode of tacit knowledge sharing describes, rather socialization is a process in which one spends time in the space of others, engages in their activities and through understanding and reflection on these experiences gains an appreciation of the tacit knowledge held by others. Thus, it is contended that socialisation does not describe a method of direct transfer, but rather a process through which tacit knowledge sharing is facilitated – one which is viable and has been empirically defended (see below).

Despite these criticisms of both the SECI model and the socialization and externalization methods for sharing tacit knowledge, empirical studies have been conducted that support the model (for example, Chou and He, 2004; Dyck *et al* 2005). A strong example is the work of Dyck *et al* (2005) who examined new product development within a manufacturing firm that creates internal combustion engines. Their longitudinal mixed method study made use of questionnaire and interview data, which when analysed found evidence of all four phases of the SECI model.

Thus, despite Gourlay's (2006b) misgivings of the SECI model and Politis' (2006) insistence that externalisation is the only method by which tacit knowledge can be shared, there is empirical support of the model and the methods of tacit knowledge sharing it proposes.

Drawing conclusions from these different points of view is difficult, and it is perhaps unwise to draw strong conclusions from the few studies that tested the model in detail. Thus, it is argued that while the SECI model may not describe the *only* method of knowledge creation, it is certainly a proven model of knowledge creation that describes two proven methods of tacit knowledge sharing.

1.3.5.2. Knowledge sharing and organisational learning

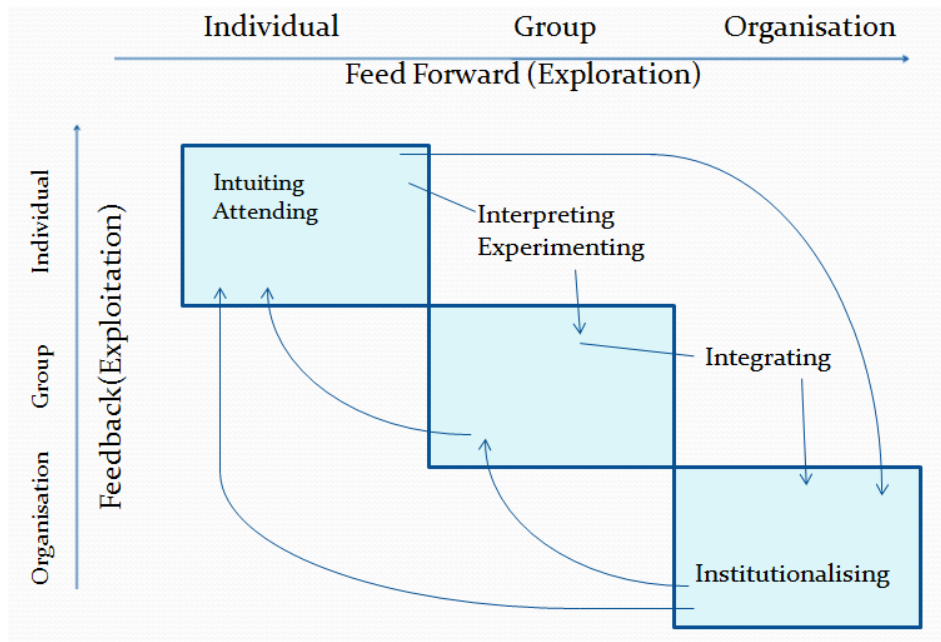
Knowledge sharing also plays an important role in organisational learning; indeed some authors have argued that knowledge management plays a subservient role to organisational learning. For example, Yahya and Goh argue that "...many tend to forget that the main purpose of KM [knowledge management] is to help create a learning organisation that continues to improve the ability to cope with the ever changing market place" (2002:457). Although the researcher would disagree with the strength of this statement, it does highlight the importance of knowledge management (and therefore knowledge sharing) to organisational learning.

Organisational learning has been defined as "The embedding of individual and group level learning in organisational structures and processes, achieved through reflecting on and modifying the norms and values embodied in established organisational processes and structures." (Hislop, 2009:93)

This definition certainly shares commonalities with Nonaka and Konno's externalization phase described above; they both described processes through which knowledge that exists within the organisation becomes embodied in organisational practice. While there are multiple ways of conceptualising organisational learning, two key themes within the literature are the notions of exploration and exploitation. While these themes have received different interpretations, a common view is that espoused by March (1991) that highlights *exploration* as experimentation with new organisational alternatives, and *exploitation* as the extension and refinement of existing technologies, competencies and paradigms.

It is the researcher's contention that tacit knowledge plays an important role in exploration and that its value to organisations becomes apparent through exploitation, when tacit knowledge is embodied in organisational activities. This argument is best highlighted through an example; however it is necessary to first examine the manner through which knowledge is transferred at the individual, group and organisational levels. A well-known model of organisational learning, offered by Crossan *et al* (1999) and later adapted by Zietsma *et al* (2002) appears below (Figure 1.3)

Figure 1.3: A model of organisational learning



Source: Adapted from Crossan *et al* (1999) and Zietsma *et al* (2002)

According to this model, organisational learning begins at the either individual level whereby new ideas are intuited and/or discovered, or at the individual/group level where personal insights and ideas are explained and interpreted and then experimented with. If successful, these new ideas are then integrated at the group/organisational level through shared understanding and practices, and may finally become institutionalized as routine organisational practice. The various stages in this model are described in detail in Table 1.5.

Table 1.5: Processes of organisational learning

<u>Process Name (Level)</u>	<u>Description</u>
Intuiting (Individual)	Cognitive preconscious recognition of patterns – highly subjective based on personal experience
Attending (Individual)	Action based process of actively searching for and absorbing new ideas
Interpretation (Individual/Group)	Explaining personal insights through words or actions. Individual – actively interprets their own insights. Group – Individual insights are shared and collectively discussed
Experimenting (Individual/Group)	Attempting to implement and utilize new learning through actual practices of change
Integration (Group/Organisation)	Developing shared understandings and practices, which can occur through both dialogue and co-ordinated action
Institutionalisation (Organisation)	The process of ensuring that routine action occurs through embedding insights in organisational systems and processes

Source: Adapted from Crossan *et al* (1999), Zietsma *et al* (2002) and Hislop (2009)

A clear example of these organisational learning processes can be found in the work of Loo (2006). Loo's study took place at an elevator company in the Netherlands that instituted an action-learning approach to organisational learning between 2001 and 2003. First, there was an *intuiting* and *attending* process in which all employees were required to signal a problem or area for improvement within current practice, and propose solutions via e-mail to the management. Following this was a process of *interpretation* and *experimentation* whereby the top management team decided which of the proposals were most important, and created a project team that gathered pertinent information (both external and internal) and examined and trialled alternatives. If feasible alternatives to current practice were found, a process of *integration* occurred in which new working practices were explained to employees, and these were finally *institutionalised* through documentation in the company's handbook. Loo also highlights the success of this approach: the organisation achieved its goal of being the highest rated for customer satisfaction in its market despite charging twenty percent more than the market leader for its services.

Recalling Nonaka and Konno's (1998) notion of externalization and the definition of tacit knowledge adopted, it is clear that tacit knowledge sharing plays a vital role in the exploration process. First, the process of intuiting and attending discussed in the above example clearly requires that an individual has a certain amount of relevant work-related tacit knowledge, which is subjective and based on personal experience, such that one can consider new ways of working and improvements to current practice. Second, the notion of interpretation, i.e. of explaining personal words and insights either individually or part as a group through words and actions, bears some resemblance to Nonaka and

Konno's notion of externalization – employees were required to share their beliefs, opinions and subjective insights (cognitive dimension of tacit knowledge) of working practices (technical dimension of tacit knowledge) with the management through a physical medium. Thus, it is clear from this brief consideration that the conversion of tacit to explicit knowledge plays a vital role in the exploration process. However, as highlighted in the above example, it is when this tacit knowledge becomes embodied in practice (at the integration and institutionalisation stage), through changes to the way in which the elevator company operates the exploitation process, that tacit knowledge sharing has added value to the organisation.

Grant (2000) also highlights the value of tacit knowledge to organisational learning. Grant notes that "If knowledge exists in two principal forms, explicit and tacit, and at two major levels, the individual and the firm, then there are major benefits to the firm in shifting its primary knowledge base from individually held tacit knowledge, to firm held explicit knowledge" (2000:33). Grant goes on to argue that systematization of individually held tacit craft based skills into explicit working practices has been the basis of many outstanding organisational successes of the last century. A useful example offered in support of this is Henry Ford's mass production system of manufacturing automobiles, which took individually held craft skills and embodied these in automated work machines and processes that could be replicated globally.

However, while there are clear benefits of knowledge sharing (tacit and explicit) to organisations, there is often a great deal of difficulty in convincing individuals to share knowledge with each other or the organisation. As Bollinger and Smith (2001) highlight, most of the barriers to effective knowledge management involve people – indeed common barriers to knowledge sharing include apathetic attitudes to sharing knowledge (Wang 2006; Alwis and Hartmann 2008), power relationships, personal relationships, personal likes and dislikes (Cook and Cook 2004) and a lack of trust between colleagues (Cook and Cook 2004; Wang, 2006). There are also material barriers to knowledge sharing; as Alwis and Hartmaan (2008) note the physical layout of office space or the lack of communication technology within an organisation may also negatively impact on the ability, and perhaps willingness, of organisational members to share knowledge. While brief, this consideration of the barriers to knowledge sharing is important as it highlights that knowledge sharing may not happen automatically within organisations – and thus, that there is a need to influence organisational members to share knowledge.

Having explicated the definitions of knowledge, and knowledge management, and the approach to knowledge management and knowledge sharing adopted within this work the following sub-section

considers the role of group work within higher education. Such a discussion is important as group work within higher education provides the context of this doctoral research.

1.3.6. Group work in higher education

Since the mid-1990s the demand for business education has surged worldwide (Hawawini, 2005), and Hawawini (2005) argued that it would continue do so given that the world economy continued to expand. Since the appearance of that scholar's article, many countries within the western hemisphere have been affected by the financial crisis of 2008. Yet, within the United Kingdom (UK) the demand for business and business related subjects has seen an overall increase. The most recent Universities and Colleges Admissions Service (UCAS) figures (see Table 1.6 below) reveal that between 2008 and 2013 demand has increased for degrees within the business and administration subject group by 116.6%.

Table 1.6 Degree applications and accepts: Business and Administration Studies

Year	Degree Applications	Degree Accepts
2008	62307	55892
2009	67407	58545
2010	72067	59388
2011	75756	61484
2012	71368	57593
2013	72670	60990

Source: UCAS figures, available via UCAS online UCAS (2014)

Although interest amongst potential students in undertaking business and management education has increased fairly steadily in the UK, a recurrent concern has been the extent to which business schools have been able to adequately prepare their students for their place in the labour market. Within the UK, McClelland (2012:355) has argued that a lack of skills amongst business undergraduates and their inability to put theories they have learned in to practice may be in part responsible for the "reduction in the confidence of higher education to produce a graduate labour market capable of meeting the needs of employers".

Similarly, Bennis and O'Toole (2005) argue strongly in an opinion piece in the Harvard Business Review that business schools have 'lost their way'. Reflecting particularly on MBA programmes in the USA, they argue that there is an over-emphasis on mathematical and quantitative skills, while little training is provided in soft skills. They note that MBA programmes often fail to produce individuals capable of undertaking leadership roles. Such concerns are not new, Bennet, Dunne and Carré (1999) review the arguments that suggest that the gulf between what employers require and the manner in which universities wish to teach is one of ideology, that is different considerations of what higher education is supposed to do.

The use of group work as a pedagogic activity within business schools may have emerged as an attempt to provide the practical skills that employers are said to require, and that students are argued to lack (McClelland, 2012). Group work can be defined broadly as involving at least two students working together on a task (Healey et al, 1996). Specific instances of group work may vary considerably, depending on the purpose of group work, nature of the task and medium of interaction. For example, group work may be undertaken for summative or formative assessment, take place within or outside the class-room, be conducted face-face or electronically, and for different periods of time,

The use of group work has become firmly established within higher education institutions (Gregory and Thorley, 1994a) and has been adopted across a range of disciplines and, in particular, has been widely adopted in business schools (Schullery and Schullery, 2006). Group work is often lauded as having diverse pedagogic merits, providing various skills for students including decision-making, conflict resolution and problem solving (McNally 1994), oral communication, active listening, and group leadership (Tribe, 1994). This may explain part of the attraction to business schools – group work may provide the *soft* skills that students and employers require (Hawawini, 2005).

Importantly for the present work, among the numerous benefits ascribed to the use of group work within higher education, group work provides opportunities for the transfer of student skill-sets (Livingstone and Lynch, 2000) and the sharing of knowledge, ideas and experiences (Boud, 2001). Successful knowledge transfers of this kind are reported in the pedagogic literature (see for example, Cresswell, 1998; Livingstone and Lynch, 2000; Plastow, Spiliotopoulou, and Prior, 2010). The researcher is firmly in favour of group work, agreeing with Gregory and Thorley's (1994:20) statement that:

"Groups provide opportunities that cannot be realized through individual learning situations. They provide expertise from the rest of the group not available to the solitary individual...The group is a place where individual views of reality can be challenged and new insights obtained from debate."

Indeed, group work also provides students with the opportunity to learn about their own beliefs, attitudes and course content – and share these with others (Sampson & Cohen 2001a). Thus, providing an opportunity for peer-learning, allowing students to “learn from and with each other in both formal and informal ways” (Boud 2001:4). This may further explain the attraction of group

work, as Plastow, Spiliotopoulou and Prior (2010) note it is widely recommended in the pedagogic literature as a means for students to share and acquire knowledge.

The literature on group work within higher education is fairly extensive and documents a number of barriers to successful group work including differences in group composition with respect to gender, local versus overseas students (Gordon and Connor, 2001; Sampson and Cohen, 2001b), culture and religion (Sampson and Cohen, 2001b), peers not liking each other (Sampson and Cohen, 2001b), a lack of trust (Smith, 2008; 2010) and concerns over free-riding (Sampson and Cohen, 2001a), with the latter being a problem that is well documented in the pedagogical literature (Maiden and Perry, 2011).

However, given the fairly widespread contention that group work provides an opportunity for knowledge sharing it is surprising that few studies have examined the phenomenon from the lens of knowledge management. The following section presents the researcher's contentions as to the relevance of the adoption of the knowledge management lens for examining knowledge sharing during group work in the context of higher education.

1.4. Adopting the knowledge management lens for investigating group work

The rationale for the adoption of the knowledge management lens for investigating knowledge sharing within group work is supported by two arguments. The first argument is that the processes and expected outcomes of group work are often the same as those discussed in the knowledge management literature concerned with knowledge sharing within and outside of groups in organisations. Thus, the concepts, abstractions and discourse of knowledge management provide a ready vocabulary and theoretical framework for which to investigate knowledge sharing during group work. The second argument, based on the first, is that the empirical evidence in the field of knowledge management provides insights that allow for the useful exploration of the knowledge sharing during group work within higher education. In this context, a useful exploration is understood as one which provides insights that enable practitioners to make informed changes to improve desired outcomes.

The first argument is as follows:

Rowley's (2000) contention that higher education is in the knowledge business can be readily extended to students within higher education. This becomes clear when one considers the central activities of knowledge management. While the precise details of conceptualisations vary, scholars identify a number of core activities associated with the management of knowledge. For example, Martensson (2000) identified the collecting, storing, making available and use of knowledge; Barth (2003) the accessing, evaluating, organizing, analyzing, conveying, collaborating, and securing of knowledge; Maier and Mosley (2003) the identification, storage and organization, collection and capture, sharing and dissemination, application and use of knowledge and Hislop (2009) identifies the key activities of creation, application, codification, acquisition and sharing of knowledge. That higher education is concerned with such activities is evident upon the reflection of the academic role - which in part, involves the creation and dissemination of knowledge to different audiences - including students. Furthermore, it is evident that students engage in specific activities within these broad categories of knowledge management activity during their time at university. For example, it is hoped that students acquire knowledge during lectures and from their reading of academic texts, codify their understandings when making notes, and apply their knowledge during exams and the productions of essays. Although not exclusively, it is contended that group work provides the 'Ba' in which the sharing and creation of knowledge can take place.

Nonaka and colleagues (Nonaka and Takeuchi, 1995; Nonaka and Konno, 1998) have argued that knowledge creation takes place within a 'Ba' a physical or virtual space shared by individuals. It is in

this space that knowledge is transformed between tacit and explicit forms and shared with others. If, as pedagogic scholars have argued, group working in higher education provides '...a place where individual views of reality can be challenged' (Gregory and Thorley, 1994:20), the sharing of ideas and experiences (Boud, 2001) and the transfer of student skills (Livingstone and Lynch, 2000) then arguably it is in this 'Ba' provided by group work - at least in those instances where such outcomes are achieved. Further, the notions of sharing ideas and experiences and challenging individual views of reality are consistent with the concept of cognitive tacit knowledge - the subjective ideals, insights and experiences an individual holds, whereas the transfer of student skills is consistent with the concept of technical tacit knowledge (Nonaka and Konno 1998; McAdam, Mason and McCrory 2007). Further, group work tasks which involve producing an essay, a report, a presentation and so forth are likely to involve (unless it is already possessed by students) the creation of new knowledge - that is, *new* within the frame of reference of the specific group. As highlighted above, knowledge creation is a principal activity of knowledge management and has been studied by numerous scholars (Nonaka and Takeuchi, 1995; Nonaka and Konno, 1998; Rowley, 2000; Martensson, 2000; Barth, 2003; Maier and Mosley, 2003; Hislop, 2009).

Thus, the application of the knowledge management lens for studying knowledge sharing amongst students during group work in higher education is justified because students undertake principal knowledge management activities.

The second argument, which is based on the first, is as follows:

If students are engaged in knowledge management activity similar to that undertaken by employees in organisations, and if the university context does not impact that knowledge management activity to too great a degree, then it is likely that the knowledge management literature can provide insights for pedagogic theory and practice.

A large proportion (but not all) of the pedagogic literature that comments on knowledge sharing during group work approaches the topic with a non-knowledge management lens. For example, Lejk and Wyvil (2002) examine attitudes towards different methods of peer-assessment for contributions to assessed group projects through a broadly pedagogic lens, focussing on learning and assessment outcomes. However, in their study they also comment on the manner in which students' interpersonal trust relationships impact students' contributions to group work. Similarly, Remedios, Clarke and Hawthorne (2008) present an investigation into the reasons for silent participation in tutor-led small learning groups in Australia. They discuss reasons for non-participation during class

discussions, and undertake their investigations through the lens of problem based learning. While both studies comment on the issue of knowledge sharing, neither draws on the concepts or abstractions of knowledge management. These and other studies within the pedagogic literature often highlight concerns, difficulties and barriers to knowledge sharing activities in group work - and while these issues may be considered in more or less detail in these works, they are issues which are extensively studied within the knowledge management literature. That this is so becomes evident through this thesis, and the discussion of the interpersonal trust in knowledge sharing (see Chapter 2 and Chapter 3) provides an illuminating example.

Thus, based on the two arguments presented, it is argued that the field of knowledge management is an appropriate and useful lens for investigating knowledge sharing within the context of group work within higher education.

1.5. Research rationale

While a separate rationale is presented for each study, this section provides a rationale for the undertaking of doctoral research into knowledge sharing within higher education. As highlighted in section 1.1 the overarching aim of this doctoral research is

- To investigate and explore knowledge sharing during group work amongst students within the context of higher education.

To date, knowledge sharing within higher education has been explored by a number of scholars (see for example, Cresswell, 1998; Livingstone and Lynch, 2000; Lejk and Wyvil, 2002; Remedios, Clarke and Hawthorne, 2008; Plastow, Spiliotopoulou, and Prior, 2010) yet few studies have adopted and applied the knowledge management lens to investigate knowledge sharing within higher education. To the researcher's best knowledge only a limited number of studies exist (Chowdhury, 2005; Lin, 2007; Sackmann and Friesl, 2007; Yuen and Majid, 2007; Wangpipatwong, 2009; Hassandoust and Perumal, 2011; Majid and Wey, 2011; Yaghi et al, 2011; Wei et al, 2012; Zaqout and Abbas, 2012; Chikoore and Ragsdell, 2013; Chong, Teh and Tan, 2014; Rahman et al, 2014). Thus, the body of literature that has adopted this approach is nascent - and only one study has concentrated on higher education within the UK (Chikoore and Ragsdell, 2013) and none within Wales.

Thus, there is a clear gap within the literature - and there is scope for further work to be undertaken to further explore and understanding knowledge sharing within higher education and make a contribution to this body of knowledge.

However, as Professor Jenny Rowley has highlighted (in conversation), the existence of a *gap* is, in and of itself, not a valid reason to pursue research. The *gap* may exist because of the oversight of the wider academic community, or alternatively, because that community has not judged the *gap* to be worth filling. Thus it is important to also provide substantive reasons for undertaking this research.

The practical reason for undertaking this research is that if the arguments presented in the previous section prove to be valid, then the adoption of the knowledge management lens for investigating knowledge sharing during group work within higher education will be valuable for two key stakeholders – students and educators, and the wider business and management community.

1.5.1 Students and educators

It is contended that investigating knowledge sharing is important, as it can lead to new methods for enhancing knowledge sharing. This is to be desired given the link between knowledge sharing and individual and group learning (Yahya and Goh, 2002). Indeed, group work is often undertaken for the purposes of enabling students to learn about the subject matter (Schullery & Schullery, 2006). When knowledge is acquired by an individual in a group (see for example, Cresswell, 1998; Livingstone and Lynch, 2000; Plastow, Spiliotopoulou, and Prior, 2010) it may lead, in Crossan et al's (1999) and Zietsma et al's (2002) terms, to the individual learning processes of *intuiting and attending*. When it is externalised and shared it may lead to the group-level learning processes of *interpreting and exploring* (Crossan et al, 1999; Zietsma et al, 2002).

The researcher considers the enhancement of learning to be an inherently desirable outcome. Further, increased learning may (although not necessarily) lead to enhanced attainment, a common motivating factor and desirable outcome for students (Dweck, 1986; Pintrich and Schunk, 1996; Busato et al, 2000). In addition, it is expected that for many educators, the enhanced learning and academic attainment of students would be considered to be a desirable aim.

1.5.2. The business and management community

Hawawini (2005) has argued that students are the knowledge workers of the future. Thus, the findings of the three studies that examine students' perceptions and behaviours with respect to knowledge sharing may have practical implications for those in the business and management community. For example, organisations who recruit graduate workers may benefit from insights into graduates' propensities towards knowledge sharing behaviours. These may provide insights into what is to be expected from graduate workers, and by thus extension, how they can be best managed.

1.6. Notes on research philosophy

This thesis presents three separate research studies that are informed by different research approaches. Throughout the period of doctoral study I² have undergone a profound change in my beliefs about the way research should be approached. Thus, while the three studies investigate broadly the same topic, within the same context, and are united by an overarching research aim they are influenced by different philosophical considerations, and make use of different research methods. While the philosophical underpinnings of each project are described in the relevant chapters, I feel it is necessary to explain the philosophical 'journey' in this introductory chapter. It is my intention that this short sub-section will enable the reader to appreciate the reasons for the varied approaches to research that have been adopted.

I began work on my doctoral thesis with a predominantly positivist world view and this is reflected in the quantitative approach adopted for the first research study (see Chapter 2). On reflection, this is both surprising and unsurprising. Surprising because I enjoyed an undergraduate education in philosophy that exposed me to the Idealism of Bishop Berkeley - ideas by which I was profoundly influenced. Yet, it is also unsurprising because I completed a Master's in Business Administration within Bangor Business School that provided an education in business and management, and research training that tended to prioritise positivist investigation, potentially reflecting the so-called positivist orthodoxy. Indeed, my Master's thesis was a quantitative survey that employed similar methods used in the first research project presented within this work.

The discussion of research philosophy presented within the first chapter is (perhaps predictably) naïve. It discusses the notions of ontology and epistemology in a rather cursory and perfunctory manner. Nonetheless, that initial discussion has, for two reasons, been retained. First, it serves to help demonstrate the degree to which my understanding has developed over time, and second it feels inauthentic to re-write a discussion on research philosophy and to pretend to hold a position that I do not actually hold.

Following the undertaking of the first study, I engaged upon a qualitative investigation (see Chapter 3). While in hindsight it is hard to ascertain the precise reasons for this change, it was a time at which I was being exposed to a variety of qualitative thought from a number of different quarters.

In the early part of the 2010/11 semester, I was required to present a summary of my research to date at the Bangor Business School Doctoral Research Seminar Series. At that event I presented a proposal for a now abandoned quantitative project that sought to investigate the relationship

² The change in 'voice' is explained below

between the leadership styles employed by academics that held leadership responsibilities, and the knowledge sharing activities of their staff. Following the presentation of this proposal, it was suggested by members of the audience that since quantitative techniques were not my forte, I might consider employing interviews for data collection. It was put to me that this would, at any rate, provide more rich and useful data, as well being a more expeditious approach.

With the principal desire to expedite the research process, I turned to research methods books, and read the works of well-known qualitative theorists such as Ackroyd and Hughes (1982), Miles and Huberman (1994), and Silverman (1993). I consulted a wide range of academic work on the qualitative spectrum, including Stake's (1995) book on case study research, and a plethora of auto-ethnographic journal articles.

Ultimately, I began to perceive the social world and its phenomena as fluid and subjective, and adopted a social constructionist position (see Chapter 3). I believe the 'final nail' in my 'positivist coffin' was driven home when I read (for my own interest) a qualitative investigation of the role of so-called 'junk-food' in the video game sub-culture. It was an exceptionally *entertaining* read, and as I consumed the article with some fervour, I realised that much of what I was reading resonated with me - it was consistent with my own experiences, while also providing new perspectives. The reading of that article also brought home to me a number of key qualitative ideas that I was struggling with: Humphrey's and Watson's (2009) contention that research should be both edifying and entertaining, and Stake's (1995) conception of the naturalistic generalisation. For the first time I had enjoyed, as opposed to just being interested in, reading an academic article. From then, I was 'hooked'. I found that I wanted to produce research that others found useful and insightful, and that at the same time was interesting and desirable to read.

Following this shift I revised my quantitative research design in favour of a qualitative research approach that made use of multiple case studies, with semi-structured interviews as the primary method of data collection. I then began investigating my chosen topic - the relationship between the leadership styles employed by academics that held leadership responsibilities, and the knowledge sharing activities of their staff. However, having negotiated access to two academic departments within a British University, I quickly found that the majority of academics were unwilling to participate in the interview process. This, and an increasing interest in student knowledge sharing, led me to abandon this research project in favour of the three studies presented within this work, the first of which (see Chapter 1), I had already begun.

Between the end of the 2011/12 academic year and the beginning of the first semester in 2012/13 I found myself considering what topic I should investigate for my final study. I had a number of ideas, all which surrounded the notion of leadership within student groups. Questions such as: 'What encourages students to take on leadership roles?'; 'How prepared are these students?' 'Which styles, or approaches to leadership are more successful?' were at the forefront of my mind. Yet, despite my then (and indeed present) interest in these topics, I felt a sense of dissatisfaction with the idea of actually undertaking the research.

When questioned by a friend about this unusual and out of character apathy towards my work, I eventually realised and vocalised the problem - I felt trapped - and somewhat guilty. I knew that the way group work was approached not always ideal. I believed that the negative experiences reported by students (see Chapter 3) would likely be repeated, and I believed that the opportunities for knowledge sharing provided by group work would not, in many cases, be realised. At least, that is, unless something changed. In response to my dilemma, my pragmatic friend simply asked: 'Why don't you fix it then?'

I had no ready answer, and soon became enthralled by the idea of pursuing action research. Having achieved some understanding of knowledge sharing during group work I determined to try and make a difference - to design and facilitate a model of student group working that prioritised and influenced knowledge sharing and learning. Over time, this led me to believe that action oriented approaches to research are most valuable - and now, for me, it is desirable that in the future, the purpose of my own research process will not just be to understand social phenomena but to try to positively influence the lives of those within the research setting.

1.6.1. The rhetorical assumption

As Hussey and Hussey (1997) note, the language of a research report is influenced by the worldview held by the researcher. With the exception of Chapter 2, which is written in the third person voice consistent with the quantitative paradigm (Saunders, Lewis and Thornhill, 2009), portions of other chapters are written in the first person. Sections that are written in the first person reflect my closeness to the subject and the topic of the discussion, which is consistent with the qualitative approach (Hussey and Hussey, 1997).

1.7. Organisation of the thesis

The remainder of this thesis is organised as follows.

Chapter 2 presents a quantitative study that examines the relationship between business and management students' interpersonal trust relationships and their willingness to share and use tacit knowledge during group work within Bangor Business School. The study made use of a questionnaire survey for data collection. Data collection for this study was undertaken in February of 2011 - with data analysis being performed through 2011 and 2012.

Chapter 3 presents a qualitative study that examines students' experiences and perceptions during group work in Bangor Business School to determine whether there is one best method of allocating students to groups when the purpose is to maximise tacit knowledge sharing. Data was generated using focus groups; the data collection for this study was undertaken in July 2011 with analysis being performed through 2011 and 2012.

Chapter 4 presents an action research project that aimed at influencing electronically mediated intergroup knowledge sharing during a third year undergraduate module in the first semester of the 2012/13 academic year. The study proposes and examines a pedagogic model designed to overcome barriers to knowledge sharing discovered amongst a previous cohort of the same module in the 2011/12 academic year. The project was conducted in the first semester of the 2012/13 year, with data collection being performed until March of the second semester. Analysis was conducted within 2013 and 2014.

Chapter 5 presents explores the extent to which the overarching research aim of this work has been achieved. Within this chapter the three studies and their key findings are outlined, and common themes are drawn and compared and contrasted with the literature. The chapter then presents a model of knowledge sharing constructed from the findings of this doctoral research. This chapter is concluded with a reflective discussion of what I learnt during the undertaking of this thesis.

Chapter 6 provides a conclusion to the work. Drawing on the key findings of each study, and the discussion in Chapter 5, the implications of the work for different stakeholders are drawn. Within this chapter, the implications of the work for educators, the wider business and management community, and scholars are presented, and opportunities for future research are highlighted.

Chapter 2: Interpersonal trust and the willingness to share and use tacit knowledge during group work

2.1. Introduction

This chapter presents a study that examines the relationship between business and management students' interpersonal trust relationships and their willingness to share and use tacit knowledge during group work within Bangor Business School. The data collection for this study was undertaken in February of 2011 - with data analysis being performed through 2011 and 2012.

The remainder of the chapter is structured as follows: Section 2.2 presents the background to the research, and the rationale for conducting it. Section 2.3 presents the research aims, questions and objectives. Section 2.4 presents a critical review of the relevant literature from the knowledge management and pedagogic fields that examines the relationship between interpersonal trust, and knowledge sharing and use. This section also presents the conceptual framework advanced on the basis of the literature review. Section 2.5 presents the methodological considerations and decisions taken by the researcher in the undertaking of this work, including, the research philosophy adopted, the design of the research, the design of the data collection instruments, the methods of analysis and a consideration of ethical matters. Section 2.6 describes the procedures undertaken by the researcher in the completion of this work and presents the results of the work. Section 2.7 discusses the results of the work, comparing and contrasting the findings of this work with other relevant empirical research, and provides answers to the research questions. This section also discusses the limitations of the work, considers opportunities for future research, and draws the implications of the work for knowledge management and pedagogic scholars, and pedagogic practitioners. Section 2.8 presents a summary conclusion.

2.2. Research background and rationale

There is a consensus within the knowledge management literature that interpersonal trust relationships are an important antecedent of knowledge sharing, and this has been demonstrated in a variety of studies across a variety of organisational and national contexts (see for example, Levin and Cross, 2004; Lucas, 2005; Mooradian, Renzl and Matzler, 2006; Usoro et al, 2007; Holste and Fields, 2010). Indeed, only one study of which the researcher is aware has found non-significant relationships between interpersonal trust and knowledge sharing (see, Chow and Chan, 2008) and so it is contended that this consensus is well established.

However, little attention has been paid to the topic within the pedagogic literature that focuses on teaching within higher education, or within the knowledge management literature that is concerned with examining the phenomenon within student populations. Indeed, within the pedagogic literature, only a handful of studies have considered the importance of interpersonal trust (Lejk and Wyvil, 2002; Remedios, Clarke and Hawthorne, 2008; Smith, 2008, 2010; Majid and Wey, 2011; Zaqout and Abbas, 2012 Chikoore and Ragsdell, 2013). For example, Smith's (2008, 2010) studies examine the importance of interpersonal trust relationships amongst students collaborating together during online programmes. Her work finds that a lack of trust in the ability and competence of other students is a central barrier to the sharing of knowledge. There is also conceptual support for the role of interpersonal trust as an antecedent of knowledge sharing. DeVita (2000:176) has argued that:

"Good relationships among students and a good rapport between the students and the tutor are a *conditio sine qua non* to creating an environment of comfort, trust and mutual respect, in which open discussion, exchange and examination of ideas, as well as active participation are not inhibited by fear".

While no studies published within pedagogic journals present a detailed examination of the relationship between interpersonal trust and knowledge sharing, the researcher is aware of one study within the knowledge management literature that makes use of a student sample. The sample in Lin's (2007) study is comprised of part-time students with significant work experience, and the study presents findings that are consistent with the broader knowledge management literature – showing that interpersonal trust is an antecedent of knowledge sharing.

In addition to the general dearth of studies in this area, there are also no studies that have examined this issue within the context of business schools within the UK. This is arguably surprising - there is a consensus within the pedagogic literature that group working provides opportunities for students to

transfer knowledge (Livingstone and Lynch, 2000; Plastow, Spiliotopoulou and Prior (2010). Being cognizant of this - it is surprising that so few scholars have sought to examine the antecedents of knowledge sharing.

If, as expected, interpersonal trust is an antecedent of knowledge sharing within the higher education context then it is expected that there may be a number of implications for both educators and scholars.

2.2.1. Educators

The findings of this work may help practitioners to design and manage pedagogic activity that is more conducive to knowledge sharing (for example through more sophisticated selection mechanisms for group work). Further, it may provide the requisite evidence to support the resourcing of events and activities designed to increased interpersonal trust relationships (for example, field trips, social events, the use of interactive discussion seminars) amongst students.

2.2.2. Scholars

This study contributes to the pedagogic literature by examining the relationship between students' interpersonal trust relationships and their willingness to share and use knowledge during group work. Although others have undertaken similar projects (see above), this project advances knowledge by:

- Making a novel contribution to the existing literature - This study can be considered exploratory in nature, that is, it is a project that is being undertaken when there is little previous work within the area (Hussey and Hussey, 1997). As such, it is the researcher's intention that the work will provide an insight into the role of interpersonal trust relationships influencing tacit knowledge sharing within the context of higher education.
- Being performed within a different context - to date the researcher is aware of no extant literature that examines these phenomena within the context of the UK or Welsh business schools. Thus, this study is the first to present an analysis of the relationship between students' interpersonal trust relationships and their willingness to share and use tacit knowledge during group work within a Welsh business school.

2.3. Research aims, objectives and questions

The principal aim of this research project is to examine the relationship between students' interpersonal trust relationships and their willingness to share and use tacit knowledge during group work. It is expected that an understanding of this phenomenon will have implications for both educators and scholars within the fields of pedagogy and knowledge management (described above).

In-line with the research aims, the main objectives of the research are to:

- Determine the extent of students' willingness to share and use tacit knowledge during group work
- Examine the relationship between students' interpersonal trust relationships and their willingness to share and use tacit knowledge during group work

The following research questions are advanced:

1. To what extent are students willing to share and use tacit knowledge during group work?
2. Is there a relationship between students' levels of interpersonal trust and their willingness to share and use tacit knowledge gained from peers during group work?

2.4. Literature review

This section presents a review of pedagogic and knowledge management literature that is pertinent to the aims and objectives of this research project. Since a review of all extant literature is beyond the scope of this work, literature that deals specifically with topics that are pertinent to the research aims and questions has been reviewed. The literature review was conducted using key word searches on a number of scholarly and publisher databases, and search portals, including Business Source Complete, Emerald, Taylor and Francis, JSTOR and finally Google Scholar. Key words used included *knowledge, sharing, tacit, explicit, trust, interpersonal, and transfer*. Further sources were identified by examining the reference lists of examined articles. Given the paucity of literature that examines knowledge sharing amongst students no restrictions were placed on the 'quality' of articles that were included.

This section is composed of four sub-sections. In the first, the key concepts of interpersonal trust, tacit knowledge and group work that are relevant to the study are outlined. Second, a review of the literature that examines the relationship between interpersonal trust and knowledge sharing within the field of knowledge management and pedagogy is offered - and hypotheses drawn from the literature are presented. Third, the extent to which demographic factors may influence tacit knowledge sharing and use is considered and hypotheses are drawn. Finally, the section is concluded with a summary of the conceptual framework of the study, and the hypotheses that are to be tested.

2.4.1. Key concepts: Inter-personal trust, tacit knowledge and group work

2.4.1.1. Interpersonal trust

Rousseau et al. (1998) highlight that despite a widespread recognition that trust is important in a number of ways, and in a number of contexts, there is no universally accepted definition of the concept. This may be due to the widespread investigation of trust in numerous fields of the social sciences; as Lewicki, Tomlinson and Gillespie (2006) note, trust has been examined in a range of different academic disciplines. Through these examinations trust has been viewed as a multi-faceted concept, and has received multiple interpretations (McAllister, 1995; Bigley and Pearce, 1998; Rousseau et al., 1998; Lewicki, 2006; Holste and Fields, 2010).

Given this state of affairs, the researcher is in agreement with Rousseau et al's (1998) contention that if the concept of trust is to be used usefully to inform research and theory then it is necessary to be clear about what is meant by the concept. To that end, this sub-section is concerned with outlining some of the prevalent definitions and conceptions of trust, and presenting a detailed description of the concepts of trust adopted within this study. Further, it is the researcher's

expectation that the information presented here will provide the requisite background for the interpretation of this study by its audience.

Based on their review of the literature, Rousseau et al (1998) suggest that the majority of definitions of trust include the notion that trust entails accepting a degree of vulnerability as to the intentions of another. Thus, they suggest that a widely held definition of trust would be as follows:

“Trust is a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behaviour of another” (Rousseau et al, 1998:395)

A more narrow definition of trust is offered by McAllister (1995:25) and (Lewicki, McAllister and Bies, 1998:440) who define trust as:

“...an individual’s belief in, and willingness to act on the basis, the words, actions and decisions of another.”

In advancing one definition and concept of trust over another, the researcher's intention is to adopt a concept that can both be operationalised, and that is appropriate for providing answers to the study's research questions. Within this study the central focus is on students’ interpersonal trust relationships with their peers and their willingness to share and use knowledge.

Given the assumption that the act of sharing and using knowledge has a number of associated risks (see Chapter 1) it is the former definition that is advanced for the purposes of this study, because it follows that the perception of risk results in the perception of vulnerability. Having advanced a definition of trust, it is also necessary to be clear about the forms of trust that are of import. As Lewicki, Tomlinson and Gillespie (2006) note, trust may hold between actors in one context, but not another. For example, within the context of higher education a *truster* may be willing to copy the lecture-notes of the *trustee* expecting them to have recorded accurate and insightful notes, but may not be willing to lend the *trustee* money, not expecting them to repay the loan. This consideration demonstrates the importance of different forms of trust - in the first case the trust relationship is based on a judgement of academic competence, and in the second a judgement of moral character. Thus, a form of trust may be more or less relevant in different contexts.

This consideration makes clear that understanding different forms of trust is important as different forms of trust may be more or less relevant in different contexts. Therefore, if trust is to be used as a predictor of behaviour, then understanding the particular form of trust that is relevant is a necessity.

Based on their review of the literature Rousseau et al (1998) present three broad forms of trust:

- Calculus-based trust, in which the *truster* perceives the *trustee* will behave as expected because it is beneficial for the *trustee* to do so.
- Relational trust, in which repeated interaction between *truster* and *trustee* build the trust relationship. With respect to relational trust, it is information within the relationship (repeated observations of expectations being fulfilled) that forms and builds the trust relationship. Within relational trust, Rousseau et al. (1998) identify two key aspects: the expectation of another's reliability and dependability, and the emotional attachment of care and concern that is fostered.
- Institution-based trust is the trust that is held in an institution by the *trustee* and may act as a precursor for developing the above forms of trust.

The focus of this work is on examining the interpersonal trust relationships of students to determine whether there is a relationship between their interpersonal trust relationships and their willingness to share and use tacit knowledge during group work. Thus, the form of trust that is of importance to this study is relational trust. To measure relational trust, the researcher has adopted McAllister's (1995) two well-known conceptions of interpersonal trust.

McAllister's (1995) substantial investigation into the topic of interpersonal trust solidified the work of previous researchers in defining two related, yet empirically and conceptually distinct types of trust: affect- and cognition-based trust. Affect-based trust is grounded in the mutual care and concern that exists between individuals, whilst cognition-based trust is grounded in individual beliefs about peer reliability, dependability and competence (McAllister, 1995).

These two forms of trust have also been operationalised in recent articles in the knowledge management literature that examines the role of trust in knowledge sharing. These are key articles that inform this study (Chowdhury, 2005; Holste and Fields, 2010) and are discussed in detail below.

2.4.1.2. Tacit knowledge sharing and group work

A detailed discussion of the concepts and distinctions between tacit and explicit knowledge, and knowledge sharing is presented within Chapter 1. Within this section a few brief comments are offered on the manner in which tacit and explicit knowledge, and knowledge sharing are characterised within this study.

Philosophers have been occupied with the task of defining knowledge for over two millennia. In recent years, the problem has taken on a practical significance as knowledge has been recognised as a key organisational resource (Sewell, 2005). While many frameworks and typologies of knowledge

have been advanced the most common and practical is the distinction between explicit and tacit knowledge (Pathirage, Amaratunga and Haigh, 2007).

Explicit knowledge is characterised as being easily shared and articulated in the form of words and documents (Nonaka and Konno, 1998; Haldin-Herrgard, 2000; Stenmark, 2001; Hislop, 2009). Examples of explicit knowledge include such things as numbers, data, scientific formulae and manuals (Nonaka and Konno, 1998). Tacit knowledge is characterized as being personal, and difficult to articulate, share and codify (Nonaka and Konno, 1998; Haldin-Herrgard, 2000; Hislop, 2009).

The precise nature of tacit knowledge has invited numerous and often divergent opinions (see for example, Polanyi, 1966; Ryle, 1949; Collins, 2001; McAdam, Mason and McCrory, 2007). Researchers have determined two distinct dimensions of tacit knowledge: technical and cognitive, and it is these two dimensions of tacit knowledge are adopted by the researcher. Technical tacit knowledge can be described as “know-how” - the skills, abilities and expertise gained by an individual (Nonaka and Konno, 1998; Stenmark, 2001; McAdam, Mason and McCrory, 2007), that is, the ability to put “know-what” into practice (Brown and Duguid, 1998). Cognitive tacit knowledge can be described as the mental models, values, beliefs, subjective insights and ideals held by an individual (Nonaka and Konno, 1998; McAdam, Mason and McCrory, 2007).

Examples of technical tacit knowledge (“know-how”) in the context of a student’s business and management education may include such embodied practices (Nonaka and Takeuchi, 1995) as use and regulation of verbal and non-verbal communication skills. Examples of cognitive tacit knowledge (“know-what”) may include students’ perceptions, values and subjective insights into the way in which managers, businesses and organisations in general do and should operate.

When the researcher (as a module tutor) asks students to engage in group work, it is with the hope that they will share and learn from both the practical skills and personal experiences that they possess. In the researcher’s experience this often does happen, and positive experiences of such knowledge transfers are often reported in the pedagogical literature (see, Cresswell, 1998; Livingstone and Lynch, 2000; Plastow, Spiliotopoulou and Prior, 2010).

The view that group work can provide an opportunity for tacit knowledge sharing and use is well established in the literature. Nonaka and Konno (1998) describe the occurrence of both tacit → tacit and tacit → explicit knowledge transfer. They suggest that tacit → tacit transfer is possible through a process of “socialisation” – which involves the capturing of knowledge through individuals’ physical proximity to each other, or relevant contexts, direct interaction, engaging in joint activities and spending time together. Conversely, tacit → explicit knowledge transfer takes place through a

process referred to as “externalisation”. This can involve either the translation of tacit knowledge into comprehensible forms using techniques such as expressing one’s ideas as words or images, the use of metaphor, analogies, narratives or dialogue, or the use of deductive and inductive inference, or abduction on the part of the individual with whom tacit knowledge is supposed to be shared.

While some have argued that tacit → tacit knowledge sharing is not possible (see for example, Politis, 2003), it seems a matter of agreement that tacit knowledge can be shared, and the consensus is that direct communication between individuals is an important part of this process (Nonaka and Konno 1998; Haldin-Herrgard 2000; Politis 2003; Peroune 2008).

The notion of what constitutes a group is one which has received much debate within the academic literature, and the distinction between a team and a group has also drawn comment from a number of scholars (Mullins, 2007). Given that the aim of this project is to gain an understanding of students’ willingness to share and use tacit knowledge, a broad concept of group work is advanced. Following Healey et al. (1996) group work is understood as involving at least two students working together on a task.

2.4.2. Interpersonal trust and the willingness to share and use knowledge

A variety of studies within the knowledge management literature have examined the relationship between interpersonal trust and knowledge sharing. These studies have been undertaken in a variety of contexts and have adopted both qualitative and quantitative approaches. Differences in the conceptualisations of trust, knowledge and knowledge sharing adopted by researcher’s makes it difficult to directly compare and contrast the results of these works. However, a theme does emerge - the importance of interpersonal trust relationships as an antecedent of knowledge sharing (Levin and Cross, 2004; Lucas, 2005; Mooradian, Renzl and Matzler, 2006; Usoro et al, 2007; Holste and Fields, 2010). For example:

Levin and Cross (2004) examined the mediating role of trust in effective knowledge transfer. Their quantitative survey was completed by 127 mid-level professionals engaged in knowledge intensive work within an American Pharmaceutical company, a British bank and a Canadian oil and gas firm, representing a 48% response rate. Their two part email survey made use of a seven point Likert scale. The study is of import for the present work because it measured both perceived receipt of useful knowledge, tacit knowledge, and made use of the concepts of competence and benevolence based trust, which are conceptually very similar to affect- and cognition-based trust adopted within the present work. The key findings from the study were that benevolence and competence based trust had a significant and positive impact on perceived receipt of useful knowledge, and that these

two constructs of trust were found to remove any positive effect of strong ties³. Further, Levin and Cross (2004) found that while benevolence based trust matters consistently in knowledge exchanges, competence based trust matters most when the exchange involves tacit knowledge.

Further, Usoro et al (2007) investigated the relationship between trust and knowledge sharing in a virtual community comprised of employees of a global IT services company. They surveyed all 400 members of the virtual community and received 75 useable responses, representing an 18% response rate. They adapted McKnight, Choudhury and Kacmar's (2000) measure of trust to measure the competency, integrity and benevolence based trust relationships between individuals and the virtual community; the measure of knowledge sharing focussed on the focus, quantity and quality of knowledge sharing, and did not distinguish between tacit and explicit knowledge. Their key findings were that there were significant and positive correlations between the three measures of trust and knowledge sharing, and that integrity trust was the most significant predictor of knowledge sharing behaviour.

Mooradian, Renzl and Matzler (2006) examined the relationships between personality factors, trust and knowledge sharing within an enterprise resource planning and consulting firm. Their quantitative study made use of a survey method, adopting a questionnaire. They achieved 64 useable responses from 100 employees resulting in a 64% response rate. For the purposes of the present work, the key findings of this paper are that interpersonal trust in peers was found to be positively and significantly related to knowledge sharing with teams, and knowledge sharing across teams. Although Mooradian, Renzl and Matzler (2006) do not distinguish between affect- and cognition based trust, their construct of trust contains elements of both: one of their three questions is consistent with the notion of affect-based trust, while the other two are consistent with cognition-based trust. Further, their conception of knowledge sharing (both within and across teams) contains elements of tacit and explicit knowledge. Thus, while the study reports the importance of interpersonal trust for knowledge sharing within and across teams, it is contended that it also provides support for the view that affect- and cognition-based trust are to be significantly related to knowledge sharing.

However, not all studies find a strong relationship between interpersonal trust relationships and knowledge sharing. For example, Chow and Chan (2008) examined a range of social factors and their impact on attitudes and subjective norms, and their subsequent intentions towards sharing

³ Tie strength is determined by the closeness and interaction frequency between two parties (Hansent et al, 1999 in Levin and Cross (2004))

knowledge. Chow and Chan (2008) do not distinguish between tacit and explicit knowledge sharing, rather, they combine both forms – based on the results of a factor analysis. Their quantitative study involved surveying a random sample of Hong Kong managers, 190 useable questionnaires were returned from 136 companies representing a response rate of 33%. The four constructs of importance to the present work are social trust, attitude towards knowledge sharing, subjective norm about knowledge sharing and intention to share knowledge (see Table 2.1).

Table 2.1 Chow and Chan's constructs of trust and knowledge sharing

Construct	Definition
Social trust	The degree of one's willingness to [be] vulnerable to the actions of other people
Attitude toward knowledge-sharing	The degree of one's favourable or positive feeling about sharing one's knowledge
Subjective norm about knowledge-sharing	The degree of one's perceived social pressure from important others to share or not to share one's knowledge
Intention to share knowledge	The degree of one's belief that one will engage in knowledge-sharing behaviour

Source: Adapted from Chow and Chan (2008:464)

Importantly, social trust includes the concepts of cognition- and affect-based trust. The study is unusual in that social trust was found to have a positive, weak and insignificant relationship to attitude toward knowledge sharing and a negative, weak and insignificant relationship to subjective norm about knowledge sharing. Although not expressed by the authors, this may be because respondents were asked to consider the organisation as a whole, and that tacit and explicit knowledge sharing were treated as a single construct. Nonetheless, the study is interesting as it one of few that does not find a positive and significant relationship between concepts of trust and knowledge sharing.

The importance of interpersonal trust relationships as an antecedent for tacit knowledge sharing is highlighted in a number of studies that adopt *conceptually similar* constructs of interpersonal trust and tacit knowledge (Al-Alawi, Al-Marzooqi and Mohammed, 2007; Cheng, Yeh and Tu, 2008). For example:

Al-Alawi, Al-Marzooqi and Mohammed (2007) conducted a mixed method study with staff from different organisational levels in a range of public and private sector organisations within the kingdom of Bahrain. They achieved 231 responses, yielding a 77% response rate. The study made use of a survey, with a five point Likert scale that examined the relationship between a range of

organizational cultural factors and knowledge sharing, including trust. For the purposes of the present research, the key finding of this study was that as the mean value of trust increased, so too did the assessment of organisational knowledge sharing. Thus, Al-Alawi, Al-Marzooqi and Mohammed (2007) conclude that trust is related to knowledge sharing. The follow up interviews conducted by Al-Alawi, Al-Marzooqi and Mohammed (2007) highlighted the importance of previous experiences with trust. It was found that while some participants continued to share their knowledge even though they had negative experiences of doing so, others did not.

Cheng, Yeh and Tu (2008) studied inter-organisational knowledge sharing amongst Taiwanese green supply chains. They surveyed production managers in 288 Taiwanese manufacturing firms using a quantitative survey that measured the study's variables using a five-point Likert scale. They achieved a response rate of 72.5%, drawn from 397 firms. Their survey examined the relationship between inter-organisational knowledge sharing and a range of factors, including trust. Trust was found to have positive influence on inter-organisational knowledge sharing, and was found to be a mediating variable. Interestingly, when the other constructs in the study were found to have a positive or negative influence on trust, those constructs were also found to have a corresponding influence on knowledge sharing. The study is of particular interest because it concerns inter-organisational knowledge sharing (which is similar to inter-group knowledge sharing), and because the construct of trust is similar to the concept of cognition-based trust adopted in the present study. Indeed, Cheng, Yeh and Tu (2008) include notions of openness, reliability and honesty in their measurement of trust.

From the review of the knowledge management literature, two key studies were also found which make use of the same measures of interpersonal trust as those adopted within this work (Chowdhury, 2005; Holste and Fields, 2010):

Holste and Fields' (2010) study examined willingness to share and use tacit knowledge within the headquarters of an international non-profit sharing company that supports missionary work around the world. They surveyed 202 managerial and professional staff whose roles involved such things as strategic planning, research, human resources, information technology and other common organisational functions. In the survey they made use of McAllister's constructs of affect and cognition-based trust. Drawing on a review of relevant literature they also created a questionnaire to measure tacit knowledge sharing and use. They found that both affect-based and cognition-based trust together accounted for approximately 25% of the variance in willingness to share and use tacit knowledge - indicating that mutual care and concern between individuals and perceptions of the competence and reliability of others is important for tacit knowledge sharing and use.

Similar results were found by Lucas (2005) in his survey of 206 employees within ten departments of a Fortune 500 company. Although Lucas (2005) did not distinguish between tacit and explicit knowledge, and uses different measures of interpersonal trust, the results can still be interpreted as congruent with those of Holste and Fields (2010). Lucas (2005) found that both his measure of interpersonal trust (similar to affect-based trust) and the reputation of the knowledge provider and recipient were positively and significantly associated to knowledge transfer.

Chowdhury (2005) made use of McAllister's (1995) constructs of affect- and cognition-based trust and examined their relationship with complex knowledge sharing within the higher education setting in a large state university in the United States of America. The notion of complex knowledge advanced by Chowdhury (2005) is consistent with the conception of tacit knowledge presented within this work (see Chapter 1). Chowdhury (2005) surveyed 164 part-time MBA students in their last semester before graduating, the majority of whom worked full time outside of academia. These students worked on a semester long group work project split into a total of 31 teams. Data was collected from all team members resulting in 229 dyads. All students participated, resulting in a 100% response rate. The study found that even when controlling for gender diversity and team size the level of trust significantly predicted the level of complex knowledge sharing. Although both forms significantly influenced knowledge sharing, cognition-based trust had a stronger influence than affect-based trust. The study by Chowdhury (2005) is of particular interest because, as with the present work, it is concerned with surveying a student population - although arguably not a *typical* student population, as the majority of students within the sample were in full time employment.

Within the context of higher education, Lin (2007), Majid and Wey (2011), Zaqout and Abbas (2012) and Chikoore and Ragsdell (2013) have also examined the role of trust as an antecedent for knowledge sharing.

Lin (2007) proposed and examined a model that examined organisation-person, personal and interpersonal influences on organisational commitment and trust in co-workers, and the resultant impact on tacit knowledge sharing. This study is of import to the present work for two reasons. First, the construct of trust in co-workers is conceptually similar to the notion of cognition-based trust adopted within this work. Second, the subjects surveyed in Lin's (2007) study were part-time students of business administration (who had work experience) in a Taiwanese university. Lin (2007) distributed 255 questionnaires to the students who were involved in the service industry, achieving 212 useable responses, representing a response rate of 83%. While the study had a number of findings, the following is important to the present work: There was a significant relationship between trust in co-workers and tacit knowledge sharing, and Lin (2007) highlights that low tacit

knowledge sharing can be attributed to low trust in co-workers. Thus, for the purposes of the present work we can conclude that cognition-based trust is significantly related to tacit knowledge sharing.

Zaqout and Abbas (2012) undertook a quantitative survey of full-time research students enrolled on Master's and Doctoral programmes across 3 campuses of a Malaysian university. They received 245 useable questionnaires, achieving a 45% response rate. Their study examined relationships between a range of factors and tacit and explicit knowledge sharing. The constructs of trust adopted by Zaqout and Abbas combine elements of cognition- and affect-based trust, and their constructs of tacit and explicit knowledge are similar to those advanced within this work. For the purposes of the present work, the key findings are that trust had a significant and positive relationship with both tacit and explicit knowledge sharing. These findings cohere with those of Majid and Wey (2011) who distributed a questionnaire survey to 183 students in public universities in Singapore. Majid and Wey found that trust was important for the development of interpersonal trust relationships, which would in turn lead to knowledge sharing.

Within the UK, Chikoore and Ragsdell (2013) highlight that students are often let down by their peers in group-assessed coursework and were not always confident in their group members' ability to complete tasks. This highlights the importance of cognition-based trust - where such perceptions exist, and trust is lacking, it is likely that students will not willingly engage in knowledge sharing behaviour. However, few studies have directly examined the impact of students' interpersonal trust on their tacit knowledge sharing activities during group work, yet much of the pedagogical research reviewed has significant implications for the present study.

For example, the general importance of interpersonal trust to students undertaking group work is evident in a survey conducted by Matveev and Milter (2010). Matveev and Milter surveyed 114 students who were engaged in a group project across two universities in the United States. They found that 61% of students perceived trust to be an important aspect of team effectiveness, and 26% of students highlighted that learning to trust team members was challenging. However, the study advanced no precise conceptions of trust - and so the dimensions of trust that are perceived to be important by students is not clear.

Research conducted by Smith (2008; 2010) provides insights into the role that trust may play during student collaboration in an online context. Smith's (2008) study involved adult learners collaborating in online groups and highlighted that issues of trust were of import. Similarly, Smith (2010) found that a lack of trust between peers was a persistent issue, specifically as it related to individuals

trusting the knowledge and skills of their peers. This suggests that cognition-based trust, as it is concerned with peer reliability, dependability and competence, may impact students' willingness to use the tacit knowledge shared by their peers.

The importance of students' affect-based trust relationships for participation in group work has been demonstrated by Remedios, Clarke and Hawthorne (2008). Remedios, Clarke and Hawthorne (2008) explored reasons for silent participation during tutor-led small learning groups within higher education in Australia. Their case studies of individual student's experiences highlight two significant findings for the present work. First, a number of students were reluctant to contribute to class discussions as they feared losing "face" - that is they were concerned that their peers would perceive them negatively based on their contributions. The researcher contends that this suggests that these students lacked sufficiently strong affect-based trust relationships with their peers - such fears would likely be mitigated if students believed that a sense of mutual care and concern for each other existed. Second, it was found that cultural differences inhibited students' willingness to contribute - this has led to the inclusion of students' nationality as a variable in the present study. Further, a study by Lejk and Wyvil (2002) found that students found it difficult to work with strangers, suggesting that the lack of interpersonal relationships can be a barrier to group working.

There is also conceptual support for the role of interpersonal trust as an antecedent of knowledge sharing. DeVita (2000:176) has argued that:

"Good relationships among students and a good rapport between the students and the tutor are a *conditio sine qua non* to creating an environment of comfort, trust and mutual respect, in which open discussion, exchange and examination of ideas, as well as active participation are not inhibited by fear".

Based on this analysis, one may argue that such relationships also need to hold between students to allay or mitigate fears.

In addition, the importance of cognition-based and affect-based trust is highlighted in a discussion by Sampson and Cohen (2001a) who suggest that common concerns amongst students who are resistant to peer-learning are personal dislikes, and the unwillingness to accept that they or their peers have anything of value to offer each other.

Based on the evidence presented above the researcher contends that there is likely to be a significant and positive relationship between students' interpersonal trust relationships and their willingness to share and use knowledge. Thus, the following four hypotheses are advanced:

H1a: Cognition-based trust is significantly and positively related to students' willingness to share tacit knowledge

H1b: Cognition-based trust is significantly and positively related to students' willingness to use tacit knowledge

H2a: Affect-based trust is significantly and positively related to students' willingness to share tacit knowledge

H2b: Affect-based trust is significantly and positively related to students' willingness to use tacit knowledge

2.4.3. Demographic factors

The relationship between demographic factors and knowledge sharing has been largely ignored within the knowledge management literature (Connelly and Kelloway, 2003). However, the researcher contends that the balance of evidence would suggest that a range of demographic factors may also influence the degree to which individuals are willing to engage in knowledge sharing and use. Based on the review of the literature, university tenure, national culture and gender are included within the study.

2.4.3.1. University tenure

A study by Cabrera, Collins and Salgado (2006) found significant relationships between some demographic factors and knowledge sharing, knowledge giving and knowledge seeking behaviours. The study examined the relationships between these three measures and a range of factors in a large multinational that operates in the area of information technology and services. The study drew on a sample of 775 individuals within Spain, achieving a 48% response rate. It was found that organisational tenure was significantly and positively related to knowledge sharing, giving and seeking behaviours. However, a study (described below) by Connelly and Kelloway (2003) found a small but negative correlation between organisational tenure and willingness to share knowledge. Similarly, the study by Holste and Fields (2010) described above finds no relationship between organisational tenure, age and gender and willingness to share and use tacit knowledge.

The evidence with respect to university tenure and willingness to share and use knowledge is sparse. However, a study by Chikoore and Ragsdell (2013) that examined the knowledge sharing behaviours of undergraduates preparing for assessed group work found that 16.7% of first and third years, and 66.7% of second years preferred to seek knowledge from their class-mates. These findings suggest that relationship between university tenure and knowledge sharing and use may not be linear.

Further support for a relationship between university tenure and willingness to share and use knowledge can be found in the literature that is concerned with individuals' motivations and their knowledge sharing and use behaviour. Within the knowledge management literature a number of studies find that extrinsic rewards are applicable to motivating knowledge sharing. Thus, it may be argued that as students progress through university the likelihood they will engage in knowledge sharing and use will be greater as this will lead to a better quality of work, and therefore higher attainment. While apparently sound, such an argument is based on two significant assumptions, the first is that students will perceive knowledge sharing and use activities to lead to higher attainment, and the second is that higher attainment is a valued reward for students. The notion that students are motivated by attainment is well supported, with a number of scholars finding attainment to be a key motivating factor for students (Dweck, 1986; Pintrich and Schunk, 1996; Busato et al, 2000). The relationship between students' motivation and their willingness to share and use knowledge is considered in detail in the following chapter.

Thus, based on the above, it may be argued with some confidence that students' year of study impacts willingness to share and use knowledge. Therefore the following hypothesis is advanced:

H3a: There is a significant relationship between students' year of study and their willingness to share tacit knowledge

H3b: There is a significant relationship between students' year of study and their willingness to use tacit knowledge

2.4.3.2. National culture

For the purposes of this study, following Huczynski and Buchanan (2007:623), organizational culture is defined as:

“The collection of relatively uniform and enduring values, beliefs, customs, traditions and practices that are shared by an organization's members, learned by new recruits and transmitted from one generation of employees to the next”

Following from this definition, national culture is understood as the enduring values, beliefs, customs, traditions and practices that are shared by a nation's inhabitants. Within the knowledge management literature, national culture has been found to have an impact on knowledge sharing in a number of studies (Rivera-Vazquez, Ortiz-Fournier and Flores, 2009; Ardivichili et al., 2006).

For example, Rivera-Vazquez, Ortiz-Fournier and Flores (2009) conducted mixed method case studies of four public and private sector organisations in Puerto Rico, making use of interviews and

questionnaires for data generation. They found that both national culture and organisational culture can have an impact on knowledge sharing. Similarly, Ardivichili et al (2006) studied online knowledge sharing amongst Chinese, Brazilian and Russian employees of US firm Caterpillar Inc. They studied online knowledge sharing amongst 36 employees (including managers), making use of interviews with follow up-emails and phone calls for data generation. They found that cultural expectations of modesty, and that one should not speak out in public and stand out, impacted the willingness of individuals to engage in knowledge sharing on online knowledge networks.

Within the pedagogic literature, similar notions with respect to the influence of national culture have been found (DeVita, 2000; Hwang and Kim, 2007; Popov et al, 2012). For example:

DeVita (2000) notes that students from some cultures may believe it to be uncouth to question their teachers, or to interrupt when others are speaking. This necessarily impacts their willingness to share knowledge during certain circumstances. Further, some cultures have different preferences and methods of constructing persuasive messages and logical arguments (Zaharna, 1996), meaning that, depending on the combination of cultures, the meaningful exchange of knowledge may be difficult.

Thus, based on these findings, it is possible that national cultural values may impact students' willingness to share and use knowledge during group work. Therefore, the following hypotheses are advanced:

H4a: There is a significant relationship between students' national culture and their willingness to share tacit knowledge

H4b: There is a significant relationship between students' national culture and their willingness to share tacit knowledge

2.4.3.3. Gender

The relationship between gender and knowledge sharing has been largely ignored within the knowledge management literature (Connelly and Kelloway, 2003). Indeed, while scholars may gather data on the gender of their sample they do not always include this variable within their analyses (see for example, Chiu, Hsu and Wang, 2006; Singh, 2008). However, within the knowledge management literature, there is also evidence that gender may act as a moderating factor on other phenomena that influence knowledge sharing behaviour (Ling, 2008; Connelly and Kelloway, 2003).

For example, Connelly and Kelloway (2003) examined the influence of a range of factors on employees' perception of a knowledge sharing culture. They found that a positive social interaction

culture was a significant predictor of perceived knowledge sharing culture. With respect to gender, they found that female participants required a more positive social interaction culture than their male counterparts before they would perceive a knowledge sharing culture as positively as their male counterparts.

Similarly, Ling (2008) studied the relationship between organisational citizenship behaviours with gender as a moderating factor. Ling (2008) found that gender moderates the relationships between a range of factors and knowledge sharing behaviour, for example, it was found that altruism had a stronger influence on knowledge sharing for females, while for males courtesy and sportsmanship were stronger influences.

Yet, not all studies find that gender moderates knowledge sharing behaviour. Bryant's (2003) study examined the impact of peer-mentoring on organisational knowledge creation and sharing within a large software firm. Bryant (2003) controlled for gender within his study but found no significant relationship. Further, the study by Cabrera, Collins and Salgado (2006) found that gender was only significantly and positively related to knowledge seeking, and was positively but not significantly related to knowledge sharing, and negatively but not significantly related to knowledge giving.

It may therefore be argued that gender will have a significant effect on knowledge sharing. However, such an argument is advanced with caution since the context and populations within the studies highlighted above are arguably considerably different to those within this study. Nonetheless, the balance of evidence would seem to suggest that gender is likely to influence knowledge sharing in some manner. Thus, the following hypotheses are advanced:

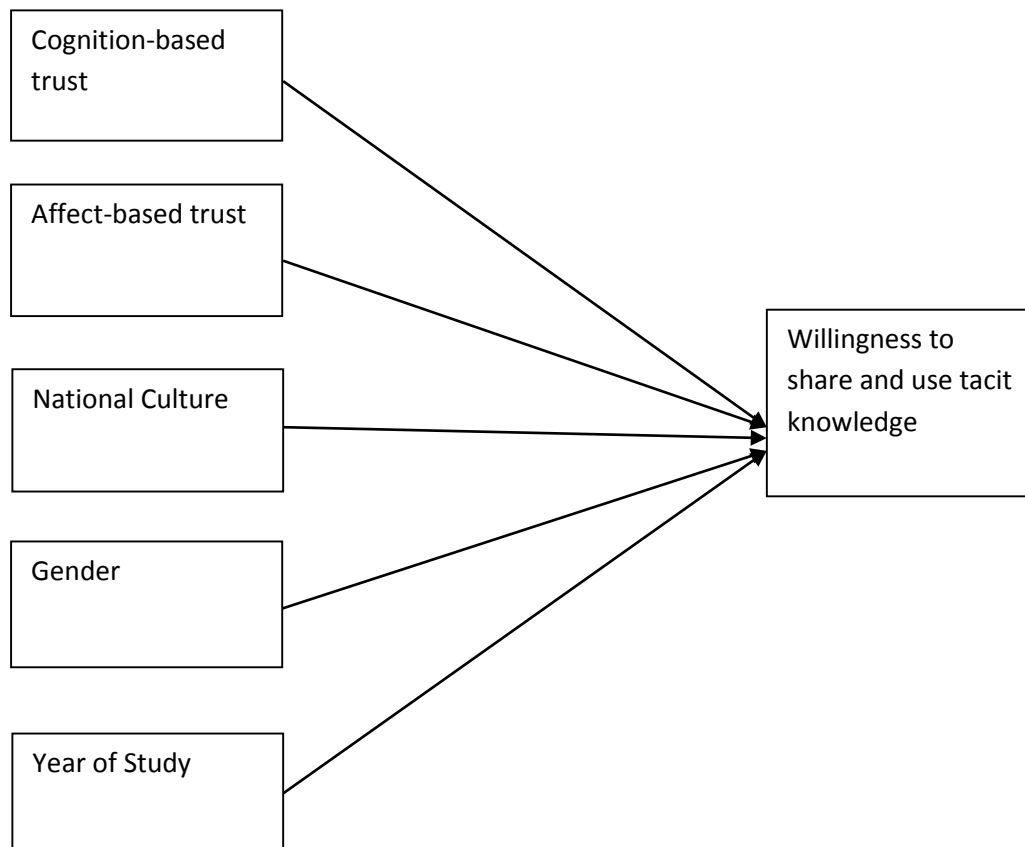
H5a: There is a significant relationship between students' gender and their willingness to share tacit knowledge

H5b: There is a significant relationship between students' gender and their willingness to use tacit knowledge

2.4.4. Conceptual framework

Based on the literature review, the following conceptual framework and hypotheses are advanced. Definitions and discussions of variables and their measurements are presented within the methodology section.

Figure 2.1 Conceptual framework



H1a: Cognition-based trust is significantly and positively related to students' willingness to share tacit knowledge

H1a: Cognition-based trust is significantly and positively related to students' willingness to use tacit knowledge

H2a: Affect-based trust is significantly and positively related to students' willingness to share tacit knowledge

H2b: Affect-based trust is significantly and positively related to students' willingness to use tacit knowledge

H3a: There is a significant relationship between students' year of study and their willingness to share tacit knowledge

H3b: There is a significant relationship between students' year of study and their willingness to use tacit knowledge

H4a: There is a significant relationship between students' gender and their willingness to share tacit knowledge

H4b: There is a significant relationship between students' gender and their willingness to use tacit knowledge

H5a: There is a significant relationship between students' national culture and their willingness to share tacit knowledge

H5b: There is a significant relationship between students' national culture and their willingness to use tacit knowledge

2.5. Methodology

Within this section the various methodological choices considered in the design of this study are outlined, and a justification of the researcher's methodological choices is offered. These considerations ultimately led the research to adopt a quantitative survey design, which made use of self-completion questionnaires as the method of data collection.

2.5.1. Research philosophy

The values held by a researcher can impact both the type of research that they decide to pursue and the manner in which they decide to pursue it (Saunders, Lewis and Thornhill, 2009). Research philosophy is the overarching term that relates to what a researcher believes to be the appropriate and proper development and creation of new knowledge (Saunders, Lewis and Thornhill, 2009). Such decisions are guided by individuals' values, and the way in which they view the world (Saunders, Lewis and Thornhill, 2009; Bryman and Bell, 2011).

An understanding of the researcher's research philosophy is offered to the reader through a discussion of his ontological and epistemological view. The former relates to the manner in which the world is said to exist and is broadly concerned with questions about the nature of existence, while the latter is concerned with what is considered to be acceptable knowledge (Hussey and Hussey, 1997; Saunders, Lewis and Thornhill, 2009; Bryman and Bell, 2011).

The researcher adopts objectivist ontology and thus views social entities as having real veridical existence (Saunders, Lewis and Thornhill, 2009), thus such things as interpersonal trust exist and can be accurately measured. This is in contrast to the subjectivist ontology that holds that social phenomena are created from the perceptions and actions of social actors (Saunders, Lewis and Thornhill, 2009) – on such a view, interpersonal trust relationships have no veridical existence, and cannot be accurately and objectively measured. Rather, their existence is contingent upon and created by the perceptions of individuals.

The researcher also adopts a positivist epistemology, thus holding the view that the social world and the phenomena studied within it can be reduced to law-like generalisations as in the natural sciences (Saunders, Lewis and Thornhill, 2009). This is in contrast to the epistemology of interpretivism that holds that to understand the social world one must recognise that it is complex, and that all situations are unique – knowledge is created by understanding the unique manner in which individuals understand and interpret their worlds (Saunders, Lewis and Thornhill, 2009).

2.5.2. Types of research

There are different types of research and different ways in which research can be classified; following Hussey and Hussey (1997) a schema of classifying research according to its purpose, process, logic and outcome is adopted. The classification of the proposed research based on this schema is summarised below (see Table 2.4). In what follows, the different classifications of research type are examined in detail and the choices made by the researcher are justified in light of the aims of the research project and the researcher's philosophical views.

Hussey and Hussey (1997) state with regards to purpose research can be exploratory, descriptive, analytic or predictive. The following table (see Table 2.2) outlines these different research purposes.

Table 2.2: Description of research purposes

<u>Research Purpose</u>	<u>Description</u>
Exploratory	Conducted when there are no or few previous studies surrounding a research problem; the purpose of this type of research is to gather data which is then analysed to reveal patterns, ideas or hypotheses. Having proceeded in this manner and gained insights into, and familiarity with, a subject area it can be investigated further at a later stage.
Descriptive	Conducted to describe phenomena as they exist and is used to identify or obtain information pertinent to a particular problem or issue. For example, descriptive research may be used to answer a question such as: "What percentage of FTSE 100 companies have a designated knowledge management officer?"
Analytical	A continuation of descriptive research but rather than just describing phenomena the purpose is to establish how or why certain phenomena occur; analytical research is concerned with measuring and discovering causal relationships between phenomena.
Predictive	Conducted to examine the relationship between phenomena, construct generalised hypotheses and then on the basis of this analysis to predict the occurrence of certain phenomena.

Source: Adapted from Hussey and Hussey (1997:10-11)

With respect to purpose, the present study combines elements of explanatory, descriptive and analytical research. The decision to engage in research of this type is informed by the following consideration:

The review of the literature highlighted that there is a dearth of studies that have been conducted that specifically consider the relationship between students' interpersonal trust relationships and their willingness to engage in tacit knowledge sharing. Moreover, none that the researcher is aware of have considered this issue within the context of higher education institutions within Wales – thus

it is the researcher's contention that there is a need for an exploratory study in this broad area, and within the chosen context.

However, the proposed research also has descriptive elements – being concerned with describing the state of affairs within the research context. Indeed, research question 1, namely, “To what extent are students willing to share and use tacit knowledge during group work?” is descriptive.

However, the work is principally analytical in purpose – as it goes beyond simply describing phenomena, and is intended to establish whether the hypothesised relationships within respect to students' interpersonal trust relationships and their willingness to share and use tacit knowledge hold. Indeed, the work is intended to measure and explore causal relationships between the phenomena of interest.

2.5.3. Research logic

There are two broad approaches to research logic: deductive and inductive (Hussey and Hussey, 1997). The deductive approach to research is concerned with deriving testable hypotheses from theory, which having been tested leads to the theory being confirmed or rejected (Creswell, 1994). Thus, the deductive method involves taking a general theory and testing it within a particular instance, and where necessary, making modifications to the original theory based on the results (Hussey and Hussey, 1997).

By contrast, the inductive approach to research begins with the collection of data, which following a process of analysis is used to generate a theory about the phenomenon under study (Saunders, Lewis and Thornhill, 2000). Thus, while the deductive approach involves the researcher 'moving' from theory, to data and back to theory, the inductive approach involves the researcher 'moving' from data to theory.

Table 2.3 (below) highlights the central features of the two approaches:

Table 2.3: The deductive and inductive research approaches

Deductive Approach	<ul style="list-style-type: none"> - Emphasis placed on the necessity to select sample sizes of sufficient size to generalise conclusions - Scientific Principles - The operationalization of concepts to ensure the clarity of definitions - The need to explain causal relationships between variables - Collection of quantitative data - Moving from theory to data - The application of controls to ensure the validity of data - Independence of the researcher from that which is being researched - Highly structured approach
Inductive Approach	<ul style="list-style-type: none"> - Gaining an understanding of the meanings people attach to events - Close understanding of the research context - A flexible structure which permits changes to the emphasis of research over the course of the research project - The realisation that the researcher is an integral part of the research process - The collection of qualitative data - Less concerned with the need to generalise

Source: Adapted from Saunders, Lewis and Thornhill (2000:91)

The present study adopts the deductive approach: Within the field of knowledge management the positive and significant relationship between students' interpersonal trust and the willingness to share and use tacit knowledge in the work place is well established. As a result, the researcher has argued that this relationship is likely to hold within the context of higher education. This 'move' from the general to this specific is informed by deductive logic (Saunders, Lewis and Thornhill, 2007).

The decision to undertake the deductive approach is based on a number of considerations. First, it is commensurate with the researcher's positivist philosophy, which in brief, is the view that there exists a veridical world that can be objectively investigated and measured. Second, the use of quantitative methods is commensurate with the deductive approach (Bryman and Bell, 2011) and allows for the use of a large sample size, which increases the likelihood of generalisation of the findings. This is of particular importance given the various implications that findings of the work may have for practitioners (see 2.2). Finally, the deductive approach involves the adoption of specific operationalised concepts which must be strictly measured, and these exist (with some abundance) within the knowledge management literature.

2.5.4. Research processes

Within the social sciences there are two main research processes: quantitative and qualitative. As Hussey and Hussey (1997) note, the quantitative research process is objective, focuses on measuring phenomenon, and involves collecting and analysing numerical data. Common methods of data

collection associated with quantitative research include questionnaires, structured interviews, and analysis of secondary data (Saunders, Lewis and Thornhill 2000).

By contrast the qualitative research process is subjective in nature and focuses on examining and reflecting on perceptions in order to achieve an understanding of the social world (Hussey and Hussey, 1997). Common methods of data collection associated with qualitative research include participant observation, discourse analysis and structured interviews (Saunders, Lewis and Thornhill 2000).

For this study, the researcher has adopted a quantitative research process. The decision to adopt a quantitative research process follows primarily from a consideration of the aims and objectives of the research, its deductive approach and the data collection methods associated with quantitative research. As noted, the research is primarily analytical in purpose, and the quantitative approach allows for the establishing of causal relationships between phenomena (Hussey and Hussey, 1997), as such, it is particularly suitable.

2.5.5. Research outcomes

Hussey and Hussey (1997) state that there are two standard classifications of research outcomes: applied and basic research. The former is research that is undertaken to provide a solution to a specific problem whereas the latter is research that is undertaken to improve the general understanding of a particular issue. The proposed research is basic as it intends to make a general contribution to the literature and is not being conducted to solve a particular problem or address a particular issue.

Within the preceding sections different research types have been examined according to the classification schema proposed by Hussey and Hussey (1997), and the type of research that the researcher proposes to undertake has been highlighted and is summarised below in Table 2.4

Table 2.4: Summary of the proposed research

Category	Proposed Research
Purpose	Exploratory, Descriptive but Primarily Analytic
Process	Deductive
Logic	Quantitative
Outcome	Basic

2.5.6. Research methodologies

As Hussey and Hussey (1997) note certain methodologies are associated with specific research philosophies and approaches. In this section the researcher's consideration of three relevant methodologies are presented – experimental, longitudinal and survey methodologies.

2.5.6.1. Rejection of experimental methodology

Experiments are conducted in a systematic manner and allow for the identifications of causal relationships between phenomena (Hussey and Hussey, 1997). It may be contended that the experimental methodology would be highly suitable for achieving the aims of the present study. Indeed the aim of an experiment is to manipulate an independent variable to determine the effect on the dependent variable (Hussey and Hussey, 1997). Although there are numerous designs, experiments tend to make use of quantitative comparisons between experimental and control groups (Bryman and Bell, 2011).

Thus, to achieve the aims of this project, an experiment could be designed in which interpersonal trust relationships between students are manipulated. This could be achieved by selecting high/low affect- and cognition-based trust pairings of students and then observing their behaviour on a knowledge sharing task. There may be significant advantages to this approach, as Bryman and Bell (2011:45) highlight experimental research is often held up as the “...yardstick against which non-experimental research is assessed” – it engenders confidence in the robustness and trustworthiness of findings. This may help to ensure the publication and dissemination of findings in academic journals. Further, Dobbins, Lane and Steiner (1988) have argued that laboratory experiments are useful for investigating work behaviour at the individual level.

However, there are both conceptual and pragmatic difficulties in the adoption of an experimental methodology. As Bryman and Bell (2011) note achieving the required level of behavioural control in an experiment can be difficult – and it may be difficult to both manipulate interpersonal trust relationships and accurately observe the process of knowledge work – which is notoriously difficult to measure (Ehin, 2008; Hislop, 2009).

Further, it would be necessary to negotiate access to participants for extended periods of time (to perform the experiments), and this may incur significant financial costs in the form of room hire. This may also be exacerbated by the need to perform experiments with considerable numbers of students, since the aim of the research is to gain insights into the likely behaviours and general propensity of students with respect to knowledge sharing and use.

2.5.6.2. Rejection of longitudinal methodology

Hussey and Hussey (1997) note that a longitudinal study involves the measurement of variables or groups of subjects over time, and is thus often associated with a positivist epistemology. Longitudinal studies involve the repeated observations of phenomena over a period of time to determine the stability of the phenomena and any change. The purpose is thus to map and understand change, and in all other respects longitudinal designs are very similar to cross-sectional designs (Bryman and Bell, 2011).

There are some advantages to adopting a longitudinal design to meet the aim of the research. First, it would be possible (with repeated measurements) to determine the stability of the relationships between students' interpersonal trust relationships and their willingness to share and use knowledge – and to examine whether there is any change over time, and potentially, this may help to identify other salient factors.

However, this approach is rejected on practical and conceptual grounds. First, the time and cost requirements for longitudinal designs can be high (Bryman and Bell, 2011). Indeed, there would be the need to make observations at (at least) two junctures and this would require a considerable amount of time. Second, there is little substantive justification for expecting that the relationships of interest will vary over time – making the longitudinal design somewhat redundant. Further, a common difficulty in longitudinal designs is determining when to make the required observations (Bryman and Bell, 2011) – and it is not clear when would be the best time to make the necessary observations and measurements for the current study, given that the times that students engage in group work can vary considerably even within the same module and cohort.

2.5.6.3. Adoption of survey methodology

A survey is a cross-sectional design in which data are collected at a single point in time (Bryman and Bell, 2011). Hussey and Hussey (1997) distinguish between two types of survey, the descriptive and analytic. The former is concerned with measuring and identifying the frequency of something with the population of study, whereas the latter is concerned with identifying relationships between variables. Although such a distinction is drawn by some authors, it is clear that a survey can have both descriptive and analytic elements.

Indeed, surveys involve the collection of quantitative and quantifiable data about two or more variables which are then interrogated to determine associations, and make inferences about a population of study (Hussey and Hussey, 1997). The survey methodology is particularly suitable for the present study as it allows for the examination of the relationships between variables (Bryman

and Bell, 2011). Further, the survey methodology provides a systematic method for gauging variation between variables, and can be used to accurately measure (with confidence) differences in the variables of interest (Bryman and Bell, 2011).

However, there are disadvantages to the adoption of the survey methodology. It only allows for the examination of variables at a particular time – and measures all variables at the same time, and so causal direction between variables cannot be determined (Bryman and Bell, 2011). However, as a number of authoritative texts note, questions of causality can be addressed through providing conceptual, theoretical and evidential support for the causal direction of determined relationships (Saunders, Lewis and Thornhill, 2009; Bryman and Bell, 2011). Indeed, writing on the interpretation of statistical analyses, Tabachnik and Fidell (2007) point to the Importance of providing substantive explanations that are logical and appeal to common-sense.

Ultimately, the survey method has been chosen as it the most suitable for answering the research questions. Indeed, the research questions are concerned with describing levels of interpersonal trust and knowledge sharing and use amongst students, and also investigating the relationship between these phenomena. As noted above, survey methodology is thus particularly appropriate – being capable of meeting all of these objectives (Easterby-Smith, Thorpe and Lowe, 1991; Hussey and Hussey, 1997; Saunders, Lewis and Thornhill, 2009; Bryman and Bell, 2011).

Further, a number of studies that have similar research questions and investigate interpersonal trust and relationships have adopted the survey methodology, see for example (Chowdhury, 2005; Lucas, 2005; Holste and Fields, 2010).

2.5.7. Survey design

Within this section the manner in which the data has been collected, analysed and interpreted is described. Hussey and Hussey (1997) highlight a range of tasks that need to be undertaken, including:

- Identify variables or phenomena of interest
- Selecting a sample
- Selecting the type of data required
- Choosing appropriate collection methods
- Conducting pilot study or exploratory research
- Modify collection methods
- Collecting the data

Consideration of these tasks led the researcher to adopt a questionnaire that made use of a number of open and closed questions. In what follows, each task is considered in turn.

2.5.7.1. Identifying variables

The questionnaire was constructed following the guidance outlined in a number of business and management research texts (see for example, Hussey and Hussey, 1997; Saunders, Lewis and Thornhill, 2007; Bryman and Bell, 2011). The questionnaire appears in Appendix A. In what follows (Table 2.5) the variables that are included in the questionnaire, the manner in which they were included, and the rationale for their inclusion are discussed.

Table 2.5: Overview of variables

<u>Variable</u>	<u>Explanation/Procedure</u>	<u>Dependent/ Independent</u>	<u>Rationale for inclusion</u>
Age	The age of participants Open question	-	Age is included to provide insights into the demographics of the sample, and to allow for comparisons with previous research
Work experience	The number of years of work experience that participants have Open question	-	This is included to provide insights into the demographics of the sample, and to allow for comparisons with previous research
Degree course	The course of study that participants are enrolled on Open question	-	This is included to provide insights into the demographics of the sample
Gender	The gender of participants Closed question: male or female	Independent	Included to provide insights into demographic profiles of the sample. Included as prior research (see section 2.4.3) has highlighted that there may be a relationship between this variable and knowledge sharing and use
Year of study	Participants' year of study Closed question: Undergraduate Year 1, 2, 3 and Postgraduate	Independent	As above

Table 2.5 (continued)

Nationality	The gender of participants Open question: The nationality of participants	Independent	As above
Willingness to share knowledge	Participants' willingness to share knowledge during group work 4 Items on a five-point likert-scale, adapted from Holste and Fields (2010) (described below)	Dependent	Included as the primary measure of willingness to share knowledge. This is an established measure used in related prior research (Holste and Fields, 2010)
Willingness to use knowledge	Participants' willingness to use knowledge during group work 4 Items on a five-point likert-scale, adapted from Holste and Fields (2010) (described below)	Dependent	Included as the primary measure of willingness to use knowledge. This is an established measure used in related prior research (Holste and Fields, 2010)
Affect-based trust	Participants' affect-based trust relationships 5 Items on a five-point likert-scale, adapted from McAllister (1995) (described below)	Independent	Included as prior research (see section 2.4) has highlighted that there may be a relationship between this variable and knowledge sharing and use.
Cognition-based trust	Participants' cognition-based trust relationships 6 Items on a five-point likert-scale, adapted from McAllister (1995) (described below)	Independent	Included as prior research (see section 2.4) has highlighted that there may be a relationship between this variable and knowledge sharing and use

2.5.7.1.1. Measuring the willingness to share and use tacit knowledge and affect- and cognition-based trust relationships

Lacking pre-existing instruments to measure students' interpersonal trust relationships and willingness to share and use tacit knowledge within the context of university group work, the researcher determined to adapt instruments that measure the same constructs within a different context. McAllister's (1995) interpersonal trust questionnaire and Holste and Fields' (2010)

questionnaire for measuring willingness to share and use tacit knowledge were chosen as they have been used in recent, related research and are well validated.

Minimal amendments were made to Holste and Fields' (2010) questionnaire. The researcher's intention was only to replace the context of working within an organization with that of students working within a group in university, and so where possible the style and use of language was retained. Thus, as with the original, the amended questionnaire contains four items measuring willingness to share knowledge, and four items measuring willingness to use knowledge. However, two significant amendments were made to Holste and Fields' (2010) questionnaire and questions 4 and 8 were removed entirely. In the original questionnaire, these questions were concerned with the willingness to share and act upon organisational rumours, and while this constitutes an important aspect of tacit knowledge, the researcher contends that it is not relevant to this study which is more concerned with the sharing and use of skills and personal experience. Thus based on the relevant literature, questions 4 and 8 were substituted as follows:

- I would willingly share my personal experiences and subjective insights with this individual, if relevant (Nonaka and Konno 1998)
- I would eagerly receive and consider any personal experiences and subjective insights this individual might have. (Nonaka and Konno 1998)

Thus, as with the original, the amended instrument contains 8 items (attitude statements) which students are asked to respond to on a 7-point Likert-scale using the scoring range: 1 'Strongly Disagree' to 7 'Strongly Agree'. Of the 8 items, 4 are used to measure willingness to share tacit knowledge and 4 are used to measure willingness to use tacit knowledge.

The following tables (2.6 and 2.7) list the questions adopted to measure these constructs:

Table 2.6: Items measuring willingness to share tacit knowledge

Item ID	Item
S1	If requested to do so, I would allow this individual to spend significant time observing and collaborating with me in order for him/her to better understand and learn from my work.
S2	I would willingly share with this person rules of thumb, tricks of the trade and other insights into academic work and that of the University that I have learned.
S3	I would willingly share new ideas with this individual.
S4	I would willingly share my personal experiences and subjective insights with this individual, if relevant

The Item ID is used to identify the individual item in later analyses

Table 2.7: Items measuring willingness to use tacit knowledge

Item ID	Item
U1	If relevant to my work, I would welcome the opportunity to spend a significant time observing and collaborating with this individual in order for me to better understand and learn from his/her work.
U2	If relevant to my work, I would welcome and use any rules of thumb, tricks of the trade, and other insights he/she has learned.
U3	I would eagerly receive and consider and new ideas this individual might have.
U4	I would eagerly receive and consider any personal experiences and subjective insights this individual might have

The Item ID is used to identify the individual item in later analyses

Similar amendments were made to McAllister's (1995) questionnaire. The researcher sought only to replace the context of working within an organization with that of students working within a group in university, and so where possible the style and use of language was retained. Thus, as with the original, the amended questionnaire contains 11 items (attitude statements) which students are asked to respond to on a 7-point Likert-scale using the score range: 1 'Strongly Disagree' to 7 'Strongly Agree'. Of the 11-items, five measure students' affect-based trust while six measure cognition-based trust.

Following McAllister (1995) and Holste and Fields (2010), both the questionnaires ask students to respond to each statement twice, once for a person they work well with and once for a person they do not work well with. The scores are then averaged to give an overall numerical score for students' levels of interpersonal trust and willingness to share and use tacit knowledge. The purpose of this procedure is to obtain a result that indicates students' typical propensity to act that is less affected by specific experiences or relationships that students may have.

The following tables (2.8 and 2.9) list the questions adopted to measure these constructs:

Table 2.8: Items measuring affect-based trust relationships

<u>Item ID</u>	<u>Item</u>
A1	We have a sharing relationship. We can both freely share our ideas, feelings and hopes.
A2	I can talk freely to this individual about difficulties I am having at university and know that (s)he will want to listen.
A3	We would both feel a sense of loss if one us was assigned to a different group and we could no longer work together.
A4	If I shared my problems with the person, I know s(he) would respond constructively and caringly.
A5	I would have to say we have both made considerable emotional investments in our working relationship.

The Item ID is used to identify the individual item in later analyses

Table 2.9: Items measuring cognition-based trust relationships

<u>Item ID</u>	<u>Item</u>
C1	This person approaches his/her task(s) with professionalism and dedication.
C2	Given this person's track record, I see no reason to doubt his/her competence and preparation for their task(s).
C3	I can rely on this person not to make my task(s) more difficult by careless work.
C4	Most people, even those who aren't close friends of this individual, trust and respect him/her as a group-member.
C5	Other individuals I am associated with at University who must interact with this individual consider him/her to be trustworthy.
C6	If people knew more about this individual and his/her background, they would be more concerned and monitor his/her performance more closely.

The Item ID is used to identify the individual item in later analyses

2.5.7.2. Population and sampling

As noted, the population of study is students enrolled on business and management courses within Bangor Business School. Sampling procedures are undertaken when it is not possible to conduct research with the whole population of study (Hussey and Hussey, 1997; Saunders, Lewis and Thornhill, 2007). The researcher determined that it was feasible to collect data from the entire

population as during semester two of the 2010/11 academic year this included 1288 students. Thus, the researcher adopted a census strategy – which involves collecting data from the population of study.

Sampling is also used when one is concerned with the generalizability of one's findings, and particularly when the generalizability of findings is likely to be impacted by certain demographic factors (Bryman and Bell, 2011). In the present case, the generalizability of the findings was not considered to be particularly important – the work is exploratory and is concerned with determining the relationship between students' interpersonal trust relationships and their willingness to share and use tacit knowledge.

2.5.7.3. Type of data required

The type of data that is required is a consideration not only of the manner in which the variables are measured, but also the manner in which data is to be analysed, which also requires consideration of the research questions. As noted the primary research question is to determine the relationship between students' interpersonal trust relationships and their willingness to share and use knowledge. It is argued below (see section 2.5.7.6) that the most appropriate method for answering this question and testing the hypotheses derived from the literature review is through the use of multivariate regression analysis.

Multivariate regression analysis can be conducted with both continuous and dichotomous variables (Tabachnik and Fidell, 2007). Thus, if one has categorical variables, or open questions, it is necessary to recode these into a number of dichotomous variables. This is to be achieved following the procedures outlined in Tabachnik and Fidell (2007) and Hardy (1993). The recoding of categorical variables is achieved through the creation of $k-1$ dichotomous dummy variables, with the category that is not being included in the dummy variables being used as the reference category (Hardy, 1993).

The following table (2.10) demonstrates how the open and categorical variables will be re-coded for inclusion within the multivariate regression analysis.

Table 2.10: Coding of categorical variables

Variable	Description	Recorded
Gender	Closed question: Male or female	Recorded as "Male" a dichotomous variable, with the value of 1 representing a participant who is male, and 0 representing a participant who is female
Year of study	Closed question: Undergraduate Year 1, 2, 3 and Postgraduate	Recorded as three dichotomous variables: Undergraduate 2, Undergraduate 3, Postgraduate, where the value of 1 represents the participants' inclusion in the category. Undergraduate year 1 is not included and is used as the reference category
Nationality	Open question	Recorded as a dichotomous variable "Home/EU", where the value of 1 represent a participant from a Home/EU country, and 0 represents a participant from Overseas

2.5.7.4. Choosing appropriate collection methods

Questionnaires and interviews are widely used in survey research (Easterby-Smith, Thorpe and Lowe, 1991; Hussey and Hussey, 1997; Bryman and Bell, 2011). The choice of appropriate data collection methods is determined by consideration of the aims of research and the limiting factors of time, cost and access (Hussey and Hussey, 1997).

Saunders, Lewis and Thornhill (2007) distinguish between self-administered and interviewer-administered questionnaires. Interviewer-administered questionnaires involve the researcher either undertaking semi-structured face-face interviews with participants or performing telephone interviews, in both cases precisely the same questions are asked in the same time, and in the same order by the researcher (Saunders, Lewis and Thornhill, 2007). Given the researcher's intention to survey the population, interviewer-administered questionnaires were rejected due to time constraints. Self-administered questionnaires include the use e-mediated, postal and delivery and collection questionnaires (Saunders, Lewis and Thornhill, 2007).

The researcher opted for delivery and collection questionnaires and e-mediated questionnaires. To that end it was determined that students should be approached during class-time to distribute the

questionnaire. To reach the widest possible number of participants, it was determined that data collection should take place during lectures within 'core' modules. That is, modules which are compulsory across degree programmes for each year of study. Since attendance at lectures can vary, it was determined to send all students enrolled on courses within the business school an e-mail containing a link to the questionnaire at an online questionnaire hosting site, that asks those who had not already completed the questionnaire to do so; the same instructions given to students verbally were written in the e-mail.

2.5.7.5. Conducting a pilot study

A pilot study was conducted with a small group of students within the researcher's group of friends (n=7). The pilot study revealed no major difficulties with the paper-based questionnaire or the verbal instructions provided. However, it was highlighted that the number of sides of paper (four) acted to dissuade participants from completing the questionnaire. To that end, the final questionnaire was printed on one double sided page.

2.5.7.6. Determining validity and reliability

Validity is defined as "The ability of a scale or measuring instrument to measure what it is intended to measure" (Zikmund, 2003:302), and reliability is defined as the "The degree to which measures are free from error and therefore yield consistent results" (Zikmund, 2003:300). Thus, a valid questionnaire will allow for the collection of accurate data, and a reliable questionnaire will allow for the consistent collection of data (Saunders, Lewis and Thornhill, 2009).

There are multiple measures of both validity and reliability (Hussey and Hussey, 1997; Zikmund, 2003; Fidell and Tabachnik, 2007; Saunders, Lewis and Thornhill, 2009; Bryman and Bell, 2011). Following other knowledge management scholars, the researcher ensured the validity and reliability of the instruments by measuring the content and construct validity of scales (Chowdhury, 2005; Usoro et al, 2007; Holste and Fields, 2010) and internal reliability (Chowdhury, 2005; Usoro et al, 2007; Wangpipatwong, 2009; Holste and Fields, 2010).

Face validity is understood as the degree to which the measuring instrument appears to measure what it is meant to (Saunders, Lewis and Thornhill, 2007). To ensure face validity, the researcher made use of an expert check by his doctoral supervisors, and also ensured that the questions and concepts were drawn from the relevant academic literature (see above), with minor changes being made so that the questions were relevant to the context.

Construct validity has been argued to be one of the most difficult to assess (Usoro et al, 2007), following Chowdhury (2005) and Usoro et al (2007) the researcher opted to assess construct validity

in the present work using a factor analysis. As Tabachnik and Fidell (2007) note, a factor analysis determines the degree to which the items included in a scale or measurement actually serve to measure an underlying construct.

Reliability is a measure of the degree to which measures are free from error and yield consistent results (Zikmund, 2003). To determine the reliability of the instruments, Chronbach's Alpha was calculated for each scale. Chronbach's Alpha determines the degree to which items within a scale are reliable, and a value of 0.7 is often accepted as sufficient (Bryman and Bell, 2011).

2.5.7.7. Data analysis

In answering the research questions both descriptive and analytical statistic techniques are used. Descriptive statistical techniques are used to provide an overview of the sample demographics, and the degree to which participants are willing to share and use tacit knowledge during group work.

Statistical analysis is used to determine the relationship between the dependent and independent variables. To that end, the researcher has made use of multivariate regression analysis. Multivariate regression is a technique that allows for the examination of the relationship between one dependent variable and a number of independent variables, and is popular in many disciplines (Tabachnik and Fidell, 2007; Bryman and Bell, 2011). Since multivariate regression is used to determine the relationship between one dependent variable and a set of independent variables, it is highly appropriate for this study, which is aimed at understanding the relationship between the willingness to share and use tacit knowledge, and interpersonal trust relationships and a number of demographic factors. Further, multivariate regression allows for the inclusion of both dichotomous and continuous variables (Tabachnik and Fidell, 2007). Indeed, a number of authors who have undertaken studies with similar aims to the present work have opted to use multivariate regression in their analysis (see for example, Lucas, 2005; Holste and Fields, 2010).

However, there are limitations to the use of multivariate regression. The main limitation is that while multivariate regression may reveal the relationship between variables, it does not provide any insights into the direction of causation (Tabachnik and Fidell, 2007). Thus, in the present case one is not able to conclude that, for example, an increase in affect-based trust causes an increase in the willingness to share knowledge, as the opposite, that an increased willingness to share knowledge increases affect-based trust is also indicated.

2.5.8. Research ethics

This section details the researcher's consideration of ethical issues that are of import to the present work. Coolican (1992:249) notes it is "difficult to conduct much research at all without running into

ethical arguments” and while various ethical issues may arise during the research process one principle is at the cornerstone of all ethical consideration: the avoidance of harm (Saunders, Lewis and Thornhill, 2007). Following Bryman and Bell “harm” is understood as a multifaceted concept which includes “physical harm; harm to participants’ development or self-esteem; stress; harm to career prospects or future employment” (2011:128).

The researcher has judged that the potential harm that could come to participants in the study is low - the questionnaires capture no sensitive information, and importantly, participants are not asked to provide their names, and no identifying information is collected. It has been noted that informed consent and anonymity are the two most critical aspects of ethical research (Saunders, Lewis and Thornhill, 2007) and the steps that the researcher took to ensure informed consent and anonymity of participants are presented below.

2.5.8.1. Informed consent and anonymity

Denscombe (2002) suggests that participants should be informed about the nature and use of the research before giving their consent. To this end, when the questionnaire was completed in the researcher’s presence participants were verbally informed of the nature and purpose of the research prior to their completion of the questionnaire. In particular, students were informed that their participation should be given on a voluntary basis only, that their responses were anonymous, and also informed of the possible uses of the research, and the manner in which it may be used and published. The same information was included in the email that invited participants to complete the electronic survey.

Miller and Brewen (2003) highlight the importance of anonymity to protect individuals when conducting sensitive research. Some authors, such as Hussey and Hussey (1997) suggest that all participants should be given the opportunity to remain anonymous – the researcher determined that there was no value to be gained from the collection of participants’ names, and so the questionnaires remained anonymous.

2.6 Results and analysis

This section contains five sub-sections. In the first, the procedure undertaken in carrying out the research is described. In the second, the lessons learned by the researcher in conducting the data collection and analysis are discussed. In the third, the results of screening the data and ensuring its suitability for analysis is presented. The fourth and fifth sections present, respectively, the descriptive and statistical analyses of the data.

2.6.1. Procedure

With the agreement of colleagues, students were approached during class-time in core modules in all four year groups to distribute the questionnaire. Prior to the distribution of the questionnaire, students were asked to consider their experiences of group working at university, paying particular attention to times they had worked well with someone and a time they had not. This was important, as it gave students an opportunity to acquaint themselves with their experiences prior to responding to the attitude statements.

Students were also sent an e-mail containing a link to the questionnaire at an online questionnaire hosting site. The email asked those who had not already completed the questionnaire to do so; the same instructions given to students verbally were written in the e-mail. It was recognized that students may have felt obliged to answer, therefore to remain on a firm ethical footing and avoid any potential bias, it was ensured that they were informed verbally, and in writing via e-mail, that their participation should be given on a voluntary basis only, their responses were anonymous, and informed them of the possible uses of the research. The study was conducted in accordance with Bangor University's ethical guidelines.

Two items on the questionnaire that measured the demographic factors of work experience and course of study were poorly answered, or answered in such a manner that the response was not interpretable. Examples of responses to the former include '12' '3' 'two weeks' '1/2' '0' and many participants did not provide a response. Examples of responses to the latter include 'BA' 'BSc' 'Man&Fin'. Since it was not clear to the researcher how these data were to be interpreted these have not been included in the analysis.

Ultimately, a total of 298 questionnaires were received (21 electronic). This suggests that either the majority of students who were willing to complete the questionnaire did so in person, or that the electronic distribution of the questionnaire was not a suitable approach for garnering responses. Following data screening procedures (see section 2.6.3) a final sample of 264 useable questionnaires was achieved, giving a useable response rate of 20.49%. This is slightly lower than the expected

average of 30% for delivery and collection and electronically hosted questionnaires (Saunders, Lewis and Thornhill, 2007).

2.6.2. Learning from the experience

Although the data collection process was mostly successful the difficulties with the two questions highlighted above demonstrated the inadequacy of the questionnaire. Although the use of these two open questions was successful in the pilot study (n=7) responses to these questions were not provided in such a way that it was possible to interpret them meaningfully.

Since these questions did not measure variables that were to be included in the research models, or that were of relevance for the main research questions this difficulty did not present a major problem for the conducting of the study. However, the data gathered from these questions would have provided useful background information about the sample that would have enabled a fuller appreciation of the study's findings in comparison to the findings of other researchers.

The researcher notes that in future, where there are a predictable range of responses to a question, the research instrument should make use of closed questions. Arguably, these are to be preferred - even at the expense of a slightly lengthier research instrument.

2.6.3. Data screening and suitability of data

Within this section the results of data screening and testing the construct validity and reliability of the research instruments are discussed, and it is demonstrated that the data meet the assumptions for undertaking multivariate regression analysis.

2.6.3.1 Construct Validity

Having removed the returned questionnaires that had missing data for key research variables and constructs there was a total response rate of 298. Prior to conducting tests of construct validity, it was imperative to ensure that the data was suitable for such analyses (Tabachnik and Fidell, 2007).

To that end, the researcher screened the data set for univariate outliers using z values, with a greater absolute value of 3.29 indicating an outlying score (Tabachnik and Fidell, 2007) and removed 9 cases. Further, multivariate outliers were screened for by calculating Mahalanobis distance at $p < .001$. With 25 variables Mahalanobis distance is calculated using Chi squared 25 degrees of freedom giving a critical value of 52.620 (Tabachnik and Fidell, 2007). Following this procedure 15 variables were removed.

The researcher then inspected the distributions of results for each items for kurtosis and skewness. The distributions were checked visually, as statistical procedures are less valid with a larger sample

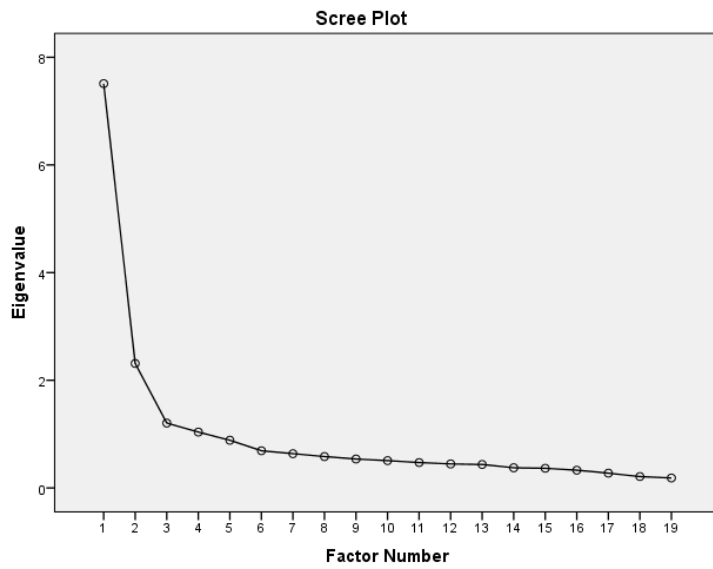
size (Tabachnik and Fidell, 2007). The data was found to be largely normal, with only slight positive and negative skewness showing on most variables. Following checks for normality, the data was checked for pairwise linearity and homoscedascity using bivariate scatter plots. Given the large number of possible combinations (in excess of 1000 only a certain number were checked and those were those pairs of variables that had the greatest difference in degrees of skewness (Tabachnik and Fidell, 2007) – all passed the necessary checks.

As noted, construct validity was assessed using a factor analysis. Factor analysis is primarily used to discover which “variables in the set form coherent subsets that are relatively independent of one another” (Tabachnik and Fidell, 2007:607). As Tabachnik and Fidell (2007) note, a major use of factor analysis is the development of objective tests for the measurement of psychological instrumentation. Thus, factor analysis has been employed to determine whether the items adopted in the questionnaire form independent subsets (factors) and thus are measures of the constructs described in the previous section.

The researcher that undertakes a factor analysis is faced with a number of options, including the type of extraction and method of rotation. The researcher ultimately adopted an orthogonal (Varimax) rotation used a maximum likelihood extraction method.

These choices are well supported - Tabachnik and Fidell (2007) argue for the use of orthogonal rotations when the purpose of factor analysis is to later use the factors as either independent or dependent variables in later analyses. Thus, based on this consideration, an orthogonal rotation was employed. Specifically, the research made use of a Varimax rotation, which is the most commonly used rotation, and is used to minimize the complexity of factors (Tabachnik and Fidell, 2007), which makes it an appropriate choice given that the purpose of analysis is to determine whether relatively independent constructs are being measured by the instrument employed. The researcher employed a maximum likelihood factor extraction method as in this method “factor loadings are calculated that have the greatest probability of yielding a sample with the observed correlation matrix” (Tabachnik and Fidell, 2007:636).

The scree-plot shows (as expected) that there will be four factors (see Figure 2.2).

Figure 2.2: Factor analysis scree plot

Further, the rotated factor matrix (see Figure 2.3), reveals four distinct factors, with many of the items loading at .45 or greater, indicating a fair to good measure of construct validity (Tabachnik and Fidell, 2007).

Figure 2.3: Rotated factor matrix

Rotated Factor Matrix^a

	Factor			
	1	2	3	4
S1				.605
S2				.788
S3				.532
S4				.498
U1	.566			
U2	.665			
U3	.849			
U4	.793			
A1		.528		
A2		.672		
A3		.514		
A4		.690		
A5		.620		
C1			.559	
C2			.528	
C3			.541	
C4			.722	
C5			.654	
C6				

*Extraction Method: Maximum Likelihood. Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 8 iterations. Loadings below 0.45 have been suppressed to improve interpretability.*

Figure 2.3 (above) highlights that the instrument has fair-good construct validity with the items that were expected to measure similar constructs being shown to do so. However, one item (C6) did not adequately load at the cut-off of 0.45, and so was removed from further analyses.

2.6.3.2. Reliability

The reliability of the instrument was checked following the data screening procedure necessary to prepare the data for multivariate regression analyses (above). A total number of 264 cases remained. The following table (2.11) presents the Chronbach's Alpha scores for the items.

Table 2.11: Chronbach's Alpha

Factor	N	Number of Items	Cronbach's Alpha
Share	264	4	.811
Use	264	4	.876
Affect	264	5	.782
Cognition	264	5	.829

As evidenced within the table, all Cronbach Alpha scores exceed the cut-off of 0.7, suggesting that the items are reliable measures of the underlying constructs (Hussey and Hussey, 1997; Tabachnik and Fidell, 2007).

2.6.3.3. Suitability of the data for multivariate regression analysis

Multivariate regression relies on a number of assumptions, including the correct ratio of cases to independent variables, an absence of outliers among the independent variables and dependent variables, the absence of multicollinearity and singularity, and the normality, linearity and homoscedasticity of residuals (Tabachnik and Fidell, 2007).

2.6.3.3.1. Ratio of cases to independent variables

A formula for calculating the requisite number of cases-to-Independent variables ratio is $N \geq 50 + 8m$, where m is the number of Independent variables (Tabachnik and Fidell, 2007). In the present case this equates to a minimum requirement of 106 cases based on the 7 Independent variables that are to be entered. The present sample provides 264 cases and so meets this assumption.

2.6.3.3.2. Univariate and multivariate outliers

Univariate outliers were screened for using z values, with a greater absolute value of 3.29 indicating an outlying score (Tabachnik and Fidell, 2007); this resulted in two cases being removed. Multivariate outliers were screened for using Mahalanobis distance at $P < .001$. Mahalanobis distance is evaluated with Chi-squared degrees of freedom equal to the number of variables, in this case, 7, giving a critical value of 24.322, as a result a further 2 cases removed.

2.6.3.3.3. Singularity and squared multiple correlation

The researcher then checked for singularity amongst the Independent variables using a correlation matrix (Tabachnik and Fidell, 2007) – see Table 2.20 and found no evidence of this. SPSS, as with many programs, provides an error message in the case of squared multiple correlations amongst

Independent variables (Tabachnik and Fidell, 2007); as no errors were provided it was assumed that there was an absence of squared multiple correlations.

2.6.3.3.4. Normality, Linearity and Homoscedascity

The researcher finally proceeded to screen data for *normality, linearity and homoscedascity*. The researcher checked for normality of distributions of the independent variables and dependent variables using visual checks, which are more appropriate with a high sample size (Tabachnik and Fidell, 2007). These revealed a largely normal distribution (see Figures 2.4, 2.5, 2.6 and 2.7).

Figure 2.4: Frequency of scores for the dependent variable SHARE

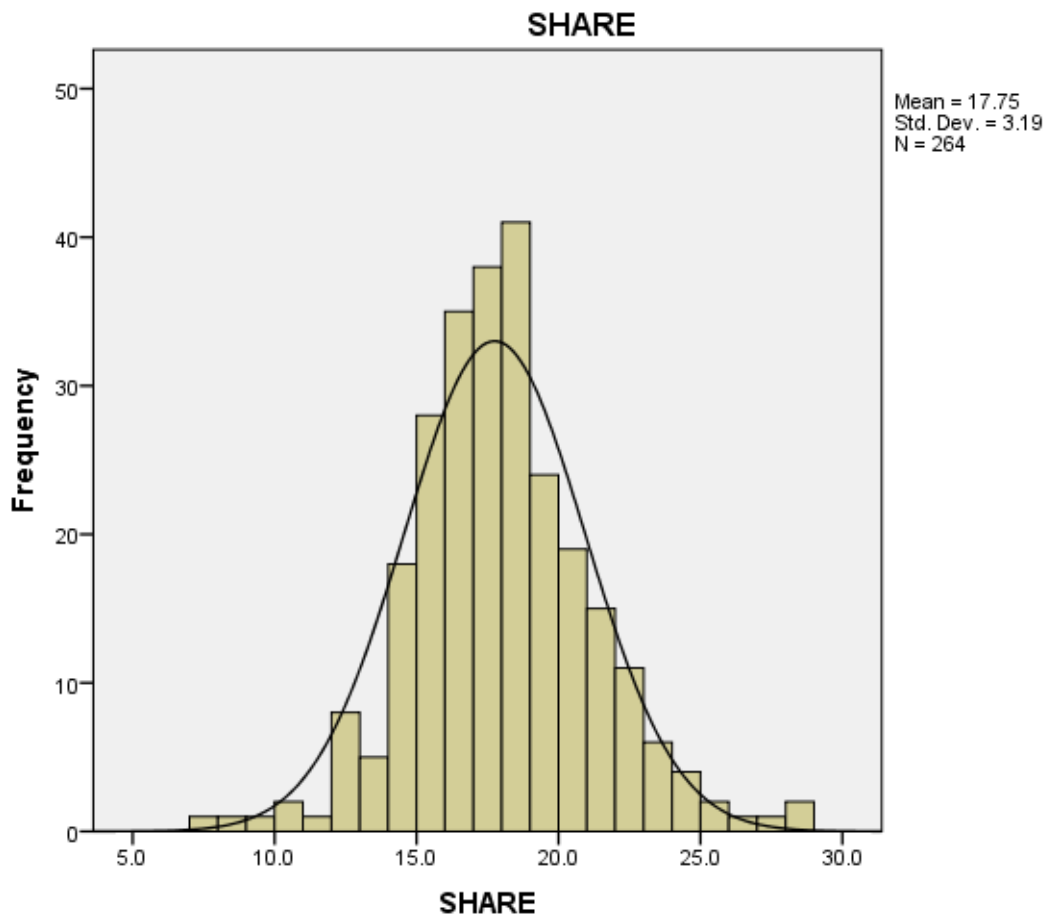


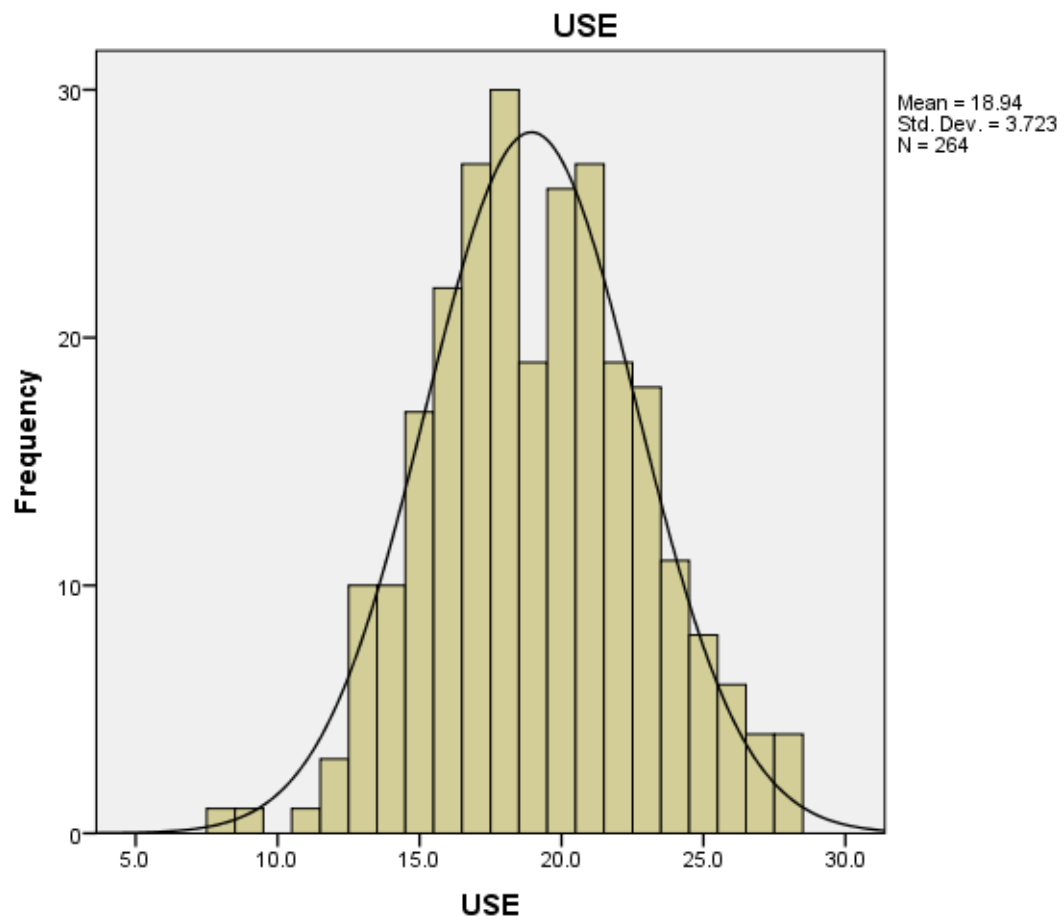
Figure 2.5: Frequency of scores for the dependent variable USE

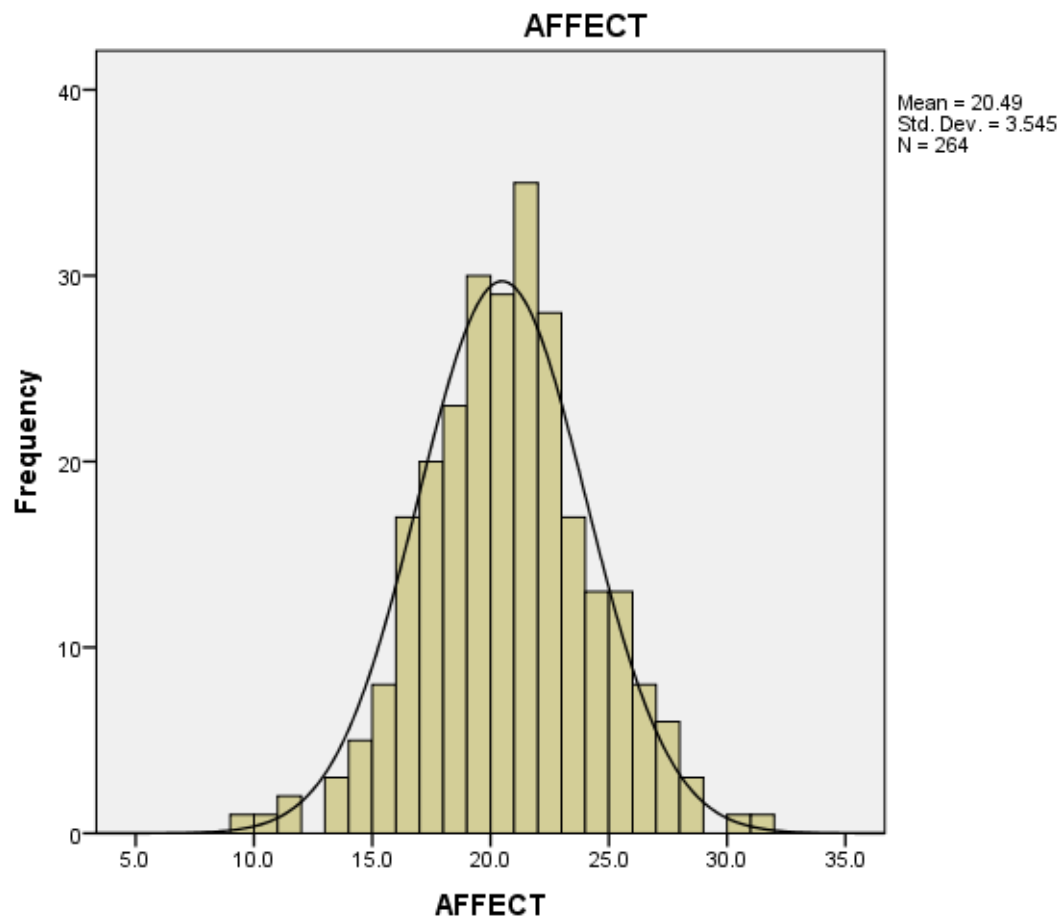
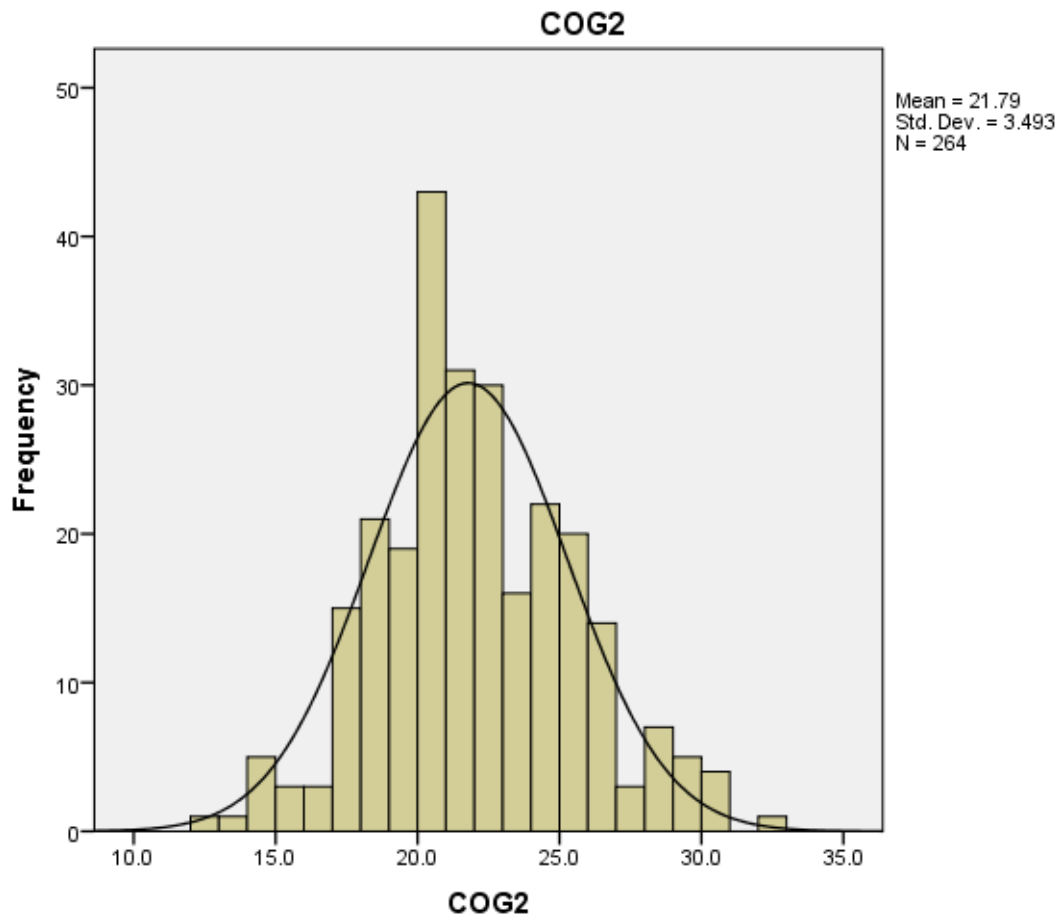
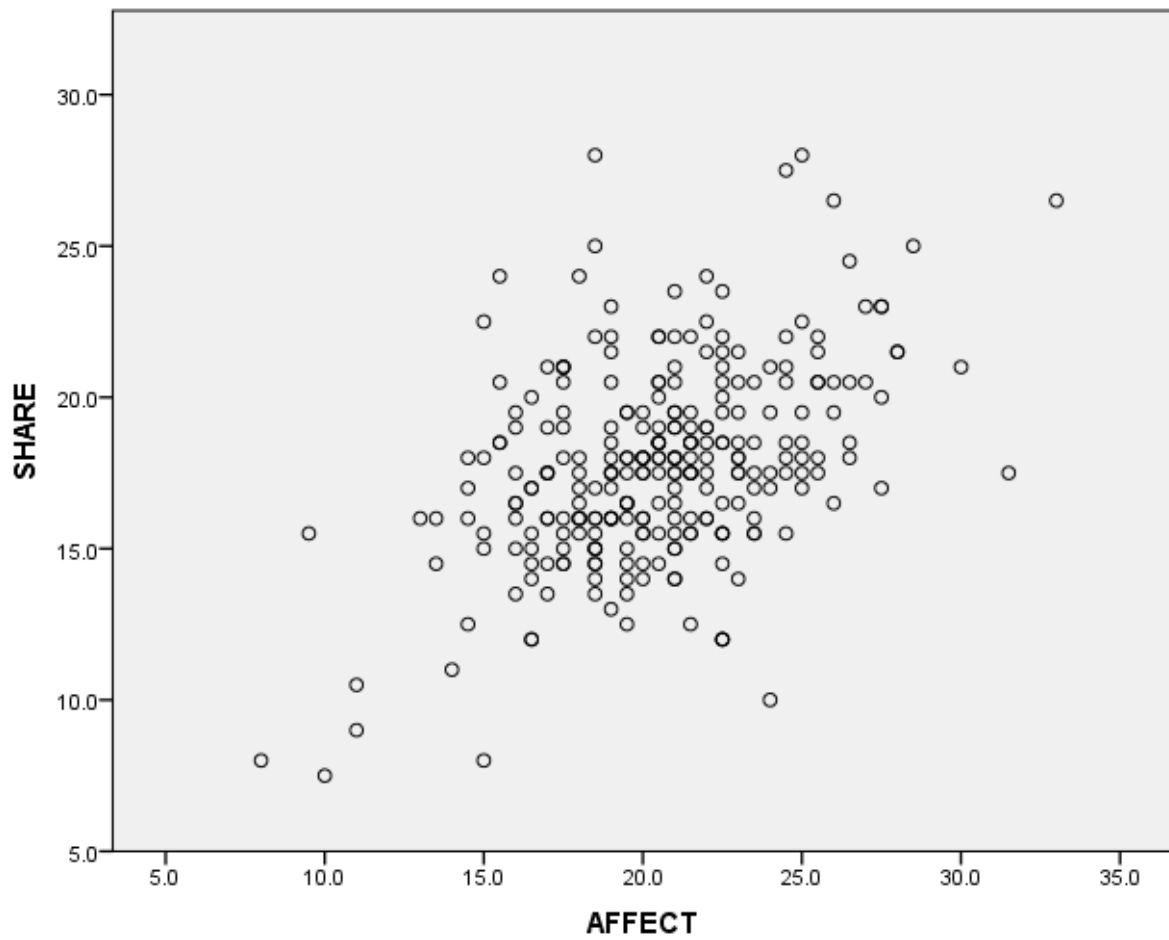
Figure 2.6: Frequency of scores for the independent variable AFFECT

Figure 2.7: Frequency of scores for the independent variable COGNITION

The researcher then checked bivariate scatter plots to determine linearity and homoscedasticity. The variables passed these checks - producing oval-shaped scatter plots with a bulging around the middle (Tabachnik and Fidell, 2007) see Figure 2.8 for an example.

Figure 2.8: Bivariate scatter-plot of the SHARE and AFFECT variables



The following sub-section presents the descriptive statistical analysis of the data.

2.6.4. Descriptive statistics

Within this section a descriptive statistical analysis of the collected data are presented. These findings provide an overview of the demographic profile of the sample, and highlight the willingness of the respondents to share and use tacit knowledge during group work, and the strength of the respondents' affect- and cognition-based trust relationships during group work.

2.6.4.1. Demographics

2.6.4.1.1. Age

The age of participants ranged between 18 and 35 (see Table 2.12) and the mean age of participants was 21.88 years of age. This is not surprising given that the sample consists of a large number of postgraduates (see below). Although the mean age is 21.88, 82.9% of participants fall with the age range of 19 – 24.

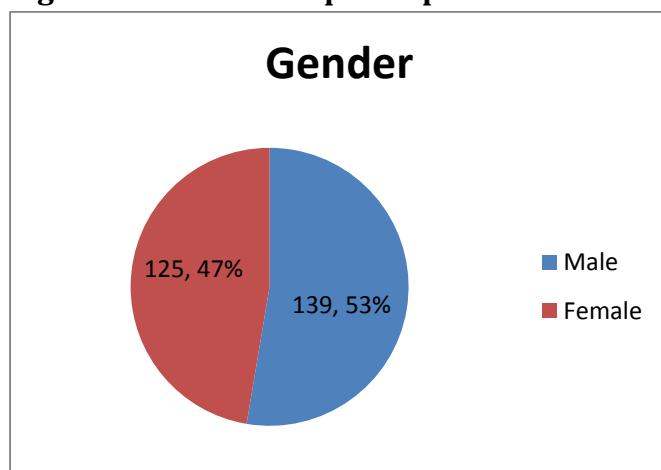
Table 2.12: Age of participants

	<u>N</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>SD.</u>
Age	264	18	35	21.88	2.76

2.6.4.1.2. Gender

There is a fairly even proportion of male and female participants within the study (see Figure 2.9), however the majority are male (52.7%, n=139).

Figure 2.9: Gender of participants



2.6.4.1.3. Year of study and country of origin

Participants within the study were enrolled at all undergraduate and postgraduate levels. However, the majority of students (n= 194, 73.4%) were undergraduates and the majority of participants (n=84, 31.81%) in the sample were in their third year of undergraduate study.

The majority of the students within the sample originate from overseas countries (n=155, 58.7%) with the minority originating from Home/EU countries (n=109, 41.3%).

The following table (2.13) presents a cross-tabulation of participants' year of study against their country of origin.

Table 2.13: Year of study and country of origin

	N	Home/EU	Overseas
Undergraduate Year 1	65	31	34
Undergraduate Year 2	45	24	21
Undergraduate Year 3	84	37	47
Postgraduate	70	7	63

It is evident from Table 2.13 (above) that there is a fair representation of students from Home/EU and Overseas countries at the undergraduate level. A sizeable majority of postgraduate students within the sample (n=63, 90%) were from overseas countries.

2.6.4.2. Descriptive statistical analysis of participant's responses to questions measuring interpersonal trust relationships

The following table (2.14) presents the collated responses to the five questions that asked participants to self-report on their affect- and cognition-based trust relationships during group work. These questions asked students to respond to statements on a seven-point Likert scale where 1= 'Strongly disagree' and 7 = 'Strongly agree'. Thus, the potential minimum and maximum ranges for the scores fall between 5 and 35 giving a mid-point of 20.

Table 2.14: Descriptive analysis of students affect- and cognition-based trust relationships

	<u>N</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>SD.</u>
Affect	264	9.50	31.50	20.49	3.55
Cognition	264	12.50	32.50	21.79	3.49

It is clear from the means for each measurement that participants within the sample have moderate affect- and cognition-based trust relationships with their peers. However, the standard deviation

suggests that there is some variation and that some may have greater or weaker affect- and cognition based trust relationships. Further, it is evidenced within the table that participants within the study have slightly stronger cognition-based trust relationships than affect-based trust relationships, highlighting that students are somewhat more likely to judge their group mates to be dependable, reliable and competent (McAllister, 1995) than they are to hold warm, friendly feelings towards them (McAllister, 1995).

The following table (2.15) displays participants' mean scores for the questions measuring interpersonal trust relationships during group work, categorised according to gender. It is evident from the mean scores and standard deviations that there is little difference between participants' affect- and cognition-based trust relationships based on gender. It is also evident that both male and female participants had stronger cognition-based than affect-based interpersonal trust relationships when engaged in group work.

Table 2.15: Participants' interpersonal trust relationships by gender

	<u>Mean</u>	<u>SD</u>
Male - Affect	20.66	3.72
Male - Cognition	25.73	3.30
Female - Affect	20.29	3.35
Female - Cognition	25.41	3.15

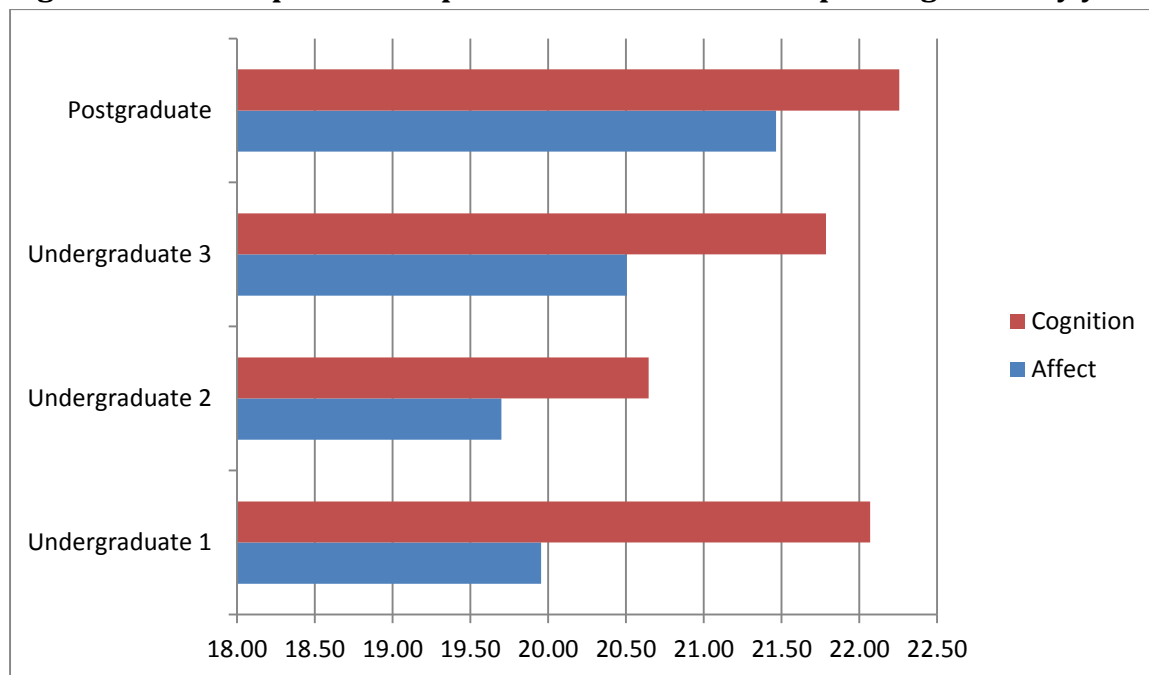
The following table (2.16) displays the mean scores for participants' affect- and cognition-based interpersonal trust relationships during group work according to country of origin. The table reveals that while participants within both groups have stronger cognition-based interpersonal trust relationships during group work, this difference is larger for participants originating from Home/EU countries.

Table 2.16: Participants' interpersonal trust relationships by country of origin

	<u>Mean</u>	<u>SD</u>
HomeEU - Affect	19.17	3.20
HomeEU - Cognition	25.64	3.29
Overseas - Affect	21.42	3.49
Overseas - Cognition	25.53	3.19

The following bar chart (Figure 2.9) presents the mean scores for participants' affect- and cognition-based trust relationships during group work according to year of study. It is evident that postgraduate participants within the sample reported greater affect- and cognition-based trust relationships during group work than their undergraduate counterparts. Figure 2.9 also makes clear that participants across all year groups have stronger cognition than affect-based trust relationships with their peers - and this is most apparent in participants who are first year undergraduates.

Figure 2.9: Participants' interpersonal trust relationships categorised by year



Mean scores for questions that measure affect- and cognition-based trust $n = 264$, SD as follows: Postgraduate Cognition = 3.98, Postgraduate Affect = 3.60, Undergraduate 3 Cognition = 2.86, Undergraduate 3 Affect = 3.39, Undergraduate 2 Cognition = 3.45, Undergraduate 2 Affect = 3.52, Undergraduate 1 Cognition = 3.33, Undergraduate 1 Affect = 3.47

2.6.4.3. Descriptive statistical analysis of participants' responses to questions measuring willingness to share and use knowledge

The following table (2.17) presents collated responses to the questions that asked participants to self-report their willingness to share and use knowledge during group work. These questions asked students to respond to statements on a seven point Likert scale where 1= 'Strongly disagree' and 7 = 'Strongly agree'. Thus, potential minimum and maximum ranges for the scores fall between 4 and 28, giving a mid-point of 16.

Table 2.17: Descriptive analysis of students willingness to share and use tacit knowledge

	<u>N</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>SD.</u>
Share	264	7.5	28.0	17.748	3.1904
Use	264	8.0	28.0	18.941	3.7227

It is clear from the means for each measurement that participants within the sample are more likely than not to be willing to share and use tacit knowledge. However, the standard deviation suggests that there is some variation with respect to willingness to share and use tacit knowledge, and that some may be more or less likely to do so. Further, it is evidenced within the table that participants with the study are more willing to use tacit knowledge gained during group work than they are to share it.

The following table (2.18) demonstrates participants' willingness to share and use tacit knowledge according to their gender. It is evident that there is little difference between male and female participants' willingness to share and use knowledge. Further, it is clear that both male and female participants are more willing to use knowledge during group work than share it.

Table 2.18: Participants' willingness to share and use knowledge by gender

	<u>Mean</u>	<u>SD</u>
Male - Share	17.88	2.92
Male - Use	19.00	3.61
Female - Share	17.60	3.48
Female - Use	18.88	3.85

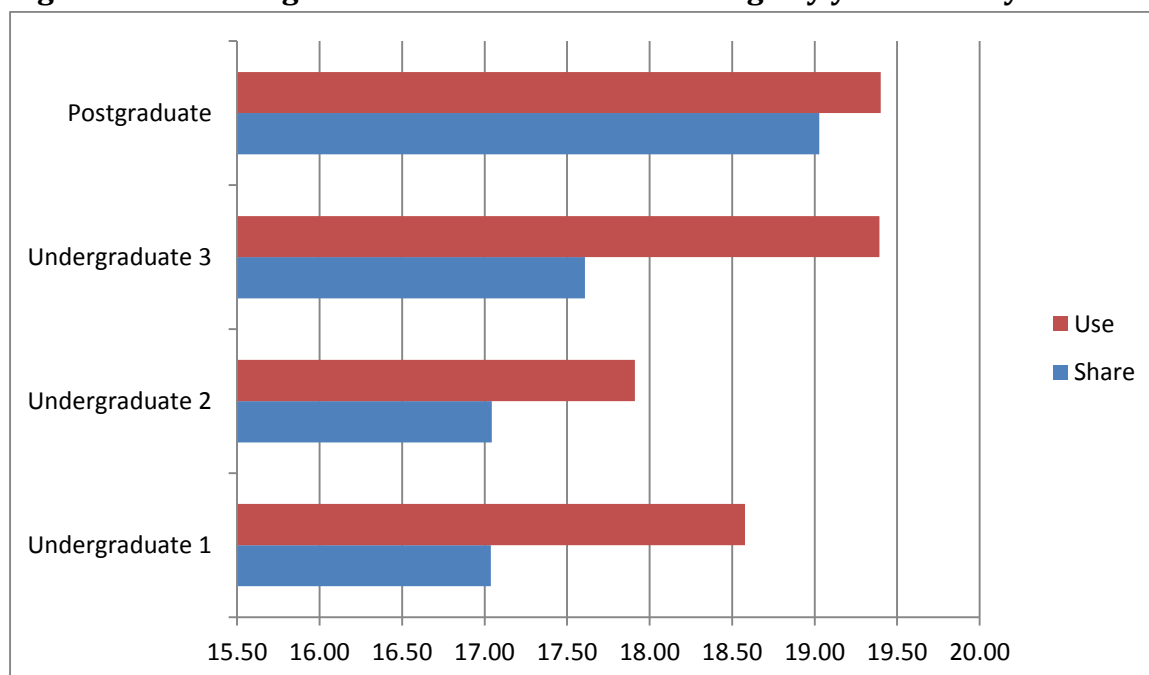
The following table (2.19) displays the mean scores for participants' willingness to share and use tacit knowledge according to country of origin. The table reveals that while participants within both groups are more willing to use than share knowledge, this difference is larger for participants originating from Home/EU countries.

Table 2.19: Participants' willingness to share and use knowledge by country of origin

	<u>Mean</u>	<u>SD</u>
HomeEU - Share	17.06	2.95
HomeEU - Use	18.91	3.64
Overseas - Share	18.23	3.27
Overseas - Use	18.96	3.29

The following bar chart (Figure 2.10) presents the mean scores for participants' willingness to share and use knowledge according to year of study. It is evident that postgraduates and undergraduate third years within the sample reported a greater willingness to share and use knowledge than their second or first year undergraduate counterparts. Further, it is clear that a greater willingness to share knowledge is reported amongst postgraduate and third year undergraduates within the sample.

Figure 2.10: Willingness to share and use knowledge by year of study



Mean scores for questions that measure willingness to share and use tacit knowledge $n = 264$, SD as follows: Postgraduate Use = 3.47, Postgraduate Share = 2.62, Undergraduate 3 Use = 3.18, Undergraduate 3 Share = 2.91, Undergraduate 2 Use = 4.07, Undergraduate 2 Share = 3.41, Undergraduate 1 Use = 3.75, Undergraduate 1 Share = 3.25

Figure 2.10 also makes clear that there is a greater willingness to use tacit knowledge gained during group work than there is to share tacit knowledge. However, this is most apparent with respect to participants within the first, second and third undergraduate years.

Overall, participants within the sample report a greater than average (with a mid-point of 16) willingness to share and use tacit knowledge.

The following sub-section presents the statistical analysis of the data.

2.6.5. Statistical analysis

This section describes the results of the statistical procedures undertaken to test the research hypotheses and answer the research questions. First, the correlations between the research constructs are described and the two multivariate regression models that test the research hypotheses are presented.

2.6.5.1. Correlation of research variables

The following table (2.20) demonstrates the Pearson-correlation co-efficient of the variables. All variables are positively and significantly correlated at $P < 0.01$ level, demonstrating that there is a significant and positive association between the dependent and independent variables. Based on the wealth of literature that has described such an association between interpersonal trust and knowledge sharing within the knowledge management literature (see section 2.4), it is unsurprising that this relationship has been found.

Table 2.20: Correlation of research variables

Variable		Share	Use	Affect	Cognition
Share	Pearson Correlation	1	.652**	.427**	.471**
	Sig. (2-Tailed)				
	N	264	264	264	264
Use	Pearson Correlation	.652**	1	.340**	.487**
	Sig. (2-tailed)	.000		.000	.000
	N	264	264	264	264
Affect	Pearson Correlation	.427**	.340**	1	.602**
	Sig. (2-tailed)	.000	.000		.000
	N	264	264	264	264
Cognition	Pearson Correlation	.471**	.487**	.602**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	264	264	264	264

** Correlation is significant at the 0.01 level (2-tailed).

While there is a positive and significant association between affect- and cognition-based trust and willingness to share and use tacit knowledge during group work, this relationship is evidently stronger with respect to cognition-based trust. This provides initial evidence that this form of

interpersonal trust is likely to be of greater import in predicting willingness to share and use tacit knowledge during group work.

2.6.5.2. Multivariate regression analyses

The following table (see 2.21) presents the results of the two multivariate regression models. Both models were statistically significant at the 1% level. The models accounted for 27.8% and 24.5% of participants' willingness to share and use tacit knowledge during group work respectively.

Table 2.21: Multivariate regression analysis of knowledge sharing and use

<u>Dependent Variable</u> <u>Independent Variables</u>	<u>Share</u>			<u>Use</u>		
	Beta	t-stat	Sig.	Beta	t-stat	Sig.
(Constant)	6.356	4.901	.000	5.552	3.588	.000
AFFECT	.186	2.709	.007	.095	1.356	.176
COGNITION	.351	5.287	.000	.439	6.460	.000
Male	.076	1.426	.155	.027	.505	.614
HomeEU	-.006	-.103	.918	.123	2.009	.046
UG2	.063	1.007	.315	.013	.207	.836
UG3	.088	1.319	.188	.136	2.003	.046
PG	.234	3.323	.001	.130	1.801	.073
	<u>Model Summary</u>			<u>Model Summary</u>		
Observations	264			264		
Adjusted R²	0.278			0.245		
	F (7,113) = 15.46 Prob > F = 0.000			F (7, 138) = 13.20 Prob > F = 0.000		

It is evident from both models than only one variable – cognition-based trust is a significant and positive predictor of students' willingness to share and use knowledge. Thus, both hypotheses H1a and H1b are supported:

- H1a: Cognition-based trust is significantly and positively related to students' willingness to share tacit knowledge
- H1b: Cognition-based trust is significantly and positively related to students' willingness to use tacit knowledge

However, affect-based trust was found to be a positive but not significant predictor of students' willingness to share and use tacit knowledge and thus hypotheses H2a and H2b were unsupported:

- H2a: Affect-based trust is significantly and positively related to students' willingness to share tacit knowledge
- H2b: Affect-based trust is significantly and positively related to students' willingness to use tacit knowledge

Further, it is evident from the Table 2.21 that participants' year of study (when compared to the reference group of participants in their first year of study) is a positive predictor of students' willingness to share and use knowledge. However, this relationship is only positive with respect to one variable - PG – which is significant at the 5% level. Thus, the results demonstrate that participants within the study who are enrolled on postgraduate taught courses are more willing to share tacit knowledge during group work compared to their colleagues within their first year of study. Based on these findings, hypothesis H3a is partially supported:

- H3a: There is a significant relationship between students' year of study and their willingness to share tacit knowledge

While hypothesis H3b is unsupported:

- H3b: There is a significant relationship between students' year of study and their willingness to use tacit knowledge

The models also revealed that nationality (originating from a Home/EU countries when compared to the reference group of being an Overseas student) was a negative but not significant predictor of willingness to share knowledge, and a positive but not significant predictor willingness to use tacit knowledge. Thus, hypotheses H4a and H4b are unsupported:

- H4a: There is a significant relationship between students' national culture and their willingness to share and use tacit knowledge
- H4b: There is a significant relationship between a students' national culture and their willingness to share and use tacit knowledge

Finally, the table demonstrates that gender (being male compared to the reference group of females) is a positive but not significant predictor of students' willingness to share and use knowledge. Thus, hypotheses H5a and H5b are not supported.

H5a: There is a significant relationship between students' gender and their willingness to share tacit knowledge

H5b: There is a significant relationship between a students' gender and their willingness to use tacit knowledge

The following section presents a discussion of these findings.

2.7. Discussion

This section is comprised of three sub-sections. First, answers to the two research questions are provided, and the findings with regards to demographic factors are considered. These are considered in turn and compared and contrasted with the relevant literature. Where appropriate, explanations for the findings are also presented. Second, the implications of the findings for educators and scholars are discussed. Finally, the limitations of this work and opportunities for future research are presented.

2.7.1. Research question 1: To what extent are students willing to share and use tacit knowledge during group work?

Considering the entire sample, the mean scores for both measures on both scales were somewhat higher than their mid-points for both scales, with willingness to share tacit knowledge = 17.75 and willingness to use tacit knowledge = 18.94, compared to a midpoint of 16. Since the standard deviations for these measures (willingness to share = 3.19 and willingness to use = 3.72) are low, it is evident that the general propensity of the sample is around the mid-point, suggesting a certain apathy towards knowledge sharing and use.

As detailed in Table 2.18 it is clear that male participants are more willing to use and share tacit knowledge than their female counterparts - and participants of both genders reported a greater willingness to use than share tacit knowledge during group work. As evidenced in Table 2.19 the same can be said with respect to participants whose country of origin is Overseas compared with their counterparts from Home and EU countries. It was also found (see Figure 2.10) that postgraduate participants were more willing to share and use tacit knowledge than their undergraduate counterparts. However, it is also noted that postgraduate participants were primarily from overseas countries.

The overall findings are that regardless of the level of analysis (total sample, gender, country of origin, year of study) it is evident that students within the sample reported being more willing to use than share tacit knowledge during group work. The differences between mean scores for the two measures are minor, and it was found that participants within the sample were only moderately willing to use and share tacit knowledge during group work.

The moderate extent to which participants within the sample reported willingness to share tacit knowledge is somewhat surprising. Indeed, Chikoore and Ragsdell (2013) note in their study that undergraduate business students within the UK have positive perceptions of knowledge sharing activity. Positive perceptions of knowledge sharing activity has also been reported amongst students

in Singapore (Yuen and Majid, 2007), Saudi Arabia (Yaghi et al, 2011), Malaysia (Wei et al, 2012) and Bangladesh (Rahman et al, 2014). However, it is noted that a positive perception of knowledge sharing cannot be conflated with a willingness to share tacit knowledge during group work.

It might be argued that participants within the sample are more willing to use rather than share knowledge, because the use of tacit knowledge may involve some perceived gain. *Prima facie* it would appear to follow that using the tacit knowledge gained from others (if it is judged to be pertinent and valuable) may lead to gain in the form of increased attainment or learning during group work. Indeed, the importance of attainment as a motivation for students within higher education has been demonstrated in a number of studies (Dweck, 1986; Pintrich and Schunk, 1996; Busato et al, 2000). However, the overall moderate extent to which participants were willing to use tacit knowledge during group work is harder to explain. However, it is arguable that it is based on a perception of the limited utility of the knowledge gained (see 2.7.2 for discussion).

A number of explanations can be offered for the overall moderate extent to which participants were willing to share tacit knowledge during group work can. The knowledge management literature is replete with barriers to knowledge sharing including fear (Hislop, 2009), material barriers (Alwis and Hartmaan, 2008), and a lack of incentives (Davenport and Prusak, 1998; Ehin, 2008). Further, one of the most common barriers listed is a general apathetic attitude towards knowledge sharing (Wang 2006; Alwis and Hartmann 2008). Moreover, the literature that examines knowledge sharing amongst student populations also provides some potential explanations, including a fear of plagiarism, and not wanting to provide assistance to others (Chikoore and Ragsdell, 2013), the existence of a non-conducive university culture (Yuen and Majid, 2007), and a fear of being misunderstood, especially amongst overseas students (DeVita, 2000). Further, it has been argued that sharing knowledge can be a difficult and time consuming task (Nonaka and Takeuchi, 1995; Ehin, 2008), and so arguably, a lack of willingness to share knowledge amongst participants may be based on such considerations.

2.7.2. Research question 2: Is there a relationship between students' interpersonal trust relationships and their willingness to share and use tacit knowledge during group work?

To answer this research question two multivariate regression models (Model 1 and 2) were constructed (see Table 2.21). Both models were statistically significant at the 1% level and accounted for 27.8% and 24.5% of the willingness to share and use tacit knowledge during group work.

Within Model 1 cognition-based trust was found to be a significant (at the 1% level) and positive predictor of willingness to share tacit knowledge, as was being in the postgraduate year of study (at the 5% level). Affect-based trust was a positive but not significant predictor. Within Model 2, cognition-based trust was found to be a significant (at the 1% level) and positive predictor of willingness to use tacit knowledge while affect-based trust was found to be a positive but not significant predictor.

Thus, research question 2 is answered in the affirmative – there is indeed a relationship between students' interpersonal trust relationships and their willingness to share and use knowledge. Cognition-based trust was shown to be a positive predictor of knowledge sharing and use.

With regards to willingness to share knowledge, these findings are partially consistent with the knowledge management literature that highlights the importance of cognition-based trust as an antecedent of tacit knowledge sharing (Holste and Fields, 2010; Chowdhury, 2005; Lucas, 2005). However, those same studies also find that affect-based trust is an antecedent of knowledge sharing – and so the findings of this work are (to an extent) at odds with those of the wider knowledge management literature.

For example, these findings are partially consistent with Chowdhury's (2005) study which found that affect- and cognition-based trust were positive and significant predictors of complex knowledge sharing amongst part-time MBA students in the higher education setting. Similarly, the findings are consistent with the work of Lin's (2007) study that examined knowledge sharing amongst undergraduate students with work experience – Lin's (2007) study can be interpreted as showing that cognition-based trust is an important antecedent of tacit knowledge sharing.

The findings of the work are also consistent with those pedagogic studies that demonstrate and argue for the general importance of trust as a precursor for knowledge sharing (see for example, Lejk and Wyvil, 2002; Remedios, Clarke and Hawthorne, 2008; Matveev & Milter, 2010; Chikoore and Majid and Wey, 2011; Zaqout and Abbas, 2012; Ragsdell, 2013). However, the work is at odds with the arguments offered by pedagogic scholars who have argued for the importance of interpersonal trust relationships between students that are consistent with McAllister's (1995) notions of affect-based trust (see for example, DeVita, 2000; Sampson and Cohen, 2001a)

With regards to knowledge use, the findings of this work are again partially consistent with the knowledge management literature. Results of studies by Holste and Field (2010) and Lucas (2005) demonstrate that cognition-based trust is significantly and positively related to willingness to use tacit knowledge within organisations. Within the pedagogic literature, Smith's (2008, 2010) studies

of students engaged in online collaboration highlight the importance of cognition-based trust as an antecedent for willingness to use knowledge – knowledge use was impeded when there was a lack of such trust between students.

Thus, the key contrast between the findings of this work and the studies by other scholars is that affect-based trust was not found to be a significant and positive predictor of either willingness to share and use tacit knowledge during group work.

Given the strength of prior empirical evidence and the conceptual support for the importance of affect-based trust in both streams of literature examined, this is a surprising finding. If this finding is replicated in future research (see section 2.7.6), then new research may be able to provide detailed and compelling explanations of why affect-based trust is not a significant and positive predictor of willingness to share knowledge within this context. However, even in the absence of such work explanations may be offered.

First, it could be contended that this finding is intuitive depending on students' ultimate goal in knowledge sharing. The literature highlights that individuals often engage in knowledge sharing with the expectation of reciprocity (Hislop, 2009; Wei et al, 2012; Rahman et al, 2014) – further support for this view is that students have often been shown to be primarily motivated by attainment (Dweck, 1986; Pintrich and Schunk, 1996; Busato et al, 2000). Thus, arguably, students may place greater value on cognition-based trust relationships because they are willing to engage in knowledge sharing with the expectation of reciprocity.

Second, as indicated by these findings, it may be that for full-time students (as opposed to part-time professionals, or knowledge workers within industry) the act of knowledge sharing and use does not fall within the friendship domain. Thus, tacit knowledge sharing and use are not influenced by mutual care and concern between individuals because the working dynamic is not impacted by such a relationship.

Third, the argument that affect-based trust is an important antecedent for knowledge sharing is based on the view that warm relationships based on mutual care and concern can help to overcome such barriers to knowledge sharing as fear of losing face (Remedios, Clarke and Hawthorne, 2008; Hislop, 2009; Chikoore and Ragsdell, 2013). Thus, a potential explanation for this finding is that within the sample studied such barriers did not exist.

Clearly, further work is necessary to further investigate and explore these findings.

2.7.3. Demographic factors

Demographic factors have been largely ignored within the knowledge management literature that has examined knowledge sharing (Connelly and Kelloway, 2003). The findings of the present work found that within Model 1, postgraduate study was a significant (at the 5% level) and positive predictor of willingness to share tacit knowledge during group work. However, no other demographic factors were found to be significant predictors in either model.

This finding is partially consistent with the findings of the knowledge management and pedagogic literature which reveals mixed results with respect to the relationship between demographic factors and knowledge sharing. For example, with respect to year of study, Chikoore and Ragsdell (2013) found that students' year of study showed no linear relationship with perceptions of knowledge sharing. In the present work, being a postgraduate student (when compared to the reference group of first year undergraduates) was found to be a positive and significant predictor. A number of explanations for this finding can be advanced. For example, the length of time within university may increase one's propensity to share knowledge – but only if positive experiences of knowledge sharing have occurred.

With regards to national culture, a number of studies have found that national culture can influence knowledge sharing and use behaviours (see for example, Rivera-Vazquez, Ortiz-Fournier and Flores, 2009; Ardivichli, Page and Wentling, 2006) and many studies within the pedagogic literature have commented on the importance of national culture and the manner in which it may influence behavioural norms relevant to knowledge sharing (see for example, DeVita, 2000; Hwang and Kim, 2007; Popov et al, 2012). Within this study, no relationship was found between country of origin and willingness to share and use knowledge.

Gender has also received some examination within the knowledge management literature. The findings of the present study are consistent with those studies that find no significant relationship between gender and knowledge sharing (Bryant, 2003; Cabrera, Collins and Salgado, 2006).

The conclusion drawn from this is that for the most part, demographic factors are not a significant predictor of willingness to share and use knowledge within the sample studied.

The implications of these findings for educators and scholars are considered below.

2.7.4. Implications for educators

The findings of the study have three principal implications for those practitioners who are concerned with maximizing tacit knowledge sharing and use during group work.

First, educators should design pedagogic activities that maximize the potential for cognition-based trust to develop between students. Interpersonal trust relationships develop over time (Lyons and Mehta, 1996; Huxham and Vangen, 2004) and those activities that provide opportunities for cognition-based trust to develop will necessarily require students to demonstrate their skill, dependency and reliability to each other. Somewhat ironically, this suggests that group work be employed as a method of developing cognition-based trust relationships between students as group work activities provide such opportunities. However, it is recognized that students may only demonstrate such abilities and traits to one another if they do actually possess them. Arguably, it is necessary to both develop and nurture such characteristics within students – and then allow them to demonstrate these to each other. Following this line of argument it may be contended that group work is not used for a means of tacit knowledge sharing until the educator believes that students have achieved a suitable level of competence, and that cognition-based trust relationships can be developed between students.

Second, much of the literature on group work has considered how student groups should be allocated, and the manner in which their composition should be determined (see Chapter 3 for a detailed discussion). The findings of this work indicate that when designing groups to maximize tacit knowledge sharing and use, educators should allocate individuals based on their levels of cognition-based trust with less concern for affect-based trust relationships.

Finally, demographic factors were found to have little influence on willingness to share and use tacit knowledge - with the exception of year of study, in which being a postgraduate student was a significant and positive predictor of willingness to share tacit knowledge. Thus, when tacit knowledge sharing is a desired outcome, educators may emphasise the use of group work with postgraduate students

2.7.5. Implications for scholars

Few extant works have examined the influence of interpersonal trust relationships on students' willingness to share and use tacit knowledge during group work using analytic statistical methods. Those that have make use of student samples with significant work experience (Chowdhury, 2005, Lin, 2007) and none have done so within the context of the UK higher education. Thus, the primary

contribution of this work is that it provides insights into students' willingness to share and use tacit knowledge during group work within a relatively novel context and with a relatively novel sample.

The key finding that has implications for both knowledge management and pedagogic scholars is that while cognition-based trust was found to be a positive and significant predictor of willingness to share and use tacit knowledge during group work, affect-based trust was positive but not significant.

This is a novel finding as it runs contrary to the accepted wisdom within the knowledge management literature that points to the importance of the both affect- and cognition-based interpersonal trust relationships.

For pedagogic scholars such as DeVita (2000), Sampson and Cohen (2001a) who have argued for the importance of warm interpersonal relationships between students these findings suggest that such claims may have been over exaggerated.

2.7.6. Limitations and suggestions for future research

The present study has a number of limitations which present opportunities for future research.

First, the evidence presented in this study supports the view that cognition-based interpersonal trust relations are a significant and positive predictor of willingness to share tacit knowledge during group work, while affect-based interpersonal relationships are not. However, a gap still remains in the literature - it is still unclear precisely why this is so, and future research may address this issue. Future work may take the possible explanations advanced in the previous sections as a point of departure. Furthermore, the models examining students' willingness to share and use tacit knowledge during group work accounted for 27.8% and 24.5% of the variance respectively. This suggests that the greater part of the variance in the propensity to engage in these behaviours must be attributed to other causes. Those interested in exploring knowledge sharing and use amongst students during group work activities may wish to undertake exploratory research to determine the key motivators and barriers to knowledge sharing within this context.

Second, the cross-sectional nature of the study means that it is not possible to determine the causal direction of the relationships found (Bryman and Bell, 2011). However, the extant literature on interpersonal trust relationships and tacit knowledge sharing would indicate that interpersonal trust is likely to be an antecedent. Future research may undertake one of the experimental designs (discussed in section 2.5) to further substantiate the findings, and provide further evidence as to the causal direction of the phenomena.

Third, since the findings were based on a single case (business and management students within Bangor Business School), it is not necessarily the case that the findings will be replicated in other contexts. Future research may attempt to replicate the study in different higher education contexts. Future higher education contexts to be explored may differ based on such factors as student demographics, course type, and location of universities.

Finally, a broad definition of group work was advanced within this exploratory study. Thus, when completing the questionnaire, students may have been considering and reflecting upon very different types of group work activity. For example, some may have been considering formative in class work, while others were considering summative assessed group work that took place over the course of the semester. Future research may choose to replicate the study, drawing distinctions between the types of group work undertaken by students. There is theoretical support for the notion that student behaviours change depending on the type of work they are engaged in. For example, Pitt's (2000) application of game-theory to students' group work suggested that where the goal of the group was to achieve the maximum mark for assessed group work (assuming a shared mark), the most rational choice for all group members would be to allow the most competent and intelligent group member to do the majority of the work, and make the important decisions.

2.8. Summary conclusion

Few studies have examined students' interpersonal trust relationships, as an antecedent of their knowledge sharing and use behaviours during group work. Extant work on the topic is based on part time students, or those with significant industry experience, or these studies have been conducted outside of the UK higher education context.

This work was undertaken to meet this gap in the literature and provide answers to two primary research questions:

1. To what extent are students willing to share and use tacit knowledge during group work?
2. Is there a relationship between students' levels of interpersonal trust and their willingness to share and use tacit knowledge gained from peers during group work?

To provide answers to these questions all students who were enrolled on, or had completed, taught programmes at Bangor Business School during the 2010/2011 academic year were invited to participate in a survey. The survey measured willingness to share and use tacit knowledge during group work using a modified version of Holste and Fields (2010) instrument, and affect- and cognition-based trust relationships were measured using a modified version of McAllister's (1995) instrument. A total of 264 useable responses were collected, giving an overall response rate of 20.49%.

There two principal findings of this work are that: (i) students within the sample were only moderately willing to share and use tacit knowledge during group work, and this is evident across year of study, gender and country of origin groupings. (ii) cognition-based interpersonal trust relationships were a significant and positive predictor of students' willingness to share and use knowledge, while affect-based interpersonal trust relationships are a positive but not significant predictor of students' willingness to use knowledge. This latter finding is somewhat novel given that the extant literature within the knowledge management and pedagogic literatures highlights the importance of affect-based trust relationships as an antecedent for knowledge sharing within different contexts (see Chowdhury, 2005; Lucas, 2005; Holste and Fields, 2010).

Given the dearth of studies addressing the issue of knowledge sharing in the pedagogical literature, it is concluded that this research makes a small but important contribution to the literature. In addition, it is concluded that these research findings make an important contribution to practice and can assist educators in making informed decisions about managing group work to increase students' willingness to share and use tacit knowledge during group work.

Chapter 3: Student knowledge sharing during group work

3.1. Introduction

This study was funded by a Higher Education Academy (HEA) grant for the HEA Wales Enhancement Fund Project (grant number DCE 615) and the Bangor Business School. The work was conducted between May-July 2011, and explores how students engage in knowledge sharing during group work.

A summary of this research (Sambrook, Analoui and Doloriert, 2011) was published in a 2011 Higher Education Academy publication that collated the results of projects benefitting from the HEA Wales Enhancement Fund grants. In addition, a version of this research project was presented at the 2012 University Forum for Human Resource Development conference in Portugal, and a revised version has been published in the *International Journal of Management Education* – Analoui, Sambrook and Doloriert (2014).

The remainder of this chapter is organised as follows: First, the background to this research is presented. Second, the aims, objectives, and questions of this research project are described. Third, the rationale for conducting the present research is offered. Fourth, a review of the literature in the academic fields of pedagogy and knowledge management is offered. Fifth, the methodology of the research is described, and an account of the research philosophy and a defence of the approach, and methods adopted is presented. Sixth, the procedures of this project are presented. Seventh, the results of the work are contrasted and compared with previous findings, the researcher's answer to the central research question is supplied and the relevance of the findings for theorists and practitioners are explored. Finally, this chapter is closed with a summary conclusion.

3.2. Research background

Group learning has become an established part of academic programmes in many universities (Lejk et al., 1997; Li, 2001; Strauss, Alice and Young, 2011) and has potential benefits for educators as well as students. Of principal importance, group working has been argued to allow students to develop valuable skill sets experientially (Creswell, 1998; Bourner et al., 2001; Lejk and Wyvil, 2002) and provides an opportunity for “deep” learning (Freeman, 1995; Bourner et al., 2001), encouraging the retention of knowledge and a depth of understanding (Feldner and Brent, 1996). For educators, the use of group-based learning and assessment can be an efficient use of time (Livingstone and Lynch, 2000).

Although students' perceptions of group work can vary (Bourner et al., 2001; Hillyard et al., 2010), the researcher is strongly in favour of group work. The researcher contends that group work provides a space in which a student's individual skill-sets and experiences can be shared to increase the knowledge of other students within the group. This view is well supported, for example, Livingstone and Lynch (2000) promote group work as a method for the transfer of student skills, and Plastow, Spiliotopoulou and Prior (2010) highlight that group work has been widely recommended in the literature.

However, positive and successful experiences of knowledge sharing during group work are not guaranteed – examples of poor knowledge sharing experiences are evident within the literature. For example, Chikoore and Ragsdell's (2013) study of UK undergraduate students engaged in knowledge exchange behaviour during group work highlights that there are a number of barriers, including fear of plagiarism, and not wanting to provide assistance to others. Yaghi et al (2011) highlights that trust and university culture can act as barriers, although a sizeable majority of participants (73%) agreed that knowledge sharing amongst students is of benefit to all involved. Similarly, Yuen and Majid (2007) investigated motivations for undergraduate knowledge sharing in Singaporean public universities and found that a lack of motivation and reward were common barriers, whilst the opportunity to learn something new and achieve better understandings was seen as a motivator for others. DeVita (2000) notes that students are not always positive about multi-cultural student centred learning and suggests that a fear of being misunderstood may be a barrier for international students.

While the knowledge management literature is saturated with studies concerned with understanding and examining knowledge sharing and use behaviour, the same cannot be said of the pedagogic literature. To the researcher's best knowledge only a few studies have examined the knowledge sharing behaviour of students within higher education (Chowdhury, 2005; Lin, 2007;

Sackmann and Friesl, 2007; Yuen and Majid, 2007; Wangpipatwong, 2009; Hassandoust and Perumal, 2011; Majid and Wey, 2011; Yaghi et al, 2011; Wei et al, 2012; Zaqout and Abbas, 2012; Chikoore and Ragsdell, 2013; Chong, Teh and Tan, 2014; Rahman et al, 2014).

Importantly, only one study has examined knowledge sharing during group work within the UK (Chikoore and Ragsdell, 2013). However, Chikoore and Ragsdell's work does not present a detailed and in-depth qualitative examination of the phenomenon, and is largely descriptive. Thus, the present work has been undertaken to meet this gap in the literature.

3.3. Research aims, objectives and question

The principal aim of this research project is to gain an understanding of how students' interpersonal trust relationships impact their willingness to share tacit knowledge during group work. It is expected that an understanding of this phenomenon will garner insights into the manner in which students' tacit knowledge sharing and use, and engagement with group work activities can be increased. Additional aims include achieving an understanding of students' experiences and perceptions of undertaking group work, and the manner in which group work is conducted within Bangor Business School.

It is expected that the achievement of these aims will have implications for scholars, practitioners and the business and management community. For knowledge management and pedagogic scholars the study provides insights into the knowledge sharing propensities of students engaged in group work. There is a dearth of studies that address this phenomenon in the literature, and to the best knowledge of the researcher, none that have adopted an in-depth qualitative approach. For practitioners, the findings of this work should provide insights into students' preferences for group allocation, and their propensity to engage in tacit knowledge sharing activity, thus enabling educators to make more informed decisions when managing group work to increase student engagement in tacit knowledge sharing. For the business and management community, the findings of the work provide an overview of students' willingness to engage in tacit knowledge sharing behaviour while in groups, which may be of interest to those who wish to employ graduate labour in knowledge intensive industries.

In accordance with these aims, the main objectives of the research are to:

- Gain an understanding of students' experiences and perceptions of group work in Bangor Business School as a vehicle for sharing tacit knowledge.
- Determine the extent to which students are willing to share tacit knowledge with others during group work
- Determine the extent to which students are willing to use the tacit knowledge gained from others during group work
- Determine to what extent students believe their interpersonal trust relationships with their group-mates impacts upon their willingness to share knowledge during group work.
- Understand students' preferences for group allocation to inform curriculum design and delivery

The achievement of these objectives provides an answer to the overall research question:

- 1) Is there one best method of allocating students to groups when the purpose is to maximise tacit knowledge sharing?

3.4. Research rationale

The rationale for conducting this research is three-fold:

1. To the researcher's best knowledge, there has been no in-depth qualitative examination of this research topic within the context of group work within higher education in the UK. Thus, it is contended that the research makes a novel contribution to the literature – and it is expected that this contribution will have positive outcomes for both practitioners and students, and the business and management community as a whole.
2. For educational practitioners and students, the present work will provide insights into how to best organise group work when the intention is to maximise tacit knowledge sharing. This may help to bring about the potentially positive outcomes of group work and knowledge sharing as described above.
3. For the business and management community, the work will provide insights into the knowledge sharing propensities and attitudes of undergraduate and postgraduate students. Given that some employers require graduates to be the knowledge workers of the future (Hawawini, 2005) these findings may assist in determining the training needs of graduate workers. Further, efforts to increase students' positive perceptions of knowledge sharing behaviour may improve their employability prospects. Indeed, Yuen and Majid (2007:492-3) argue that:

"As many students are expected to join the workforce after finishing their undergraduate studies, a positive attitude towards knowledge sharing would make them more useful to their employing organisations."

3.5. Literature review

This section presents a review of pedagogic and knowledge management literature that is pertinent to the main aims and objectives of this study. The literature review was conducted using key word searches on a number of scholarly and publisher databases, and search portals, including Business Source Complete, Emerald, Taylor and Francis, JSTOR and finally Google Scholar. The key words used included *tacit, knowledge, sharing, transfer, group work, group, work, peer, trust, affect, cognition* and *culture*. Further sources were identified by examining the reference lists of examined articles. As evidenced below, few sources were found within the pedagogic literature that examine student knowledge sharing within higher education, while a wealth of studies were found within the knowledge management literature that is concerned with organisations, with considerably less sources being found that were concerned with student samples. Given the paucity of literature that examines knowledge sharing amongst students no restrictions were placed on the 'quality' of sources that were included. Rather, articles were included according to their relevance to the research question and aims.

This section is composed of three sub-sections as follows:

First, drawing on the pedagogic and knowledge management literatures, a discussion of key factors that may influence knowledge sharing and use during group work is offered. Second, based on this review of the literature, the cases for different methods of allocating students to groups to maximise knowledge sharing and use are considered. Finally, this section closes with a summary conclusion.

3.5.1. Factors impacting knowledge sharing and use during group work

Based on the review of the management, knowledge management and pedagogic literatures a number of factors were discerned that may impact students' willingness to share and use of tacit knowledge during group work. Wangpipatwong (2009) suggests that three classes of factors should be considered when examining factors that influence knowledge sharing: individual factors, group and classroom factors, and technological factors.

Within this work the focus is on the first two factors identified by Wangpipatwong (2009). The decision not to focus on technological factors stems from the recognition that different mediums of communication tend to be more useful when sharing tacit and explicit knowledge - it is established within the literature that tacit knowledge is best shared through direct interpersonal 'face to face' communication (Haldin-Herrgard, 2000; Pierce, 2002; Politis, 2003; Peroune, 2008). Nonetheless, the following review contains the findings of a number of studies that are concerned with knowledge

exchange in virtual spaces as the researcher has determined that these contain useful insights into the propensity of individuals to engage in knowledge sharing behaviour.

3.5.1.1. Individual factors

The review of the literature revealed that a number of individual factors may impact an individual's willingness to share and use tacit knowledge during group work. For the purposes of this study, individual factors are understood as those which have their locus within their individual, and may vary with external factors. In this manner, they are distinguished from group factors, which are concerned with the interaction between individuals and other external factors.

3.5.1.1.1. Ability to communicate

That the ability to communicate one's knowledge is a factor influencing willingness to share knowledge is a contention which has considerable conceptual and empirical support. It was noted in Chapter 1 that for the active sharing of tacit knowledge between individuals to take place, it is necessary to externalise tacit knowledge, using words, pictures and so forth - a process known as externalisation (Nonaka and Takeuchi, 1995). The importance of direct communication between individuals for the transferring of tacit knowledge has been highlighted by a number of researchers (Nonaka and Takeuchi, 1995; Nonaka and Konno, 1998; Haldin-Herrgard, 2000; Politis, 2003, Peroune, 2008).

The importance of the ability to communicate as a factor influencing tacit knowledge sharing and use also enjoys empirical support:

Ardivichili et al (2006) studied online knowledge sharing amongst Chinese, Brazilian and Russian employees of US firm Caterpillar Inc. It was found that Chinese and Brazilian participants highlighted that a lack of confidence in the use of the English language were often a barrier to participation in the online communities.

Drawing on the pedagogic literature, similar findings are apparent. Numerous authors highlight the importance of communication skills for effective group working (Bosworth, 1994; DeVita, 2000; Oakley et al, 2004; Popov et al, 2012) and a number also highlight that group working can also help to develop these skills (Ballantine and McCourt Larres, 2007).

Wangpipatwong (2009) surveyed 207 students from a university in Bangkok, Thailand and used a questionnaire to examine the relationship between a range of factors and knowledge sharing. One of the key findings was that the ability to share knowledge - understood as the confidence one has in the value of their knowledge, and the ability to externalise what is known had a positive and

significant influence on the knowledge sharing of students. However, these findings should be interpreted with caution. Wangpipatwong does not distinguish between tacit and explicit knowledge (although his concept is most similar to tacit knowledge) and the validity of his constructs is not established in his article.

3.5.1.1.2. National culture

As highlighted in Chapter 2, the manner in which national culture can affect knowledge sharing has been studied within the knowledge management literature with results suggesting both positive and negative impacts (Rivera-Vazquez, Ortiz-Fournier and Flores, 2009; Ardivichli, Page and Wentling, 2006). Within the pedagogic literature it has been found that national cultural norms can often inhibit knowledge sharing and exchange (DeVita, 2000; Hwang and Kim, 2007; Popov et al, 2012). For example, DeVita (2000) notes that students from some cultures may believe it to be uncouth to question their teachers, or to interrupt when others are speaking. This necessarily impacts their willingness to share knowledge during certain circumstances. However, within the previous chapter national culture was not found to have a significant impact on students' willingness to share and use tacit knowledge during group work. Based on these findings, it is contended that national culture may impact students' knowledge sharing behaviour during group work.

3.5.1.1.3. Motivation

It has been argued within the knowledge management literature that knowledge sharing is likely to be an activity that one engages in voluntarily (Bock and Kim, 2002; Ehin, 2008; Barachini, 2009; Chen et al, 2012). This contention is concisely captured in a number of recent articles. Indeed, Chen et al (2012:95) open their article with the sentence:

“Knowledge sharing will not occur if an individual employee does not want to share it”

Similarly, Barachini (2009:98) states that “Individuals don’t offer knowledge for free”.

Thus, it follows that if one wishes to influence knowledge sharing amongst others, then one must provide some motivation for them to engage in that activity. For the purposes of this study, motivation to share knowledge is understood, following Siemsen, Roth and Balasubramanian et al. (2008:432), as an individual's “inner drive to share knowledge.”

The importance of motivation is highlighted by a number of knowledge management researchers (Hansen, Nohria and Tierney, 1999; Seonghee and Boryung, 2008; Barachini, 2009) and is often

considered in relation to reward, where rewards are used to motivate engagement in knowledge sharing practice.

The issue of reward is fairly contentious, with some finding no relationship between reward (Bock and Kim, 2002; Seba, Rowley and Lambert, 2012) and others finding that rewarding employees is an important factor (Al-Alawi, Al-Marzooqi and Mohammed, 2007; Seonghee and Boryung, 2008; Barachini, 2009; He, Qiao and Wei, 2009; Chen et al, 2012; Minbaeva, Mäkelä and Rabbiosi, 2012).

Within the pedagogic literature, the importance of motivation for knowledge sharing amongst students has also been highlighted (see for example, Yuen and Majid, 2007; Chikoore and Ragsdell, 2013). Further, Sampson and Cohen (2001b:53) have highlighted that it is important to provide a rationale and clearly articulate to students the educational reasons for introducing peer learning:

“We cannot...’ they write, ‘overestimate the importance of providing a compelling rationale both for the use of peer-learning in general and for the particular strategies chosen”

To clarify the discussion of the importance of motivation, this section distinguishes between intrinsic and extrinsic motivation. Following Mullins (2007:251), extrinsic motivation is understood as:

“‘tangible rewards such as salary and fringe benefits, security, promotion, contract of service, the work environment and conditions of work”,

while intrinsic motivation is understood as:

“‘psychological’ rewards such as the opportunity to use one’s ability, a sense of challenge and achievement, receiving appreciation, positive recognition and being treated in a caring and considerate manner.”

Intrinsic motivation

The majority of the knowledge management literature considers the importance of extrinsic motivation in influencing individuals to engage in knowledge exchange (see below). However, based on the definition advanced above, it is possible to distinguish one significant intrinsic motivating factor: individuals engage in knowledge exchange because they perceive it to be useful and in the public good (Ardivichili, Page and Wentling, 2003; Seonghee and Boryung, 2008; He, Qiao and Wei, 2009; Minbaeva, Mäkelä and Rabbiosi, 2012). For example:

Ardivichili, Page and Wentling’s (2003) study of three virtual communities of practice at the US firm Caterpillar Inc. found that some employees viewed their knowledge as a public good, and believed

that they had a moral obligation to share it with their organisation and their professional community.

Further, it is interesting to note that perceived usefulness of knowledge has also been highlighted as a motivating factor for its acquisition and use: He, Qiao and Wei (2009) undertook an in-depth, mixed method case-study of one organisation in China to investigate how and why social-relationships affect employees' use, or non-use, of Knowledge Management Systems (KMS). They found that the most commonly accessed documents in the KMS were the personal observations, procedures, interpretations and judgments of colleagues relating to a variety of professional issues. In addition, it was found that the frequency with which these sorts of documents were accessed was considerably higher than for other documents that might be said to contain more explicit knowledge, such as marketing reports, and user manuals.

Similarly, it has also been found that individuals may not share their knowledge if they think that it lacks value or may mislead others (Ardivichili, Page and Wentling, 2003). The same is often found within the pedagogic literature - students often do not share knowledge if they do not believe that the knowledge they possess is valuable (Sampson and Cohen, 2001a; Chikoore and Ragsdell, 2013).

While some students may perceive knowledge to be a public good, it is clear that some students may believe otherwise. Chikoore and Ragsdell's (2013) mixed method study involved a survey of 325 undergraduate students (81 useable responses were returned) and 12 semi-structured interviews. The study addressed a number of questions that are pertinent for the present project including: how knowledge is shared amongst students and what motivates students to engage in knowledge sharing. For the present discussion, an important finding was that students across all genders and year groups were concerned that sharing knowledge with others may lead to plagiarism. Further, when examining the attitudes to and experiences of inter-group knowledge sharing, it was found that some students were willing to share and use knowledge with other groups, but some were not - and some engaged in knowledge-hoarding behaviour, giving only limited information away. Chikoore and Ragsdell (2013) suggest that this evidence implies that differences in individual attitudes will impact the behaviour of those in the group.

Yuen and Majid (2007) studied the knowledge sharing patterns of undergraduate students at three public Singaporean universities. They surveyed 180 students with a questionnaire containing both open and closed questions, and found that a sizeable majority (71.6%) believed that knowledge sharing with their peers was important and would be of benefit to all. Further, 92.8% reported that

they frequently shared knowledge when working in groups, while it was found that knowledge sharing happens less frequently between groups.

Yaghi et al. (2011) examined the frequency of knowledge sharing amongst undergraduate students in Saudi Arabia. They surveyed 360 students using a questionnaire comprised of closed questions and, consistent with results reported by Yuen and Majid (2007), found that a sizeable majority of 73% agreed that knowledge sharing amongst students was to the benefit of all. Similar findings with respect to perceived value of knowledge sharing have been reported amongst students in Bangladesh (Rahman et al., 2014).

Based on these considerations it is expected that intrinsic motivation is likely to be a motivating factor to share and use knowledge.

Extrinsic motivation

A number of studies find that extrinsic rewards are applicable to motivating knowledge sharing (Swart and Kinnie, 2003; Minbaeva, Mäkelä and Rabbiosi, 2012). For example, Swart and Kinnie (2003) undertook a case study of a software company termed 'SoftWareCo'. They conducted interviews with all employees in the organisation across three different organisational levels: director-level, project/line manager and employee. In their study they found that SoftWareCo were able to overcome barriers to knowledge sharing by paying attention to individual employee's needs so that they see it as being in their own interests to share knowledge. For example, Swart and Kinnie (2003) point to increases in remuneration being based on the development of skills, and recommendations being taken from other staff that mentor employees. Further, the opportunity to develop skills was seen as positive factor that influenced engaging in knowledge sharing activity.

Similarly, Chen et al (2012) surveyed workers within a number of Taiwanese SMEs. Their respondents are described as having more than three years of seniority in their position, and having rich knowledge to share with co-workers. There are a number of relevant findings from this study, including that the more group rewards (group based incentives, including both financial and non-financial) that are available, the greater the intention to engage in knowledge sharing behaviour (the intention to deliver, receive and exchanging knowledge in group work).

Further, Park, Dulambazzar and Rho (2013) distributed questionnaires to Mongolian government employees who were engaged in e-government projects in a number of government departments. They received 232 useable questionnaires, achieving a response rate of 82.7%. They found that the organisational factors of leadership, trust and reward were significant influencers of knowledge sharing, with the latter two factors being the most significant. They state that:

“Rewards and incentives are related directly to human behaviour; therefore, knowledge sharing is encouraged because it is rewarded and motivated”

(Park, Dulambazzar and Rho, 2013:12-13)

However, some find to the contrary that financial rewards negatively influence knowledge sharing. For example, Bock and Kim (2002) undertook a quantitative survey of 467 employees (at different organisational levels) in 75 departments of four large public organisations in Korea. They found that extrinsic rewards (including financial rewards, promotion, and educational opportunity) were found to be negatively and significantly associated with intention to share knowledge.

More recently, Seba, Rowley and Lambert (2012) investigated the factors affecting knowledge sharing in the Dubai police force using a quantitative survey. They received 319 useable responses, achieving over a 50% response rate. A key finding was that rewards, including promotion were not related to knowledge sharing, while leadership, trust (elements of affect and cognition), time and availability of IT were.

Since financial rewards are not, to the researcher's best knowledge, available to students engaged in group work, the extrinsic rewards that they may benefit from are most likely to be concerned with academic attainment. The knowledge management literature makes little reference to the importance of academic achievement as a motivator for knowledge sharing, but does highlight the importance of recognition within the work place. For example:

Minbaeva, Mäkelä and Rabbiosi (2012) make use of a data set consisting of survey questionnaire responses from 811 individuals within three Danish Multinational Corporations who have knowledge sharing as a key priority, and encourage face to face interaction and IT solutions to share knowledge. A key finding from the study was that both intrinsic motivation and engagement in social interaction are positively and significantly related to knowledge exchange.

Similarly, Barachini (2009) highlights that engaging in knowledge sharing helps to build trust between the parties involved. Thus, it could be surmised that students that wish to build trust relationships with others may engage in knowledge sharing for that purpose.

Within the pedagogic literature, the importance attached to attainment by students is evident in a number of articles (Dweck, 1986; Pintrich and Schunk, 1996; Busato et al, 2000; Pitt, 2005). Where attainment is a primary motivation for students, and knowledge sharing is perceived as a necessary

part of that process, then one would expect that student knowledge sharing would take place. However, Pitt's (2005) application of game theory to group work highlights that different assessment methods can remove the desire for interdependent working, and as a result, reduce the opportunities and desire for knowledge sharing. Pitt (2005) argues that when students are engaged in group work, and are motivated by attainment, and will receive an identical shared grade, the most rational approach to be taken is to allow the most academically capable member to do the majority of the work, while the remaining members provide support and assistance as required. Similarly, it follows from these considerations that knowledge gained from others is more likely to be used if it is likely to achieve a desired aim.

The importance of attainment is further highlighted in a recent study: Chikoore and Ragsdell (2013) examined the knowledge sharing attitudes of undergraduate students preparing for assessed coursework. They highlighted that a barrier to sharing knowledge with others is the potential fear of plagiarism. In addition, it was also found that some students engaged in knowledge sharing in the hopes of reciprocity - believing that initiating knowledge sharing behaviour may result in beneficial knowledge exchanges. The importance of reciprocity for students in higher education in Malaysia (Wei et al., 2012) and Bangladesh (Rahman et al., 2014) has also been demonstrated.

Based on these considerations it is expected that extrinsic motivation is likely to be a motivating factor to share and use knowledge.

3.5.1.2. Group and classroom factors

The review of the knowledge management and pedagogic literatures highlighted that there are a number of group and classroom factors that may impact tacit knowledge sharing and use.

For the purposes of this study, group factors are understood as those that occur during the interaction of students within their working groups. Classroom factors are understood as including the pertinent factors that arise as a result of the manner in which group work is organised by tutors and academic institutions.

3.5.1.2.1. Group factors

It was highlighted that knowledge sharing and use between individuals requires communication (Pierce, 2002; Politis, 2003), and the motivation to engage in the knowledge sharing process (Bock and Kim, 2002; Ehin, 2008; Barachini, 2009; Chen et al., 2012). Within this section, the group processes and factors that may enable or bar these exchanges are considered.

Team development and group work skills

Team development is an important process which, when properly concluded, results in team performance (Tuckman, 1965). It is well established that teams go through the stages of forming, norming and storming before arriving at the stage of performing (Tuckman, 1965; Ito and Brotheridge, 2008). The storming stage involves the sharing of ideas and viewpoints (Tuckman, 1965; Ito and Brotheridge, 2008) and so necessarily involves the sharing of tacit knowledge. If a team is to proceed to establishing group norms, then to performing, they must pass through these stages, which require a variety of group work skills (Ito and Brotheridge, 2008).

However, Ballantine and McCourt Larres (2007) note that students may not have the necessary skills to manage a team. Further, Oakley et al (2004:9) argue that "students are not born with the project management, time management, conflict resolution and communication skills required for high performance teamwork". The notion that such skills are required, or that the lack of such skills is problematic, is common within the literature (Ballantine and McCourt Larres, 2007; Boud, 2001; Sampson and Cohen, 2001a; Popov et al., 2012).

Despite this, a number of authors have also found that undertaking group work can provide a forum for students to learn group work skills. For example, Ballantine and McCourt Larres (2007) studied the impact of tutor-facilitated cooperative learning amongst 51 final year accounting students. They found that the activity helped both more and less able students to improve their generic group work skills. Since such skills are necessary for negotiating the processes of team development and management, it is contended that if lacking, they will reduce tacit knowledge sharing and use, by inhibiting team development and performance.

Arguably the importance of group work skills may be more pronounced when students are working within multi-cultural groups. For example, a recent study by Popov et al (2012) examined students' perceptions of the challenges that they face in multi-cultural group work in higher education, and considered the differing importance of these challenges between students with different cultural backgrounds. For the purposes of their study they examined 141 students in groups of 4-7 who were allocated according to academic and cultural backgrounds and interests. The cohort was comprised of 66 Dutch students and 75 international students. Each group was given the task of producing a design for a client. Groups were invited to brief training sessions on working in groups, communications and self-reflection. As part of the course, each group was required to complete regular meetings, provide a detailed proposal of the project and planning of tasks, and produce a presentation on the project. Each individual student was also required to produce self-assessment

documents. Following the completion of the course the students were surveyed using an anonymous online questionnaire. The questionnaire measured demographics details of participants, and asked participants to respond to a range of questions regarding the challenges of group work including group membership, group process and task, and generic group competencies.

There were a number of key findings of relevance for the present discussion - including that the most important challenges were free-riding, language barriers, and communication issues - and that the importance of these challenges was influenced by cultural backgrounds. They note that some students within the study believed that group composition was a factor that should be addressed in future, as they believed that a different composition would have improved their performance.

Based on this evidence it is contended that working in multicultural groups may have a variety of influences on the willingness of individuals to engage in knowledge sharing and use behaviour. Further, since communication and other group work skills are important for the effective undertaking of group work (Bosworth, 1994; DeVita, 2000; Oakley et al, 2004; Popov et al, 2012), it is contended that the presence of such skills will be an important factor influencing knowledge sharing.

Division of labour and free-riding

The work undertaken by Chikoore and Ragsdell (2013) described above, notes that the manner in which students approach their group work tasks may reduce the opportunity and occurrence of knowledge sharing and use. It was found that students often divide work amongst themselves, complete it independently, and then re-combine it prior to the deadline. When such behaviour occurs, the opportunity for knowledge sharing is necessarily lost. Although insights into why such behaviour may occur are not offered by Chikoore and Ragsdell (2013) - one possibility is that the tasks chosen did not require interdependent working - indeed, the Centre for Teaching and Learning (1999) suggests that such tasks are most suitable when attempting to stimulate co-operative learning.

The situation described by Chikoore and Ragsdell is similar to a situation that occurs in organisations termed knowledge “siloing” described by Goh (2002). Goh (2002) argues that in some instances knowledge is acquired and retained in organisational units (i.e. silos) which do not interact and communicate with each other, thus knowledge is not shared across inter-organisational boundaries.

Thus, it is contended that the nature of tasks, and the manner in which they are undertaken by students, is a factor that will impact knowledge sharing.

Similarly, student group work is often impacted by a form of social loafing termed free-riding, which can be understood as the phenomenon in which "...people exhibit a sizable decrease in individual effort when performing in groups as compared to when they perform alone" (Latane, Williams and Harkins, 1979:822).

The problem of free-riders is well documented in the pedagogical literature (Ballantine and McCourt Larres, 2007; Maiden and Perry, 2011; Popov et al, 2012). Free-riding has been linked to poor communication skills, with some authors arguing that international students in particular struggle to be understood, or feel uncomfortable about communicating in their non-native language - and so are perceived by others as free-riding (Popov et al, 2012).

Numerous solutions to the problem of free-riding exist within the pedagogic literature (see for example, Ballantine and McCourt Larres, 2007; Brooks and Ammons, 2003; Roberts and McInnerney; 2007). For example, it has been suggested that students keep a learning log to note when others are not contributing, it is argued that this will help students to take responsibility for their own learning and help them learn to confront the problem in the work-place (Ballantine and McCourt Larres, 2007). While these, and other suggestions, may help resolve the problem - the impact on knowledge sharing remains. It can be contended that when one's peers are judged to not be fully contributing to the group, this may have two detrimental effects. First, since free-riding involves a decrease in participation it will necessarily reduce the opportunity for knowledge sharing, and second, it may impact both affect- and cognition-based trust relationships between students - further reducing the propensity of individuals to share tacit knowledge.

Group culture

Although national culture is an important factor, it has been argued that group culture, may have a more pronounced and significant impact on knowledge sharing (see for example, Hwang and Kim, 2007; Sackmann and Friesl, 2007). For the purposes of this work, drawing on Huczynski and Buchanan's (2007) definition of organizational culture, group culture is understood as the collection of relatively uniform and enduring values, beliefs, customs, traditions and practices that are shared by a group.

Some scholars (see for example, Hwang and Kim, 2007) consider the relationship between cultural norms and other factors influencing knowledge sharing. Hwang and Kim surveyed undergraduate business students in the United States who were enrolled on an introductory management information systems course. Participating in groups of four, students were required to complete two group tasks which involved knowledge sharing via email. Hwang and Kim's survey examined the

relationships between a range of social and cultural factors, and students' willingness to share knowledge through email. They posted an online questionnaire which was completed by 411 students. The key finding was that participants' levels of identification⁴ and internalization⁵ fully mediated the effect of any collectivist cultural orientation, with respect to willingness to share knowledge by email.

Sackmann and Friesl (2007) examined the impact of culture in knowledge sharing through a simulation study, which was analysed qualitatively using observations and notes from participant debriefings. Sackmann and Friesl (2007) performed ten simulations with MBA students and ten simulations with managers and executives with considerable work experience. The simulations involved participants being divided into three sub-groups each with different rules of appropriate and inappropriate behaviour. Each group had to read, learn and apply specific cultural rules in the next twenty minutes while they created a myth about the founding of their group norms. They were then told they had forty minutes to design and build the prototype for an airplane - with the aim of designing the biggest and most innovative plane that could fly the furthest. After a period of time, randomly selected group members were moved to another group to create major-minor, equal, and minor-major group sets. Following the completion of task, participants were debriefed in the mixed groups and then debriefed in the original groups.

There were, for the purposes of the present work, a number of important findings. First, it was noted that the stronger the identity of the group, the lower the ability of the group to accept an individual from another culture. Second, the level of perceived cultural difference influenced the amount of knowledge sharing behaviour that occurred. Third, when newcomers explained their culture, and the team mutually accepted a set of rules, the newcomer became included in the knowledge sharing activity. Fourth, when newcomers were not emotionally accepted (did not enjoy levels of trust, and were not identified as belonging to the group) they were subjected to derogatory remarks, ignored, disregarded or expelled if their behaviour was too incompatible, impacting their ability to engage in knowledge sharing. These findings are consistent with those of Hwang and Kim (2007) that highlighted the importance of identification with the group has a significant influence on a student's attitude towards knowledge sharing.

⁴ Understood as occurring when individuals adopt attitudes and behaviours to achieve a satisfying and self-defining relationship with another person/group of people.

⁵ Understood as occurring when individuals adopt behaviour because of its content, which they find congruent with their own values

Based on this evidence it is contended that group culture will have an important impact on students propensity to share knowledge within groups.

Interpersonal trust relationships

The review of the literature on interpersonal trust in the previous chapter highlighted that interpersonal trust has been established as an important antecedent for knowledge sharing in the knowledge management literature (Levin and Cross, 2004; Lucas, 2005; Mooradian, Renzl and Matzler, 2006; Usoro et al, 2007; Holste and Fields, 2010). Although it has received less attention in the pedagogic literature, interpersonal trust has also been found to be an important antecedent for knowledge sharing amongst students in higher education (Lin, 2007; Majid and Wey, 2011; Zaqout and Abbas, 2012; Chikoore and Ragsdell, 2013). Further, other studies have found that the lack of a relationship with peers can inhibit knowledge sharing behaviour (Wei et al., 2012; Rahman et al., 2014).

Within the previous chapter it was found that cognition-based trust relationships were a significant and positive predictor (at the 1% level) of students' willingness to share and use tacit knowledge during group work.

Leadership

The knowledge management literature highlights the importance of leadership for the success of knowledge management initiatives in a wide range of organisations and contexts (Nonaka, Toyama and Konno, 2000; Eppler and Sukowski, 2000, Viitala, 2004; Hislop, 2009)⁶. Further, the literature highlights the importance of leadership at different organisational levels and it is often argued that for knowledge sharing to take place in organisations it must be influenced by leaders at all organisational levels. (Eppler and Sukowski, 2000).

Thus, it is expected that students' willingness to share and use tacit knowledge will be increased where there are lecturers or tutors who are desirous and capable of influencing knowledge sharing amongst their students. Similarly, it is expected that students occupying leadership roles within student groups might also be able to influence the tacit knowledge sharing behaviour of their peers.

⁶ The importance of leadership and the role of leaders in influencing knowledge sharing is considered in detail in the following chapter.

3.5.1.3. Classroom factors

Within this section, a number of factors related to the manner in which tutors and academic institutions manage group work that impact on tacit knowledge sharing during group work are considered. These include assessment criteria, university culture and opportunities for knowledge sharing.

Assessment criteria

Given the importance attached to attainment by students (Dweck, 1986; Pintrich and Schunk, 1996; Busato et al, 2000), it is clear that the manner in which group work is assessed may impact the degree to which tacit knowledge sharing takes place. If the extent of tacit knowledge sharing is assessed, one may expect to see a greater exhibition of such activity. Indeed, Yuen and Majid (2007) argue for the offering of bonus marks for participation in knowledge sharing activity.

When the entire group receives the same mark for a piece of work, it could be expected, following Pitt's (2005) analysis, that the work will be divided in such a manner that the most able students complete this work - this being of the most benefit to all when the goal is to attain the highest grade possible.

University culture

Within this chapter the influence that national and group culture may have on knowledge sharing and use behaviour has already been documented. It is perhaps equally important that universities as a whole foster a culture that promotes, and is conducive to, the free and open exchange of knowledge.

Indeed, within the knowledge management literature the importance of an organisational culture which promotes knowledge sharing is well documented (see for example, Lopez et al, 2004; Lam, 2005; Suppiah and Sandhu, 2011).

Similarly, recent work within the pedagogic literature points to the importance of university culture - Yaghi et al's (2011) study of Saudi Arabian students found that a sizeable majority of 78.1% of students surveyed did not believe that the university culture supported knowledge sharing. Yuen and Majid's (2007) work calls for the establishment of a culture of co-operation and not competition to encourage knowledge sharing.

Opportunity for knowledge sharing

A recurring theme within the knowledge management literature is that it is necessary to create opportunities for individuals to share knowledge, as facilitating knowledge sharing requires connecting people who have expertise with those who need it (Stewart, 1997).

As Goh (2002) describes, the way in which organisations are structured can often prevent knowledge sharing; organisations that maintain strict hierarchies may find that knowledge exists in 'silos', and that organisational members tend not to share knowledge across inter-organisational boundaries.

Similarly, Nonaka, Toyama and Konno (2000) state that leaders need to create the necessary *Ba* (or space) in which to share knowledge; these spaces can be physical, virtual or mental. Virtual spaces are certainly useful for sharing knowledge; Ardichvili et al.'s (2003) qualitative study of virtual knowledge sharing within Caterpillar Inc. (described above), found that virtual knowledge sharing was a useful tool, with participants highlighting benefits such as being able to ask and receive answers to problems, keep abreast of professional developments, having the opportunity to work and communicate with geographically dispersed colleagues, and the quick acquisition of information. Further support for the importance of creating a space for knowledge sharing also features in Viitala's (2004) work. Viitala's (2004) model of leadership was developed through mixed method research, adopting an inductive and deductive approach, and utilizing qualitative and quantitative methods. Viitala (2004) suggests that an important leadership function is for leaders to create times and places for their people to discuss and evaluate the direction in which knowledge and capabilities should be developed.

While virtual spaces have their uses (as highlighted above), person-to-person knowledge transfer (i.e. socialization) has been argued as the most effective way for sharing tacit-tacit knowledge (Lee, 2000). Similarly, there is consensus within the literature that direct communication between individuals is the most effective method of sharing tacit knowledge (Haldin-Herrgard, 2000; Pierce, 2002; Politis, 2003, Peroune, 2008).

Thus, it is contended that if tutors wish students to share knowledge during group work it is necessary for them to create the required opportunities, or ensure that such opportunities exist, for this to happen.

3.5.2. Implications for group allocation methods

Owing to the various interpretations of key concepts (knowledge, leadership, trust) the preceding discussion has been general in nature – providing a broad overview of the extant knowledge management and pedagogic literature relevant to the aims of this study.

In this section, the focus is on synthesising and summarising the above discussion to determine the relevance of what has been reviewed for the key research question:

- 1) Is there one best method of allocating students to groups when the purpose is to maximise tacit knowledge sharing?

In the previous chapter it was argued that a tutor led allocation method may be most appropriate given the role of cognition-based trust as an antecedent to tacit knowledge sharing and use during group work. However, the two multivariate models constructed accounted for only 27.8% and 24.5% of the willingness to share and use tacit knowledge during group work respectively. Thus, there are clearly a range of other factors (as highlighted in the above review of the literature) that influence knowledge sharing and use. Therefore, that position is no longer advanced, and it is clear that there are a wider range of factors that must be considered. Indeed, having presented the review of the literature described above there are a number of potential answers that could be offered to the research question. The following discussion considers the three methods of group allocation identified by Huxham and Land (2000): self allocation, random allocation and engineered allocation. For each method, the case for, and against its adoption when the objective is to maximise tacit knowledge sharing during group work is considered.

Importantly, the following discussion is guided by recognition of the practical and resource constraints that most tutors within higher education must work within.

3.5.2.1. Self allocation

First, given the importance of individual motivation (extrinsic and intrinsic) as a factor influencing knowledge sharing (see for example, Hansen, Nohria and Tierney, 1999; Yuen and Majid, 2007; Chen et al, 2012; Minbaeva, Mäkelä and Rabbiosi, 2012; Chikoore and Ragsdell, 2013), it may be contended that allowing students to self-allocate will allow them to join with others who have similar motivations and attitudes. In such a case, students seeking to engage in knowledge sharing will have the opportunity to do so with each other.

Second, students will be able to choose to work with others that they have established interpersonal trust relationships with. The importance of strong interpersonal trust relationships has

been established in numerous scholarly works (see for example, DeVita (2000; Remedios, Clarke and Hawthorne, 2008; Holste and Fields, 2010; Majid and Wey, 2011; Zaqout and Abbas, 2012; Chikoore and Ragsdell, 2013). The existence of interpersonal trust relationships may help to overcome some of the barriers to knowledge sharing, for example, students may be less inclined to fear a loss of face (Remedios, Clarke and Hawthorne, 2008) or fear being misunderstood and ridiculed (DeVita, 2000).

Third, if students choose to allocate themselves to groups in which they have pre-existing social ties then a high degree of group identification may already be present. Hwang and Kim (2007:237) highlight the importance of the feeling of group-membership in order to "develop the perceived congruence with one's own personal norms for the internalization process of knowledge-sharing behaviour in the group". In addition, such groups are more likely to have already overcome barriers to communication and be able to communicate well with each other, an important requirement for knowledge sharing (Pierce, 2002; Politis, 2003).

Fourth, from the perspective of the tutor, such an approach is likely to be fairly easy to undertake (at least when compared to the engineering of groups). This may create extra time for the tutor to promote the value of knowledge sharing activity, which is highlighted as important in both the pedagogic (Sampson and Cohen, 2001b) and knowledge management literatures (Nonaka, Toyama and Konno, 2000, Viitala, 2004).

While the arguments above may be persuasive the counter arguments appear to be equally so:

First, although allowing students to self-allocate may have some benefits with respect to creating some of the necessary antecedents to knowledge sharing, it does not necessarily follow that knowledge sharing will take place. Students who choose to work together may have little 'new' knowledge to share (especially if they have worked together before, or already enjoy close social ties). Similarly, unless they choose to seek out new people to work with they will likely lose the opportunity to gain knowledge from students from other cultural backgrounds. Indeed, Davies (2007) reports that cultural clustering - whereby students congregate in culturally similar groups - is a common phenomenon within higher education.

Second, the benefits of the self-allocation method rests upon the assumption that students are able and capable of selecting other students to work with, with whom they are simpatico. However, it is not clear that all students will necessarily have sufficient knowledge of their peers to choose to engage with those who share their motivations and attitudes. Further there is no certainty that all students will necessarily have developed inter-personal trust relationships with each other. These problems may be further exacerbated in cohorts that have been drawn together for the first time.

3.5.2.2. Random allocation

When compared to self allocation, there are a number of arguments in favour of the random allocation method:

First, the random allocation method is more likely to produce more diverse groups - providing greater opportunities for knowledge sharing. Students may be removed from their friendship groups meaning that greater unique individual knowledge may be present in each group - potentially reducing knowledge siloing.

Second, the random allocation method may be more representative of real-life, and a better preparation for group work post university. Indeed, it has been argued that in the 'real world' individuals usually have very little choice in who they work with (Ballantine and McCourt Larres, 2007). If business students are to be the knowledge workers of the future (Hawawini, 2005), then this provides a good opportunity for practising those skills necessary for engaging in knowledge work with others. Further, random allocation may be helpful in learning to work across cultural boundaries, it has been stated that:

"The student populations of universities throughout the world are increasingly multicultural. After graduation a large number of today's students will work in international groups as part of their future professions. Therefore, the ability to work effectively in culturally heterogeneous groups should be an integral part of a student's competence" (Popov et al., 2012:302)

Third, it is possible that random allocation may result in inter-group knowledge sharing. Given the importance attached to interpersonal trust relationships in the knowledge management and pedagogic literature, and the evidence that students often seek to engage in inter-group knowledge sharing while engaged in group work (Chikoore and Ragsdell, 2013), it is possible that individuals in one group may seek to engage in knowledge sharing with individuals in other groups. If this knowledge is then shared with the remainder of the group, there will be an increase in the sum of knowledge brought into the group.

Fourth, the random method of group allocation ensures that all students are allocated to a group - thus ensuring that all students have an opportunity for knowledge sharing and use. Anecdotally, from the researcher's experience (- this method at least ensures that students are in groups – and that students who are without groups do not “surface” mid-way through the course. Thus, there is a pragmatic reason for adopting this method.

It is the researcher's contention that the case against random allocation is fairly strong. The random allocation method seems to bring all of the negatives of the engineered method (discussed below) while being less likely to produce the positives listed above.

Indeed, while the random allocation method delivers the promise of diverse groups, there is no certainty as to whether diverse groups will be created. There is no guarantee that students will be removed from their friendship groups and be exposed to those from different background and different cultures.

3.5.2.3. Engineered allocation

In evaluating the case for engineered allocation the method or criteria by which groups are engineered is most important. In what follows a number of options for engineering groups to maximize knowledge sharing are considered.

First, it is contended that the engineered allocation method can achieve the apparent benefits of the random method by ensuring that students are placed into diverse groups. Groups could be diverse in multiple senses - according to cultural background, educational background, work and industry experience, gender and so forth, creating a greater opportunity to share diverse knowledge. As highlighted, some believe that group work provides an opportunity for learning group work skills and for preparing students for life after graduation (Ballantine and McCourt Larres, 2007), which is arguably important given the multi-cultural nature of today's workplace (Popov et al., 2012).

Second, given the importance of motivation and attitudes for knowledge sharing, groups could also be organized according to these attitudes. Ensuring that groups are composed primarily of individuals who are motivated to share knowledge may be more likely to produce groups where knowledge sharing and use takes place. Indeed, such groups may quickly establish norms conducive to such practices.

Third, given the importance of leadership for influencing knowledge sharing, groups might be composed such that they have one individual with the leadership skills to influence others to engage in knowledge sharing.

Fourth, a mixture of the above could be adopted - producing diverse groups, with prevailing positive attitudes towards knowledge sharing, and with strong leadership that seeks to positively influence behaviour to maximizing tacit knowledge sharing within groups.

Finally, it is noted that such methods may (as with the random allocation method) be more representative of real life (Ballantine and McCourt Larres, 2007)

The case against the engineered allocation can be made along two lines: difficulties with students' interpersonal relationships, and the practical difficulties of ensuring their success.

Given the importance of interpersonal trust relationships (Lucas, 2005; Holste and Fields, 2010; Majid and Wey, 2011; Zaqout and Abbas, 2012; Chikoore and Ragsdell, 2013) as an antecedent of knowledge sharing, and the amount of time these take to develop (Lyons and Mehta, 1996; Huxham and Vangen, 2004) it is more likely that sufficient trust will not develop, say, when compared to a student group who have self allocated into a friendship group. Further, students may suffer from difficulties with inter-cultural group work (Popov et al., 2012), and if they have not been trained, may lack the requisite skills for negotiating these difficulties (Ballantine and McCourt Larres, 2007; Popov et al., 2012).

Many of these difficulties could perhaps be overcome by providing training in group work skills. However, while this may be an ideal component of Business School education, being desirable for producing graduates who meet the needs of employers (Hawawini, 2005; McClelland, 2012), it may not be practical for individual educators to undertake such practices.

Further practical difficulties may be encountered when trying to arrange groups as suggested above. The principal difficulty may be in making the various measurements - surveying students, analysing the data and arranging the groups is likely to be time consuming. In addition, finding methods and instruments by which to make those judgements may be difficult.

Finally, the advancement of such options is based on the assumption that there are students who are motivated to share knowledge, and have the requisite leadership skills to influence others. Indeed - there is no guarantee that this will be the case..

3.5.3. Summary Conclusion

It is clear from the review of the literature presented that there is no simple answer to the research question: Is there one best method of allocating students to groups when the purpose is to maximise tacit knowledge sharing?

To the best knowledge of the researcher, only a few articles have examined knowledge sharing within higher education (Chowdhury, 2005; Lin, 2007; Sackmann and Friesl, 2007; Yuen and Majid, 2007; Wangpipatwong, 2009; Hassandoust and Perumal, 2011; Majid and Wey, 2011; Yaghi et al, 2011; Popov et al., 2012; Wei et al., 2012; Zaqout and Abbas, 2012; Chikoore and Ragsdell, 2013; Chong, Teh and Tan, 2014; Rahman et al., 2014).

Of these, few have addressed the issue of knowledge sharing amongst students during group work (Sackmann and Friesl, 2007; Popov et al., 2012; Chikoore and Ragsdell, 2013). While Sackmann and Friesl (2007) produce a number of interesting findings, the work is quantitative, and while Popov et al. (2012) take an experimental and qualitative approach - their focus is on cultural factors. To the researcher's best knowledge, Chikoore and Ragsdell (2013) present the only qualitative and general examination of knowledge sharing during group work within the UK. While this work contains a number of interesting findings, it may be criticized on methodological grounds. With respect to the qualitative data analysis - little discussion is provided of the data collection process or method of analysis. In addition, the findings that are offered are supported with relevant quotes, but not enough material is provided such that readers may determine whether they agree or disagree with the explanations (an important consideration in the presentation of qualitative data, Silverman, 1993). Thus it is contended that the work does not, on the whole, present a particularly detailed or compelling qualitative examination of the phenomenon under study.

Therefore, it is contended that there is a need for more qualitative research in this area.

3.6. Methodology

Within this section the various methodological choices considered by the researcher in the design of this research study are outlined, and an explanation and justification of the researcher's methodological choices is offered. As highlighted in Chapter 1, this study marks the researcher's move from the positivist position to the adoption of social constructionism. Social constructionism requires understanding and making sense of the socially constructed meanings and interpretations that participants attach to their world (Silverman, 1970; Burr, 1995; Crotty, 1998).

The remainder of this section is divided into sub-sections which detail the researcher's consideration of research philosophy (drawing particularly on Morgan and Smircich, 1980; Fish, 1990; Burr, 1995; Crotty, 1998; and Cunliffe, 2011), types of research, research methodologies, research design, practical and ethical matters, and reflections on the process of undertaking the research.

These considerations ultimately led the research to adopt a social constructionist position, and to adopt a qualitative single case study design, which explored the meaning participants attached to their worlds using focus groups as the means for generating adequate and relevant data for the study.

3.6.1. Research philosophy and paradigms

The importance of understanding the philosophical position adopted by the author of a research project has been argued to be of importance to both the researcher and their audience (Blaikie, 1993; Hussey and Hussey, 1997). For the researcher, the process of detailing and examining one's assumptions, both on their individual merits and in contrast to alternatives, provides an opportunity for the clarification of thought, and where necessary, the adoption of new positions. Moreover, achieving clarity of the philosophical position can help to ensure a coherent and consistent approach to research design.

As Saunders, Lewis and Thornhill (2007) note, our values can have an important impact on the research we pursue and the way in which we choose to pursue it. For example, it may influence the way in which we frame our research question(s) (Hussey and Hussey 1997), and during the latter stages of research, is likely to impact the way in which we interpret qualitative data (see for example, Silverman 1992, Stake 2010). Thus, it is useful for the audience of the work to have a grasp of the researcher's philosophical position as it enables the audience to place the work and its findings within the correct paradigmatic and theoretical context.

Any foray into standard or classic texts on research philosophy in the social sciences reveals that there is little agreement as to the way in which terms like *paradigm*, *research philosophy*, *research*

approach and so forth are to be used. For example, Cresswell (1994) describes the two main paradigms within the social sciences as the *quantitative* and the *qualitative*, whereas Hussey and Hussey (1997) refer to the same paradigms as the *positivist* and *phenomenological*. As Saunders, Lewis and Thornhill (2007) note the term paradigm is one which has been given multiple meanings. Moreover, while certain authors find it useful to distinguish between two main paradigms, others such as Burrell and Morgan (1979) find it useful to distinguish between four.

In what follows, an overview of different ways of conceptualising research approaches is offered, drawing particularly on Morgan and Smircich's (1980) work 'The case for qualitative research' and the revision of their typology offered by Cunliffe (2011). Following, this, the approach adopted by the researcher - a form of social constructionism is explicated. The intention here is not to provide argumentation or justification for the researcher's position, but rather to give a clear account, such that the audience of this work can interpret the work, its methodological basis, and findings in its own terms, and on its own merits.

Morgan and Smircich (1980) argue that approaches to research in the social sciences rest on a number of inter-related assumptions - ontological, epistemological and those about human nature. The following table (Table 3.1) details the framework for understanding possible approaches to qualitative research outlined by Morgan and Smircich (1980). The purpose of the framework is to help qualitative researchers better locate their work within the "...debates about rival methods in the social sciences" (Morgan and Smircich, 1980:491).

Ontology is concerned with the nature of reality (Saunders, Lewis and Thornhill, 2007) and in the context of social science research the ontological question is concerned with the nature of social entities (Bryman and Bell, 2011).. Epistemology is the study of what constitutes knowledge (Hussey and Hussey 1997; Saunders, Lewis and Thornhill, 2007), or what constitutes adequate knowledge (Morgan and Smircich, 1980). For Morgan and Smircich (1980) assumptions about human nature are concerned with what man *is*, that is, what it means to be human.

Table 3.1: Morgan and Smircich's framework for understanding approaches to qualitative research

	<u>Subjectivist Approaches to Social Science</u>					<u>Objectivist Approaches to Social Science</u>
Core Ontological Assumptions	Reality as a projection of human imagination	Reality as a social construction	Reality as a realm of symbiotic discourse	Reality as a contextual field of information	Reality as a concrete process	Reality as a concrete structure
Assumptions About Human Nature	Man as pure spirit, consciousness, being	Man as a social constructor, the symbol creator	Man as an actor, the symbol user	Man as an information processor	Man as an adaptor	Man as a responder
Basic Epistemological Stance	To obtain phenomenological insight, revelation	To understand how social reality is constructed	To understand patterns of symbolic discourse	To map contexts	To study systems, process, change	To construct a positivist science
Some Favoured Metaphors	transcendental	Language game, accomplishment, text	Theatre, culture	Cybernetic	Organism	Machine
Research Methods	Exploration of pure subjectivity	Hermeneutics	Symbolic analysis	Historical analysis	Historical analysis	Lab experiments, surveys

Source: Adapted from Morgan and Smircich (1980:492)

It is evident from Table 3.1 that Morgan and Smircich (1980) conceptualise positions of qualitative research as existing on a continuum, and that continuum is influenced by sets of interrelated assumptions about the nature of the social world (ontological), what constitutes knowledge (epistemological) and assumptions about human nature.

Within the objectivist approach, social reality is treated as a concrete structure, with social realities having independent existence, and man responding to those social realities. In this approach, the epistemological view is that social scientists should pursue and create positivist science - much like their counterpart in the natural sciences. Such an approach lends itself to the discovery and development of theories that explain and predict patterns of human behaviours, according to discerned laws of human behaviour. As noted in Table 3.1 the methods commensurate with such a philosophy is to conduct experimental research and surveys.

At the other end of the continuum, within the subjectivist approach, the core ontological assumption is that social reality a projection of human imagination. At this end of the continuum, human nature is viewed as being composed of pure spirit and/or consciousness. The epistemological assumption states the purpose of research is to gain insight and understanding into the subjective

experience of human beings, and commensurate with such a philosophy are research methods which allow for an exploration of human experience.

While the objectivist and subjectivist position demonstrate a continuum between research philosophies - there is considerable middle ground. The positions between the two extremes demonstrate different approaches based on the assumptions made. Morgan and Smircich (1980) are clear that the range of approaches is oversimplified - and argue that the appropriateness of any approach is based on the nature of what is being studied:

"The range of possible approaches to qualitative research indicates clearly that the dichotomization between quantitative and qualitative methods is a rough and oversimplified one. Qualitative research stands for an approach rather than a set of techniques, and its appropriateness - like that of quantitative research - is contingent on the nature of the phenomenon to be studied" (1980:499)

More recently, Cunliffe (2011) has updated Morgan and Smircich's (1980) framework as a response to the increasing plurality of the qualitative field, and to help researchers "...be mindful about the choices we make, and situate our work in careful and informed ways" (Cunliffe, 2011:648).

Cunliffe (2011) argues that an update of Morgan and Smircich's (1980) original typology is now necessary as the field of qualitative research has become increasingly diversified. For example, she notes that organisation and management theory now covers a wider range of topics including considering new organisational forms, ways of conceptualising organisational culture, and has challenged traditional ideologies about the way in which organisations should be managed, and has begun to focus on issues such as race, sustainability and violence. Further, Cunliffe (2011) argues that mirroring developments in social theory, the field has adopted a range of new qualitative methods including the use of psychoanalytic, deconstructive and narrative methods.

In addition, Cunliffe (2011) argues that the traditional subject-object distinction is no longer necessarily appropriate, and thus it is not useful to consider researchers as holding to either subjectivist or objectivist views. The subject-object distinction, Cunliffe (2011) argues, is reminiscent of Cartesian dualism that prescribes the separation between mind and body. Traditionally, Cunliffe notes that the subject is understood as "... a reflective individual, an author of meaning or an actor, and is often conflated with human agency", whereas the object is understood as "...that which is perceived and thought about, a material artefact, symbol, text, a universal truth, law or principle" (2011:651).

Cunliffe (2011) argues that this distinction between subject and object is challenged by contemporary debates that offer different perspectives on the relationship between humans and their social structures. For example, Cunliffe (2011) notes that contemporary and contested debates are concerned with such questions as whether humans are born into a society that determines their behaviour, or actively construct society and social structures. Thus, Cunliffe (2011:653) argues that:

“The idea that researchers take either a subjective or objective stance no longer holds: “subjects” may now refer to conscious individuals, discursive “sites”, subjective interpretations, or objective traits, and so on, and “objects” as materialities and agentic entities” (2011:653).

Therefore, Cunliffe (2011) adds intersubjectivity (discussed below) to the framework.

In her revision for Morgan and Smircich’s (1980) framework, Cunliffe (2011) outlines three knowledge problematics – intersubjectivism, subjectivism and objectivism. Drawing on Lather (2006:46, cited in Cunliffe, 2011) these are understood as “a cross-disciplinary sense of where our questions come from, what is thinkable and not thinkable in the name of social inquiry in particular historical conjunctions”.

As with Morgan and Smircich’s (1980) original framework, the three problematics are not clearly established, or beyond dispute, but rather present a framework that is intended to help researchers understand how their world view is related to ways of researching and theorizing (Cunliffe, 2011). In what follows, some of the key features of each problematic are outlined. It is important to note at the outset that the three problematics are not conceived as having precise and definite boundaries, rather they are conceived of, and depicted as having blurred and overlapping boundaries – indicating that they are based on a multiplicity of connected ideas (Cunliffe, 2011).

Cunliffe offers definitions of her three problematics based issues of “...relationality, durability, location of meanings, historicity, mediation and associated forms of knowledge” (2011: 653). Within the three problematics, the issue of relationality is the nature of relationships; durability is concerned with the durability across time and space of such things as knowledge, meaning and society; meaning is concerned with what meaning is and where it is located; historicity is understood as the concepts of progress and time; mediation is concerned with the place of the researcher within the research, and finally, associated forms of knowledge refers to the issue of epistemology (Cunliffe, 2011). Cunliffe's (2011) outline of the issues within each problematic is presented in Table 3.2 (below). Drawing on Cunliffe (2011) the following discussion highlights some of the key features of the problematics with respect to these issues.

Table 3.2: Cunliffe's problematics of intersubjectivism, subjectivism, and objectivism

	<u>Intersubjectivism</u>	<u>Subjectivism</u>	<u>Objectivism</u>
Relationality	Interrelationships emerging and shifting in a dialectical interplay between ourselves, others and our surroundings. Experienced differently by different people	Relationships contextualised between people and their surroundings. People are reflexively embedded in their social world, influenced by and influencing discursive practices etc	Relationships between entities in a pre-existing society, between network mechanisms and system/information processes, cognitive and behavioural elements. Or relationships between discourses (when treated as objects).
Durability	Social experiences and meanings as ephemeral, fleeting moments. Although some common 'sense' of social and linguistic practices play through our interaction	Social realities, meanings, discourses, knowledge are contextual; constructed yet experienced as objective and relatively stable. Perceived, interpreted and enacted in similar ways but open to change	Enabling social structures (e.g.class), institutionalised rules, norms, practices, appropriate behaviours, and traits, etc. Discourses and networks have relative stability but are subject to resistance and change.
Meanings	Indeterminate. Neither fully in nor fully out of our control. Language is metaphorical and imaginative. Meanings in the moment between people.	Shared meanings immanent to the 'artful practices to everyday life', to discourses and texts. Negotiated and specific to time and place.	Common meaning situated in words, structures, roles, and behaviours. Transcend time and space. Language is literal.
Historicity	We are inherently embedded in historical, cultural and linguistic communities. Time is experienced in the present – in living conversations with others	Time and place are subjectively experienced. Progress as a situated human accomplishment – potentially iterative, ruptured or hegemonic.	Time experienced sequentially and universally. Progress is linear, recursive or emerging over time.

Table 3.2: Continued

Mediation	Reflexive hermeneutic. Research as a dialectical interplay between research participants. Focuses on experiences between people. The researcher is embodied and embedded.	Double hermeneutic. Researcher embedded in the world, shaped by and shapes experiences and accounts, mediates meanings of actors. Experience in the world. Researcher as insider or outsider	Single hermeneutic. Knowledge and researcher are separate from the world. Researcher observes, discovers facts and develops predictive theories. Experience of the world. Detached, sometimes critical researcher.
Form of knowledge	Pragmatic knowing: in-situ, knowing-from-within. Transitory understanding and 'witness' thinking (Shotter, 2008). Micro level focus. Research as embedded and embodied.	Pragmatic or syntagmatic: common sense knowledge – naturally occurring actions, interactions, conversations. Mundane activities. Non-replicable knowledge, situated validity. Macro and micro level focus.	Syntagmatic: interdependent or dependent relationships between structural or linguistic elements. Sequences. Replicable or shareable knowledge leading to the accumulation of knowledge and social progress or emancipation. Mainly macro focus.

Source: Adapted from Cunliffe (2011:654).

Within the objectivist problematic, relationships are broadly conceived of as holding between entities or, between discourses that are treated as objects. By contrast, the subjectivist problematic views relationships as being contextualised between people and their surroundings, and people are recognised as being embedded in their social worlds and are both influenced by, and also influence these worlds. The intersubjectivist problematic focuses on interrelationships between people and their surroundings, and views that these 'same' relationships may be experienced in different ways for different people.

The differences are also clear with respect to durability - within the objectivist problematic, social structures, norms and other entities are seen as largely constant, although discourses and networks are viewed as subject to resistance and change. Within the subjectivist problematic, social realities, meanings and so forth are considered to be constructed and contextual but experienced by individuals as being relatively stable, and experienced in similar ways, but nonetheless open to change. By contrast, the intersubjectivist problematic emphasises even less stability - with social experiences and meanings being understood as transient.

With respect to meaning, the intersubjectivist problematic views meanings as indeterminate, existing within the moments between people. Within the subjectivist problematic, meanings are negotiated and contextualised, and shared. Within the objectivist problematic, language is conceived of as being literal, with common meaning being situated in “structures, roles, words, behaviours” (Cunliffe, 2011:654) and transcending both time and space.

There are also clear differences with respect to the way that time is considered between the three problematics. Within the objectivist problematic, time is experienced sequentially and universally, within the subjectivist, time and place are subjectively experienced, whereas in the intersubjectivist problematic "Time is experienced in the present - living conversations with others" (Cunliffe, 2011:654).

With regards mediation, it is clear that the three problematics view the researcher as taking different positions within research. Within the intersubjectivist problematic, the researcher is embedded and embodied in their research. Within the subjectivist problematic, the researcher may be an insider, or outsider, but is embedded in the world, and so is “shaped by and shapes experiences and accounts, mediates meanings of actors” (Cunliffe, 2011:654). Within the objectivist problematic, the researcher is detached from the research, taking an objective stance.

With regards epistemology, researchers within the objectivist problematic mainly take a macro focus, and knowledge can be shared or replicated. Knowledge takes the form of “interdependent or dependent relationships between structural or linguistic elements” (Cunliffe, 2011:654) and sequences. Within the subjectivist problematic, researchers may take both a macro and micro level focus, knowledge is understood as being non-replicable, and having validity within a given situation. The form that knowledge takes within this problematic is "Pragmatic or syntagmatic: common sense knowledge – naturally occurring actions, interactions, conversations." (Cunliffe, 2011:654). Within the intersubjectivist problematic, there is even less objectivity ascribed to knowledge. The researcher is viewed as embedded and embodied, and research is focussed at the micro level. This problematic is concerned with "Pragmatic knowing: in-situ, knowing-from-within" (Cunliffe, 2011, p.654).

The following Table (3.3) outlines the assumptions made within the problematics with respect to ontology, human nature, and the common approaches to research, the research methods and the linguistic features of research within Cunliffe’s (2011) framework.

Table 3.3: Assumptions within the three problematics

Intersubjectivism		Subjectivism			Objectivism	
Core ontological assumptions (the nature of social reality)	Social reality relative to interactions between people in moments of time and space. Relationally embedded. Social community	Socially constructed realities, emerging, objectified and sometimes contested in the routines and improvisations of people. Context is human action and interpretation	Reality as symbolic and linguistic meanings and interpretations. Contextualised in a social site.	Discursive realities constructed by discursive and non-discursive practices and systems. Contested and fragmented. Discursively contextual.	Reality as a process: interrelated actions, elements, structures, and systems. Generalizable or context-dependent	Reality as concrete structures and behavioural patterns, subject to rules and laws. Structural integration or disintegration. Naive realism.
Assumptions about human nature (How we relate to our world)	Humans as intersubjective, embodied, relational and reflexively embedded	Humans as intentional and reflexive subjects, constructors and enactors of social realities within linguistic conventions or routines. Storytellers.	Actors, interpreters, sensemakers. Choosing linguistic resources, managing impressions.	Human as subjectivities, products of discourse, contested and conflicted discursive sites.	Humans as an element in the process, adapting and sometimes managing elements. Information processors and network coordinators.	Humans determined by their environment, socialised into existing social and institutional practices and requirements. Characterized by traits etc.
Research approaches (Theoretical underpinnings)	Hermeneutic phenomenology, relational constructionism, dialogism.	Ethnographic, existential, phenomenology, hermeneutic. Constructionism and constructivism. Dialogic. Inductive	Ethnomethodology, aesthetics, symbolic interactionism, hermeneutic, syntagmatic, or pragmatic. Detached or involved researcher. Inductive. Interpretive procedures.	Poststructuralism, postmodernism, postcolonialism. Syntagmatic. Detached researcher. A critical stance.	Systems and process theories. Critical realism. Critical theory. Institutional theories. Structuration theories, actor network theories.	Positivism, empiricism, functionalism, nomothetic science, statistical or structural connections. A-temporal laws and validity criteria. Rational choice models. Deductive approaches.

Table 3.3: Continued

Research methods (Examples of methods used)	Narrative ethnography, reflexive autoethnography, dialogic action research, social poetics, dialogic analysis, poetry	Narrative and discourse analysis, story, grounded theory, content analysis, poetry, participative inquiry, autobiography	Dramaturgy, story analysis, discourse and conversation analysis, symbolic analysis, grounded theory, content analysis, action research. Semiotics.	Semiotics, textual analysis, critical discourse analysis, deconstruction	Network and systems analysis, historical analysis, material semiotics, boundary object analysis, ideology critique.	Surveys, observation, structured/coded interviews, case studies, focus groups, grounded theory, action research.
Linguistic features of research (Typical words used in research accounts)	Betweenness, living conversations, possible meanings, la parole (embedded speech and relationships), interpretive insights	Narratives, talk, text, metaphor, culture, themes, multiple meanings, sense making	Scripts, plots, performances, roles, stage, mask. Symbolic meaning, artefacts. Managing impressions. Actor, actions and talk	Discourses, marginalisations, resistance, power, dominations, colonolization, supression, subjectivity, body.	Materiality, objects, mechanisms, power, control, 'the system', 'the process mechanisms', emancipation	Categories, norms, roles, properties, variables, schema, rules, structures, causality, patterns, efficiency, 'the organisation', measurement. Progress

Source: Adapted from Cunliffe (2011, p. 654-5)

Towards the right of the objectivist problematic, a concrete reality is accepted but is conceived of as having different characteristics, ranging from being wholly or partially understandable. Towards the left of this problematic, reality and subjectivities are understood to be discursively constructed, and these discourses are treated as objects to be studied by researchers (Cunliffe, 2011). Within the subjectivist problematic there is no independent social reality which can be studied, rather, researchers examine constructions of social realities in a particular context or time (Cunliffe, 2011). However, there are varying ontological positions within the problematic, towards the right of the problematic, reality is understood as being composed of social facts and commonly understood meanings, which have a degree of stability, whereas towards the left of the problematic it is considered that "multiple realities are experienced, constructed, and interpreted in many ways" (Cunliffe, 2011:656). Within the intersubjectivist problematic, the assumptions about social reality vary from the perspective that social reality is constructed between people, and the notion that we are not individuals, but rather, always individuals in relation to other people (Cunliffe, 2011).

As is clear from Table 3.3 there are a range of assumptions about human nature (the way in which humans relate to the world) which are commensurate with the ontological position adopted. Further, Cunliffe (2011) identifies a range of research approaches and methods that are aligned with the different assumptions.

Cunliffe's (2011) framework highlights that qualitative researcher's may hold a range of different positions with respect to the undertaking and conducting of research. Indeed, the above discussion of Morgan and Smircich's (1980) and Cunliffe's (2011) frameworks was intended as an outline of the range of positions that may be adopted by a researcher when undertaking research. The purpose of the discussion was to enable the reader to better locate the present research within the wider context of the various positions available. The present research adopts a social constructionist approach to research and so can be located within the boundaries of Cunliffe's problematics of intersubjectivism and subjectivism. The following section explores social constructionism in more detail, and highlights the philosophical position adopted by the researcher.

3.6.1.1 Social constructionism: Assumptions, ontology, epistemology and meaning

The term social constructionism requires explanation. As Crotty (1998) notes, the term derives largely from Karl Mannheim (1893-47, cited in Crotty, 1998) and Berger and Luckman (1967, cited in Crotty, 1998). Social constructionism is not a discrete position, but a collection of ideas and characteristics (Burr, 1995) and there are multiple interpretations (Burr, 1995; Crotty, 1998).

Burr draws on Gergen (1985, cited in Burr, 1995), and argues that any approach that has at its foundation, one or more of four key assumptions could be considered social constructionist. The researcher holds to these key assumptions, these include:

1. A critical stance towards taken for granted knowledge
2. The ways in which we understand the world are historically and culturally specified
3. Knowledge is sustained by social processes
4. Knowledge and social action go together

(Burr, 1995:3-5)

Researchers working under the first assumption hold that knowledge of oneself and the world cannot be taken for granted, they question the notion that the world easily reveals its nature, and that conventional knowledge is based upon "objective, unbiased observation of the world" (Burr, 1995:3). To demonstrate this point, Burr (1995) cites the example of the categorisation of music – the categories which are used to divide, understand and see the world do not reveal anything about

the world itself. Thus, we may call some music 'classical' and other music 'pop' but there is nothing inherent within the nature of music itself which necessitates these divisions. Thus, social constructionism invites a critical stance from researchers. Indeed, as Crotty (1998) notes, there are no true or valid interpretations, but there are those that are perhaps useful, fulfilling, and so on.

The second assumption is that all ways of understanding are historically and culturally relative. That is, ways of understanding are specific to cultures and histories, and are also products of the economic and social arrangements of a particular time (Burr, 1995). Further, forms of knowledge are therefore artefacts of culture and may not reveal any more 'truth' than any other (Burr, 1995). Considering the example of music again, what is understood and categorised as classical music within a society in mainland Europe, may differ from that in a society in South East Asia.

The third assumption identified by Burr (1995) is that knowledge is sustained by social process - people are engaged in social processes and interactions with each other, and it is through these practices that the accepted and shared versions of knowledge - the accepted ways of understanding the world are constructed. Indeed, Burr states that "It is through the daily interactions between people in the course of social life that our versions of knowledge become fabricated" (1995:4).

The final assumption is that since knowledge and social action go together, there are numerous constructions of the world, and different constructions have different actions that are commensurate with them. Burr (1995) highlights the example of 'drunks' before and after the temperance movement in the United States of America. Before the movement, the prevalent discourse was that drunks were responsible for their actions, more recently the discourse has been that 'alcoholics' are victims of an addiction. These different constructions involve different ways of treating alcoholics - arguably the actions commensurate with the former construction would involve punishment, whereas those commensurate with the latter would involve helping and supporting.

Burr (1995) also highlights the important role that language occupies in social constructionist theory. From the social constructionist perspective, language is seen prior to thought, and so is not a tool used to express the contents of minds (such as thoughts, feelings, desires, loves). Rather, language provides the structure through which such things as thoughts, feelings, and desires become available. There are therefore alternative ways to construct the self and one's events through using different language.

This discussion highlights the assumptions to which the researcher holds, but is useful to consider the precise ontological and epistemological positions adopted by the researcher, and the researcher's contentions with respect to how meaning is formed.

As Crotty (1998) notes, one of the key ontological distinctions between those who claim to hold a social constructionist view is whether they believe all of reality to be socially constructed, or they believe that just social reality is constructed. The researcher holds with this latter view, encapsulated in the following quote (Greenwood, 1994:85, Cited in Crotty, 1998:54):

"Physical and social phenomena... differ in one essential respect. Chairs may exist independently of our knowing that they do; our knowledge of the existence of chairs is not constitutive of their existence. In contrast, social realities do not exist independently of our knowledge of them... Social realities, therefore, are constructed and sustained by the observation of social rules which obtain in any social situation by all the social interactors involved... Social reality is therefore, a function of shared meanings; it is constructed, sustained and reproduced through social life"

Thus, the researcher holds to the ontological view that there is a concrete world, with extant phenomenological objects, such as trees, volcanoes and oceans - the physical matter itself exists. However, following Crotty (1998) these are only meaningful because they are imbued with meaning by humans. The objects themselves are made by the interpretive strategies adopted by individuals (Fish, 1990). Thus, the social world is constructed through interaction and interpretation with these objects, and with others. Some of that interpretation (drawing on the assumptions listed above) is pre-existing, and individuals are born into a world with dominant interpretations but these interpretations are open to change. Thus, the social world is 'real', it is constructed by individuals - and it is the only meaningful reality (Crotty, 1998). Following, Crotty (1998) the researchers' ontological position is both realist (there is an extant world, with extant constructed social reality) and also relativist.

To make the point that social realities are real, Crotty (1998) highlights an article by Fish (1996) in the New York Times, in which Fish (1996) comments on the game of baseball. He states that the elements of the game, such as 'balls' and 'strikes' are real, and are social constructions, and indeed people are paid significant sums to produce or prevent their production. The constructions of 'balls' and 'strikes' may very well change if the rules of the game change.

However, the researcher's position is also relativist, in the sense that individuals can have different ways of interpreting different phenomena. As such:

"We need to recognise that different people may well inhabit quite different worlds. Their different worlds constitute for them diverse ways of knowing, distinguishable sets of meanings, separate realities"

(Crotty, 1998:64)

Such a position necessitates what we can and cannot know of the world. Indeed, social constructionism holds to the view that:

"all knowledge, and therefore all meaningful reality as such, is contingent upon human practices, being constructed in and out of interaction between human beings and their world, and developed and transmitted in an inherently social context"

(Crotty, 1998:42, italics in the original).

Thus, to gain knowledge of the social world it is necessary to understanding the meanings attributed to their world by individuals. Meaning is not inherent in objects but constructed through the engagement of human consciousness with those objects (Crotty, 1998). Thus, there are no true or valid interpretations, but there are those that are useful, fulfilling, liberating, rewarding and so on (Crotty, 1998).

The social constructionist position outlined above has clear implications for research. First, noting the assumptions above, researchers adopting the social constructionist position must take a critical stance towards knowledge. Researchers must not take observations of the world for granted, and must question received knowledge, and their knowledge of their own self. For example, in the context of the present study, the researcher must be careful not to rely on his own preconceptions what constitutes 'good' or 'bad', 'positive' or 'negative' group work. Rather, the researcher must try to lay aside his own assumptions, and focus on the meaning attributed to their experiences by participants.

Second, to gain knowledge of the social world, it is necessary to understand the manner in which individuals within that world construct, interpret and provide meaning to their lives. Given the ontological relativism held by the researcher it is necessary to recognise that different interpretations may be held by different social actors. Thus, in the context of the present study, the researcher must recognise that different students may have different, but nonetheless valid interpretations of their experiences. Social constructionism lends itself to practical fieldwork methods that are "concerned both with obtaining empirical data and with analyzing/presenting

those data" (Lindgren and Packendorff, 2009:37). However, the methods are viewed to be less important as the way in which they are undertaken. It is necessary to recognise the role of the researcher in the generation of any empirical data (Lindgren and Packendorff, 2009) - social constructionism does not aim at, nor is it intended to produce the objective, disembodied research lauded by other approaches.

Third, and following from the above, it is evident that any direct observation or access to the interpretations of others is unobtainable. The researcher continually interprets his own social world, which, during the process of the research study will involve interactions with research participants, and interpretations of these realities in which participants, their actions, behaviours and testimonies feature. It is in this sense that some authors refer to the researcher as a qualitative research instrument (Stake 1995, 2010) who interprets and records social meanings. It is recognised that the experiences described by participants in the present study are likely to be interpreted differently by the researcher (influenced by his experiences as a module tutor, his own educational experiences and so on) than they are by individual students. From this consideration it is clear, following Bryman and Bell (2011), that researchers are embroiled in different levels of interpretation. First, participants interpret and report their social world to the researcher; second, the researcher interprets participants' interpretations, and finally a third interpretation occurs when the researcher interprets the findings in terms of the relevant concepts and theories of the field of study. Interpretation, and the manner in which it is conducted, is then a matter of great importance as these considerations have an impact on the way in which (among other things), interview and observational data are treated. Indeed, it is likely that if care is not taken, the final interpretations made by the researcher may drastically subvert the original views of the participants, thereby adversely affecting the aim of the study to understand and present these views. However, in the words of Williams, describing the work of Fisher (1993) and Geertz (1979) the researcher will consciously and continually strive to "interpret what is going on according to the subjective frame of reference of those observed, to capture the nuances and singular characteristics of the social environment" (2000:212) so as to do justice to the meanings participants attach to their social world.

3.6.2. Types of research

As detailed in Chapter 2, there are different types of research, and different ways in which research can be classified. As in Chapter 2, following Hussey and Hussey (1997), a schema of classifying research according to its purpose, process, logic and outcome is adopted. The classification of the present research project based on this schema is summarised in Table 3.4 (see below).

In what follows, the type of research undertaken in this project is outlined and justified in light of the aims of the research project and the researcher's philosophical views. To avoid a repetition of the material in the previous chapter, a detailed review of the different methodological choices is not presented within this chapter.

3.6.2.1. Research purpose

Following, Hussey and Hussey (1997) the present research has both exploratory and descriptive elements. The decision to engage in research of this kind is informed by the following considerations:

The review of the literature (see 3.5) highlighted that there are a dearth of studies directly examining knowledge sharing amongst students during group work. Further, to the researcher's best knowledge there are no studies that adopt the lens of knowledge management to investigate this study's research question. Thus, the researcher contends that there is a need for exploratory research within this broad area that will provide insights for both academics and practitioners to further investigate.

However, this research also has descriptive elements, as it is concerned with describing participants' experiences of group work, as interpreted and understood by the research participants themselves. It is contended that by taking this approach, the research findings and conclusions will be of relevance to those who have taken part in the research, and also to those working within similar higher education contexts.

3.6.2.2. Research logic

There are two broad approaches to research logic: deductive and inductive (Hussey and Hussey, 1997). This research project adopts inductive research logic. The decision to engage in inductive research is based on two considerations.

First, the review of the literature (see 3.5) highlighted that there were no detailed models, theories or frameworks that specifically detail the factors impacting students' willingness to share and use knowledge during group work within higher educations. Thus, there is no comprehensive theory

from which to draw testable hypotheses. Further, by taking an inductive approach to the proposed study, this research can fill a gap in the relevant literature.

Second, the aim of the study is to gain an understanding of how students' interpersonal trust relationships impact their willingness to share knowledge during group work with a view to understand how to increase student knowledge sharing, knowledge use, and participation within group work activities. Given this, it is contended in reference to Table 2.3, that the inductive approach is best suited as it leads to the generation of theory and an understanding of the phenomena. The deductive approach is unsuitable as it would involve adoption of specific operationalised concepts which must be strictly measured, and this is likely to make it impossible to achieve the aims of the study, and would not be consistent with the social constructionist position adopted. As noted, according to this position meaningful knowledge of the social world is gained by exploring and understanding the manner in which individuals construct and interpret their own social worlds (Crotty, 1998). Thus making the inductive approach

3.6.2.3. Research processes

Within the social sciences there are two main research processes: quantitative and qualitative (Hussey and Hussey, 1997). For this research project, the researcher has adopted a qualitative research process. The decision to adopt a qualitative research process follows primarily from the researcher's philosophical position, a consideration of the aims and objectives of the research, its inductive approach and the data collection methods associated with qualitative research. As noted, the research is exploratory, descriptive, and inductive, and as highlighted in Chapter 2 the data collection methods associated with the qualitative research process, such as focus groups and semi-structured interviews, provide the researcher with an opportunity to gain in-depth descriptions and understandings of participants' perceptions and experiences, and are therefore more appropriate for the proposed research.

3.6.2.4. Research outcomes

Hussey and Hussey (1997) state that there are two standard classifications of research outcomes: applied and basic research. The present research is both basic and applied. It is basic as it intends to make a general contribution to the pedagogic and knowledge management literatures, but is also applied as it provides insights into a particular issue and set of educational practices.

3.6.2.5. Section summary

Within this section the type of research conducted has been outlined according to the schema proposed by Hussey and Hussey (1997), and is summarised below in Table 3.4

Table 3.4: Summary of the research

Category	This research
Purpose	Exploratory and Descriptive
Process	Inductive
Logic	Qualitative
Outcome	Applied and Basic

3.6.3. Research methodologies

As Hussey and Hussey (1997) note certain methodologies are associated with specific research philosophies and approaches. In this section the researcher's consideration of four relevant methodologies are presented. These considerations ultimately led to the rejection of action research, ethnography and grounded theory methodologies, and the adoption of a case study methodology.

3.6.3.1. Rejection of action research

Action research is a type of applied research (Hussey and Hussey, 1997) and therefore is usually undertaken to provide an answer to a specific problem. The term action research was first coined by Lewin (1946) and was described as a cyclical process consisting of planning, acting, observing and reflective stages. The process involves the identification of an objective that is to be achieved, the formulation of a plan to achieve that objective (planning), the implementation of that plan (acting), monitoring and considering the results of the implemented plan (observing and reflecting), and then making changes to the plan where appropriate. The process is then repeated, and it is in this sense that the process is cyclical.

While interpretations of action research vary, Saunders, Lewis and Thornhill (2007), drawing on a variety of sources, highlight the following four central themes common to most interpretations:

1. The focus of action research is on research in action, not research about action
2. Action research involves a collaborative partnership between researchers and practitioners
3. Action research is iterative
4. The results of action research should have implications beyond the immediate research project

An important point from the above is that action research requires close collaboration with a practitioner or an organisation, and out of necessity the researcher must be able to have a direct or indirect impact on the practice of the organisation.

The action research approach may be particularly suited to the present research topic; as Bryman and Bell (2010) note action research is particularly strong in addressing procedural problems within organisations such as learning and change. The primary benefit of adopting the action research methodology is that participants of the study may find that the research project enhances their knowledge sharing and use, and ultimately their educational attainment.

However, the action research methodology is rejected due to the time constraints placed on the research by the funding body. The grant captured for this project required it to be completed between May and July of 2011, and at this point in the academic semester, no new group work projects were being completed by students in the Business School in which the researcher could undertake an intervention.

3.6.3.2. Rejection of ethnography

Ethnography stems from anthropology (Saunders, Lewis and Thornhill, 2007) and can be understood as an approach in which "...the researcher uses socially acquired and shared knowledge to understand the observed patterns of human activity" (Hussey and Hussey, 1997:68).

The main method of data collection in ethnography is participant observation, and while there are many interpretations of ethnography, Bryman and Bell state that "An ethnographic approach implies intense researcher involvement in the day-to-day running of an organization, so that the researcher can understand it from an insider's point of view" (2011:425). Given the aims and objectives of the proposed project, and its exploratory and descriptive approach, it would seem that ethnography is a highly appropriate methodology. Indeed Saunders, Lewis and Thornhill note that ethnography is "...appropriate if you wish to gain insights about a particular context and better understand and interpret it from the perspective(s) of those involved" (2007:143).

However, despite the attractions of this methodology it is rejected on the same grounds as the action research methodology. The time frame in which the study must be completed due to funding constraints removes the possibility of engaging in ethnographic research as no group work projects were being conducted with the Business School at this time.

3.6.3.3. Rejection of grounded theory

Grounded theory uses:

“a systematic set of procedures to develop an inductively derived grounded theory about a phenomenon. The findings of the research constitute a theoretical formulation of the reality under investigation”

(Strauss and Corbin, 1990:24) Cited in Hussey and Hussey (1997)

In the grounded theory methodology, data collection and analysis proceeds in tandem (Bryman and Bell, 2011), with the researcher alternating between inductive and deductive modes of thought (Hussey and Hussey, 1997). While there are multiple interpretations of grounded theory, Hussey and Hussey (1997) posit the following as the main features of the methodology:

- The researcher inductively gains information that is apparent in the data that has been collected
- The researcher then employs a deductive approach, and turning away from the data thinks rationally about missing information and forms conclusions based on logic
- When conclusions have been drawn the researcher returns to an inductive approach and tests these tentative suggestions with existing or new data
- By returning to the data, the deductive suggestions can be supported, modified or rejected.
- The supported or modified suggestions can be used to form a hypothesis and investigated more fully

While grounded theory arguably provides a clear and systematic approach to generating theory it is rejected as inappropriate for the proposed study. The aim of the proposed project (see 3.6.4.1) is not to generate theory that has explanatory power (detailing cause and effect relationships) within or outside the research setting. Rather, the main aim of the project is to explore, describe and understand participants’ perceptions of how their interpersonal trust relationships impact their willingness to share and use knowledge during group work.

3.6.3.4. Adoption of case study methodology

According to Robson (2002:178), the case study is defined as a “strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real life context using multiple sources of evidence” (Cited in Saunders, Lewis and Thornhill, 2007:139).

Importantly the case study involves the detailed and intensive analysis of a single case (Bryman and Bell, 2011) and is distinguished from other methodologies by its “focus on a bounded situation or system, an entity with a purpose and functioning parts. The emphasis tends to be upon intensive examination of the setting.” (Bryman and Bell 2011:60)

As Hussey and Hussey (1997) note, the case study involves the gathering of detailed information with a view to obtaining in-depth knowledge; the case study is also associated with qualitative methods and is often used for exploratory and descriptive research.

There are a number of advantages to adopting the case study methodology. First, the present research study is exploratory and descriptive; therefore, it aims to gain an in-depth understanding of participants' perceptions and experiences, and adopts a qualitative research process. From the key features of the case study approach highlighted above, it is clear that the case study methodology is highly appropriate. Second, the case study approach emphasises the use of multiple types and sources of evidence, and thus the researcher is able to examine the phenomena under study from multiple perspectives (Saunders, Lewis and Thornhill 2007), arguably leading to more reliable research findings. Finally, as Yin (2009) notes, the case study is an appropriate methodology when the researcher wishes to engage in research of contemporary events over which he has little control.

However, there are difficulties associated with the case study methodology - including concerns about the validity and generalisability of the findings (Bryman and Bell, 2011) and problems with negotiating access. These issues are considered below.

3.6.4. Case study Design

Yin (2009) notes that a strong case study research design contains five essential components:

1. The study's questions;
2. Its propositions, if any;
3. Its unit of analysis;
4. The logic linking the data to the propositions, and
5. The criteria for interpreting the findings.

These are considered in turn, followed by the time-frame of the study.

3.6.4.1. Research aim, objectives and questions

The main aim of this study is to gain an understanding of how students' interpersonal trust relationships impact on their willingness to share knowledge during group work, with a view to increasing student knowledge sharing and use, and engagement with group work activities. Additional aims include achieving an understanding of students' experiences and perceptions of undertaking group work, and the manner in which group work is conducted within Bangor Business School.

In accordance with this aim the main objectives of the research are to:

- Gain an understanding of students' experiences and perceptions of group work in Bangor Business School as a vehicle for sharing knowledge.
- Determine the degree to which students are willing to share tacit knowledge with their peers during group work
- Determine the degree to which students are willing to use the tacit knowledge gained from others during group work
- Determine to what extent students believe their interpersonal trust relationships with their group-mates impacts upon their willingness to share knowledge during group work.
- Understand students' preferences for group allocation to inform curriculum design and delivery

The achievement of these objectives provides an answer to the overall research question:

- 1) Is there one best method of allocating students to groups when the purpose is to maximise knowledge sharing?

3.6.4.2. Research propositions

Propositions direct the researcher's attention to something that should be examined within the scope of the study; however, not all studies require propositions, such as experiments, surveys and methodologies that are exploratory in nature (Yin, 2009). As the present work is exploratory, there is little benefit to be derived from stating propositions; rather, pertinent issues will become apparent through analysis of the data collected. However, as Yin (2009) notes it is useful to be clear about the purpose of the exploration and the criteria by which the exploration will be judged. Thus, to this end the following sub-questions are advanced to guide the case study research, which, once answered, will provide a full and comprehensive answer to the primary research question:

- 1) What are students' experiences and perceptions of group work in Bangor Business School as a vehicle for sharing knowledge?
- 2) To what extent are students willing to share tacit knowledge with their peers during group work?
- 3) To what extent are students willing to use the tacit knowledge gained from others during group work?
- 4) To what extent do students believe their interpersonal trust relationships with their group-mates impact upon their willingness to share knowledge during group work?
- 5) What are students' preferences for group allocation?

3.6.4.3. The unit of analysis

As Hussey and Hussey note: "A unit of analysis is the kind of case to which the variables or phenomena under study and the research problem refer, and about which data is collected and analysed" (1997:66).

Stake (1995) notes that while the unit of analysis in a case study is usually the case itself, it can be a variety of phenomena that are of interest to the researcher; in the proposed research the unit of analysis is the students at Bangor Business School who have engaged in group work.

3.6.4.4. The logic linking the data to the research

Within this section the data collection and analysis methods that are to be adopted are presented, defended and their relevance to the research question is demonstrated. However, it is useful to first provide a brief description of the case study organisation to place the following discussion within context.

3.6.4.4.1. Description of the case study organisation

Bangor Business School (BBS) is a part of the College of Business, Law, Education and Social Sciences within Bangor University. Bangor University is located within North Wales and was founded in 1884. Bangor Business School offers a wide range of taught and research undergraduate and postgraduate degree programmes in the areas of business and management, banking and finance, marketing and accounting.

3.6.4.4.2. Rationale for the selection of the case

It is often suggested that researchers should select so-called 'critical' cases because they encompass a particularly prevalent or best example of the phenomena in which the researcher is interested (Hussey and Hussey, 1997; Yin, 2009). However it is not necessary to limit case study research to a single case, and as Hussey and Hussey (1997) note the selection and investigation of similar cases within one study can help to improve the generalisability of findings, whereas dissimilar cases will help to extend or modify any theory which is being generated or tested.

In the present research, a single case - BBS students - have been selected for two primary reasons. First, having been the product of a BBS Master's programme, the researcher is interested in investigating and improving practice within his own institution. Second, the case provides a convenient and accessible sample - and gaining access often presents a considerable difficulty in case study research (Stake, 2005; Yin, 2009)

3.6.4.5. Data collection methods, sources and analysis

According to Yin (2009), there are multiple sources of evidence that can be used when conducting a case study and each has advantages and disadvantages associated with its use (see Table 3.5). The use of multiple sources of data in a single study to examine the same phenomena is termed data triangulation (Ackroyd and Hughes, 1982; Hussey and Hussey, 1997; Yin, 2009).

Table 3.5: Different sources of evidence

<u>Source of evidence</u>	<u>Strengths</u>	<u>Weaknesses</u>
Documentation	<p>Stable - can be reviewed repeatedly</p> <p>Unobtrusive - not created as a result of the case study</p> <p>Exact - contains exact names, references, and details of an event</p> <p>Broad coverage – long span of time, many events, and many settings</p>	<p>Retrievability - can be difficult to find</p> <p>Biased selectivity, if collection is incomplete</p> <p>Reporting bias - reflects (unknown) bias of author</p> <p>Access may be deliberately withheld</p>
Archival records	<p>[<i>Same as those for documentation</i>]</p> <p>Precise and usually Quantative</p>	<p>[<i>Same as those for documentation</i>]</p> <p>Accessibility due to privacy reasons</p>
Interviews	<p>Targeted - focuses directly on case study topics</p> <p>Insightful - provides personal causal inferences and explanations</p>	<p>Bias due to poorly articulated questions</p> <p>Response bias</p> <p>Inaccuracies due to poor recall</p> <p>Reflexivity - interviewee gives what interviewer wants to hear</p>
Direct observations	<p>Reality - covers events in real time</p> <p>Contextual - covers context of “case”</p>	<p>Time - consuming</p> <p>Selectivity - broad coverage difficult without a team of observers</p> <p>Reflexivity - event may proceed differently because it is being observed</p> <p>Cost - hours needed by human observers</p>
Participant observation	<p>[<i>Same as above for direct observations</i>]</p> <p>Insightful into interpersonal behaviour and motives</p>	<p>[<i>Same as above for direct observations</i>]</p> <p>Bias due to participant-observer’s manipulation of events</p>
Physical artefacts	<p>Insightful into cultural features</p> <p>Insightful into technical operations</p>	<p>Selectivity</p> <p>Availability</p>

Source: Yin (2009:102)

Triangulation, the practice of using mixed methods, is not new, and Ackroyd and Hughes (1982) attribute the idea to Mills (1959), whom they state argued for the examination of all available data when attempting to understand complicated social processes, as a remedy for his concerns of the specialisation and focus of sociologists on the statistical analysis of quantitative data. Ackroyd and Hughes suggest that his concern is not with the use of quantitative data per se, but is that “...too much concentration on one technique without appropriate ideas and theories will lead to a deficient understanding” (1982:171). Numerous authors argue for the benefits of adopting mixed research methods to improve the validity of research findings (Bryman and Bell, 2011, Saunders, Lewis and Thornhill, 2007; Richards, 2009). However, triangulation is not merely a feature of research design determined prior to data collection. Stake (1995) highlights that triangulation is an active research activity, whereby the researcher, having identified something of interest during data collection, seeks to corroborate it through further investigation using different data collection methods and/or sources.

Given the point in the academic year at which data generation took place, and the lack of any group work projects being carried out within the business school, only a number of data collection methods were available, namely, questionnaires, interviews and focus groups. Ultimately, focus groups were chosen as the method of data collection, and the reasons for this are presented below.

3.6.4.5.1. Questionnaires

The principal advantage of using questionnaires is that they would have allowed the researcher to reach a large number of students, and could have been designed to yield a large amount of qualitative data. However, response rates for questionnaires can be low (Bryman and Bell, 2011) – and more importantly, they would not have provided the opportunity for the researcher to investigate and explore the points made by participants more fully. Further, the use of questionnaires can lead to problems of concept equivalency (Saunders, Lewis and Thornhill, 2007) – whereby the researcher imputes the meaning ascribed to a given statement by participants which it does not actually have, based on the meaning the researcher ascribes to given words. Ultimately, the use of questionnaires would not have allowed for the in-depth exploration of participants experiences and perceptions that the researcher was seeking.

3.6.4.5.2. Interviews

There are a number of different types of interviews (Saunders, Lewis and Thornhill, 2007) and Bryman and Bell (2011) describe focus groups as a special type of interview.

The use of one-one semi structured interviews (see Chapter 4 for discussion) provides a number of additional advantages to those ascribed to focus groups (see below). The primary advantage would have been privacy, it has been highlighted that group work can often be an emotional and difficult for students (McClelland, 2012) and the one-one interview setting may have provided the opportunity and space for participants to share such experiences. Another advantage is that one-one interviews provide an opportunity for the in-depth exploration of individual experiences (Ackroyd and Hughes, 1982). However, despite these advantages, the use of one-one interviews was rejected due to time and cost-constraints. There was not sufficient time or financial resources available to undertake one-one interviews with sufficient numbers of students within the period of the project.

3.6.4.5.3. Focus groups

Despite the advantages of a range of other data collection methods, focus groups were adopted as the method of data generation. This choice was influenced by both methodological and practical considerations.

With respect to the former, Kandola (2012) highlights that focus groups work particularly well when one is interested in exploring peoples' experiences and feelings in detail. Further, they are particularly good at determining the prevailing mood or climate. Thus, given that the aim of the project was to examine experiences and perceptions of group work, the choice of focus groups as a method of data generation was judged to be particularly appropriate.

With respect to the latter, as there were both cost and time constraints associated with the project, the use of focus groups was particularly appropriate as it allowed for the generation of a large amount of data from a within a relatively short period of time when contrasted with one-one interviews.

3.6.4.5.4. Sampling

Sampling procedures are often undertaken when it is not feasible to gather data from the entire population (Hussey and Hussey, 1997). Time and cost restraints associated with the project meant that a sampling strategy would have been necessary if interest in participating in the project exceeded the resources available. However, the response to the calls for participation resulted in 32 individuals who were willing to participate, and this was within available resources. Thus, a convenience sampling method was adopted, being a sample that one has chosen for their 'availability and willingness to respond' (Gravetter & Forzano, 2009:141). Convenience samples do have their disadvantages, and may lead to sample bias (Hussey and Hussey, 1997). Arguably those who chose to participate may have had particularly strong interests in the topic due to their own

positive or negative experiences of group work. As a result, the findings from a convenience sample are unlikely to be representative of the wider population. However, the researcher contends that this is not detrimental as the purpose of this study is not to make generalisations about the wider population but to explore participants' perceptions and experiences.

3.6.4.5.5. Data analysis

There are multiple ways to analyse qualitative data, and the choice is influenced by the philosophical position of the researcher and the aims of the research study (Richards, 2009). The central aim of this study is to gain an in depth understanding of how students' interpersonal trust relationships impact their willingness to share tacit knowledge during group work. The social constructionist approach holds that all *meaningful* reality is socially constructed (Crotty, 1998). Therefore, to achieve the aims of the research it is necessary to explore and understand the manner in which participants construct and interpret their experiences of group work, and the meanings that they attach to these experiences.

Ackroyd and Hughes (1982) argue that there is a relationship between the types of data collected, the methods used for its collection, and its subsequent analysis. Having adopted the social constructionist position, and chosen to generate qualitative data through focus groups, the researcher is required to select a method of analysis that is commensurate with these choices. Thematic analysis is a method by which patterns (themes) within data are identified, analysed and reported (Braun and Clarke, 2006). Identifying common themes in the data generated by focus groups will allow for an understanding of the common and contrasting ways in which participants construct and interpret their experiences of group work. This will allow for the aims of the research, and the research questions to be addressed.

The focus on common themes may seem counterintuitive – since, as argued in 3.6.1, it is held that the different interpretations and meanings attached to their social world by each individual is equally valid. Notwithstanding this point, the examination of common themes ensures that the findings have practical utility. If common themes are discovered, then recommendations that address the interpretations and meanings attached to group work by the majority of participants can be offered. It may also enable practitioners (such as tutors) to look for and recognise these patterns as they emerge during group work situations.

Analysing qualitative data is often difficult and time consuming (Hussey and Hussey, 1997). Richards (2009) suggests that it is useful to keep records of all data (interview transcriptions, observational reports, documents) using Computer Aided Qualitative Data Analysis Software (CAQDAS) to speed

up the data analysis process. Richards (2009) also suggests that researchers keep a record of their thoughts, and tentative interpretations that are made throughout the research process as these insights can be invaluable.

Thus, the various forms of data were recorded and transcribed and stored using NVivo 7. Following this, data was analysed according to a general analytic strategy that aggregates the meanings that are apparent in the data collected (Hussey and Hussey, 1997). This was an on-going process (as advised by Stake, 1995; Richards, 2009; Yin, 2009 and others) which, following Saunders, Lewis and Thornhill (2007), was comprised of a three stage iterative analytical process, repeated throughout the research study:

First, categories (codes or labels) were inducted from an assessment of the data; these categories were used to meaningfully group data according to the themes which emerge.

Having identified these categories, relevant 'chunks' of data were then to be subsumed under them; this aggregation of data according to categories led, eventually, to the construction of coherent narratives according to meaningful themes that emerged from the data.

Finally, the relationships between the categories were investigated and any tentative hypotheses or propositions that emerge were tested with existing data, new data and by comparing them to the literature to seek alternative explanations.

This process was iterative, as new data led to new categories, and the on-going consideration of the data led to the further sub-divisions of categories.

Examples of the thematic analysis process are presented within Appendix F

3.6.4.5.6. The criteria for interpreting the findings

Making a judgement of the research findings is an activity which will necessarily take place following the completion of the research project. However, Miles and Huberman (1994) suggest that findings can be judged on the basis of their objectivity, reliability, internal validity, external validity and utilization. The researcher will take the following steps as advised by Miles and Huberman to maximise the value of the research (see Table 3.6).

Table 3.6: Criteria for judging the research findings

Criteria	Steps to be Taken
Objectivity: The test of objectivity is to determine the neutrality of the research findings, particularly the extent to which they have been influenced by the researcher's biases	<ul style="list-style-type: none"> • The study's methods and procedures are to be described explicitly and in detail • The sequence of data collection, processing and subsequent conclusion drawing is to be described in detail • The study's conclusions are to be linked explicitly with displayed data • The final report will include explicit considerations of the role of the researchers values, beliefs and assumptions during the study • Competing conclusions will be considered and discussed within the report
Reliability: The test of reliability is concerned with whether the process of the study has been reasonably consistent and stable over time	<ul style="list-style-type: none"> • The researchers role within the research sites will be made explicit • Basic paradigms and constructs will be clearly specified • Attempts will be made to collect data across all relevant settings, participants and at relevant times • Data quality will be checked for bias, deceit and similar
Internal validity: The test of internal validity is concerned with whether the findings are an accurate description of the phenomena understudy – essentially what is their truth value.	<ul style="list-style-type: none"> • Any areas of uncertainty will be identified and made explicit • Negative evidence will be sought and carefully considered • Rival explanations will be discussed in the final report • Where triangulation among data sources occurs it will be made explicit, and where not, explanations will be sought
External Validity: The test of external validity is concerned with the generalisability of the findings, determining whether they are transferable to other contexts	<ul style="list-style-type: none"> • The final report will consider the degree to which the findings can be generalised • The findings will include detailed descriptions such that the audience can assess the transferability of the findings to their own context • The degree to which the findings conform to prior theory will be discussed • The final report will highlight other settings where the findings may be tested further • Sufficient detail will be provided such that the research could be replicated in other settings
Utilization: The test of utilization is concerned with determining the use of the findings for those involved in the research, and its wider audience	<ul style="list-style-type: none"> • It will be ensured that the findings are intelligible and accessible to potential users – through publication • Conclusions and recommendations will be provided that are useful for solving specific problems • It will be ensured that the knowledge offered in the findings is usable, to some extent by practitioners • The ethical implications of the study will be made explicit

Source: Adapted from Miles and Huberman (1994:278-280)

3.6.4.6. Time-frame

Case study research often takes place over a long period of time (Stake, 1995); this is advantageous as it allows multiple opportunities for observations and interviews through which the researcher is

able to gain an understanding of the meanings participants attach to events within the context under study. Within this study, the research was conducted between May and July, this being a requirement of the research funding.

3.6.5. Ethical considerations

This section details the researcher's consideration of ethical issues that are of import to the present work.

Coolican (1992:249) notes it is "difficult to conduct much research at all without running into ethical arguments" and while various ethical issues may arise during the research process one principle is at the cornerstone of all ethical consideration: the avoidance of harm (Saunders, Lewis and Thornhill 2007). The researcher has judged that the potential harm that could come to participants in the study is low. However, the publication of students' experiences, perceptions and opinions of others and their university may potentially affect their reputation or cause interpersonal issues with others. Thus, to mitigate this risk, the researcher has considered two predominant ethical issues, namely, informed consent and anonymity. The steps that the researcher took to ensure informed consent and the anonymity of participants are considered below.

3.6.5.1. Informed consent and anonymity

Denscombe (2002) suggests that participants should be informed about the nature and use of the research before giving their consent. To ensure that participants were able to give their full and informed consent prior to participation a two stage process was undertaken. First, the email that invited students to participate contained a description of the aims of the study, and the uses of the data and assured participants that they would remain anonymous, and assured participants that they could withdraw from the study at any time without detriment. Further, the email contained a participant information sheet and consent form (see Appendix B) that emphasised these points and provided more detail. Second, participants who attended the focus groups were asked to sign the participant information sheet and consent form - and were invited to ask any questions that they may have both prior to and during the interview. While these steps may not have necessarily avoided harm to participants – they do ensure that participants are willing to accept the risks associated with the study.

However, it is not sufficient to only consider the potential harm that may come to research participants; it is also necessary to consider the effect that the research may have on non-participants (Gorard, 2002). While it would be impractical to gain consent for the proposed research

from those not directly involved, one way of protecting these individuals is to ensure the anonymity of participants.

Indeed, Miller and Brewen (2003) highlight the importance of anonymity to protect individuals when conducting sensitive research. While some authors, such as Hussey and Hussey (1997) suggest that all participants should be given the opportunity to remain anonymous – the researcher contends that given the sensitive nature of the project it is necessary in the present case to go further. Thus, the researcher intends to make use of a process of fictionalisation to protect participants (described below).

3.6.5.2. Fictionalisation

Fictionalisation or manipulation is process of moderating the writing of qualitative research, usually with a view to maintaining anonymity. It may be necessary to engage in such manipulation in instances where respondents could be identified and should not be, by fictionalising details of case study research, although in doing so care must be taken to ensure that the context of the data is retained (Richards, 2009).

A slightly different example of the use of fictionalisation during case study research is provided by Stake (1995). Stake (1995) describes a situation in which he observed a series of events which he believed was critical to his research report but that the participant involved did not wish to be published as he felt it would reflect poorly upon him. Thus, to overcome the ethical dilemma Stake (1995) describes fictionalising the account and incorporating key themes into different parts of the report thereby ensuring that the audience was given an account of the case that contained the important findings of the research while protecting the participants involved.

Humphreys and Watson (2009), in their consideration of ethnographic writing, present a typology of fictionalisation consisting of four forms distinguished by the degree of manipulation undertaken by the researcher (see Table 3.7). While the present work is not ethnographic, it is contended that the typology offered by Watson and Humphreys is a useful tool for use in a wide range of qualitative research, and the researcher will embark on a process of fictionalisation as described as type C and D below.

Table 3.7: Humphreys and Watsons' four forms of fictionalisation

A Plain Ethnography	B Enhanced Ethnography	C Semi-fictionalised Ethnography	D Fictionalised Ethnography
A traditional social science account of events occurring within the investigation of a single case	An account of events occurring within the investigation of a single case which uses the presentational techniques of the novelist: descriptive scene-setting; use of dialogues; author as a character in the narrative; inclusion of emotional responses by author and subjects; attention to the perspectives and stories of subjects	A restructuring of events occurring within one or more ethnographic investigations into a single narrative (incorporating B form features) This is an invaluable way of using research 'data' which is highly sensitive or confidential and which would not be publishable without very heavy disguising	A drawing on ethnographic and related experiences from the author's life to construct an entertaining and edifying narrative (incorporating B and C form features). Characters and events may be 'created' out of materials gathered over the authors personal and scientific life

Source: Adapted from Humphreys and Watson (2009)

3.7. Procedure

This section describes the procedures undertaken by the researcher in the carrying out of the research, and presents the results and key findings of the work.

3.7.1. Recruitment and sampling

Multiple emails were sent out to all students enrolled on Bangor Business School programmes, inviting them to partake in the focus groups. This introductory email included a participant information sheet and consent form (described above) and stressed the nature of the study, the research questions, and the time required. Further, the email noted that participants would receive £10 in cash for their participation. The email asked students to register their interest with the researcher.

Having sent out multiple emails over a two week period, the researcher contacted students with a range of potential dates and locations. This resulted in recruiting 32 undergraduate and postgraduate students within Bangor Business School who have taken part in group work projects to participate in the research. The number of interested students did not exceed the researcher's resources and so no sophisticated sampling method was used, indeed, as stated above the sample is best characterised as being a convenience sample - one chosen for its 'availability and willingness to respond' (Gravetter & Forzano, 2009:141).

The following table (3.8) presents the demographic details of respondents⁷:

⁷ Information was not provided by all participants

Table 3.8: Demographics of participants

Participant#	Gender	Age	Country of Origin	Degree	Year	Work Experience (Years)
1	M		Indian	BA Accounting & Finance	UG-1	
2	M		Indian	BSc Business & Economics	UG-1	
3	F	21	Britain	BA Marketing	UG-2	5
4	M			Banking & Finance	UG-2	
5	F			Econ/Accounting	UG-2	
6	F		Britain			
7	F	22	China	Accounting & Finance	UG-3	0
8	F	23	China	Banking & Finance	UG-3	0
9	F	22	China	Accounting & Finance	UG-3	1
10	M	21	China	BSc Accounting & Finance	UG-3	0
11	M	21	Bangladesh	BSc Accounting & Finance	UG-2	
12	M	46	Britain	Law & BS	UG-3	27
13	M	32	India	MBA Islamic Banking & Finance	PG	5
14	M		India	MBA Banking & Finance	PG	
15	F		China	MSc Accounting & Finance	PG	
16	F	25	China	MBA Management	PG	5

Table 3.8 (Continued)

17	F	24	India	MBA Management	PG	1
18	M		China	MBA Banking & Finance	PG	
19	M		Britain	MSc Consumer Psychology	PG	
20	M	28	Britain	MBA Management	PG	10+
21	M				PG	
22	F	23	Germany	MSc Consumer Psychology w/ Business	PG	2
23	M				PG	
24	F	21	India	MBA Management	PG	2-3Month
25	M			MBA Marketing	PG	
26	M	27	India	MBA Business & Finance	PG	4
27	F	24	Malaysia	MA Business & Marketing	PG	0
28	M	25	India	MBA Marketing	PG	2-5Years
29	F	38	Britain	MBA Management	PG	18
30	F	23	China	MBA International Banking & Dev	PG	0
31	M		Non-EU		PG	
32	M				PG	

Key: F=Female, M=Male, UG-1 = Undergraduate Year 1, UG-2=Undergraduate Year 2, UG-3=Undergraduate Year 3, PG=Postgraduate

The following table (Table 3.9) shows the number of focus groups and the participants in attendance:

Table 3.9: Focus groups and participants

Focus Group #	Participant #
1	1, 2
2	3, 4,5,6
3	7, 8, 9, 10, 11, 12
4	13, 14, 15, 16, 17, 18, 19
5	20, 21, 22, 23
6	24, 25, 26, 27, 28, 29, 30, 31, 32

3.7.2 Focus group procedure

Each focus group was facilitated by the researcher, and notes were taken by another Doctoral candidate (Charlotte Hillier).

Each session started in the same way, with participants being welcomed into the room and with the researcher and Charlotte introducing themselves. Participants were then invited to partake of the available refreshments (biscuits, tea and coffee). Once everyone had arrived, participants were issued with a participant information sheet and consent form, and in accordance with the advice offered by Kandola (2012), were verbally made aware of its contents (these sheets had already been supplied to participants prior to their arrival). They were informed of:

- The purpose of the meeting, the outputs of the study, the reason they had been chosen and the practicalities and logistics of the session (length of the session, availability of tea, coffee, water and the location of bathrooms).
- The steps taken to ensure confidentiality and anonymity – the participant information sheets highlighted to participants that they would remain anonymous, their responses kept confidential and that they had the option of removing themselves from the study at any time and without detriment.

- The researcher's credibility – following the reading of the participation sheet, I took the time to explain my own interest in group work, and my hope that this study may improve group work within higher education institutions.

Once this had been done, and participant information sheets and consent forms had been signed, the digital audio recorder was started, and everyone was asked to introduce themselves, by stating their name and something else about themselves.

Following the completion of this exercise, I asked the following key questions that were asked in each focus group:

1. Have you had any positive experiences during group work?
2. Have you had any negative experiences during group work?
3. Have you found group work to be a good way to share your skills with others?
4. Have you found group work to be a good way to share your beliefs, ideas and opinions with others?
5. Is it easier to share your skills, beliefs, ideas and opinions with group-members you are close to or who are friends, or who are competent, reliable and good at the work?
6. Which of the following allocation methods do you prefer: self-selection, random and engineered⁸
7. How can we improve group work?

As noted, the focus groups had a semi-structured schedule and so the order of questions varied. However, all started with asking about positive and negative experiences of group work and participants' responses were used to transition into other scheduled topics.

Following Kandola (2012), I also tried to ensure that all participants participated, by allowing those who were so inclined to do so to, speak, and then addressing individuals by name and asking them for their views if they had not contributed. In addition, by prior arrangement, Charlotte also asked participants for their views if she judged that I had neglected to include them.

A range of questioning methods were used including using checking and probing questions and asking about critical incidents, these are used respectively to confirm the researcher's interpretation and provide further insights and substantive examples of participants experiences (Saunders, Thornhill and Lewis, 2007; Bryman and Bell, 2011).

⁸ Explanations were given

Following the completion of the focus groups students were thanked for attending. At a later time students were contacted and presented with the £10 that they had been offered for participating.

3.7.3. Learning from the process

Although all focus groups were judged to be successful, the central difficulty in the early focus groups was the researcher's inability to keep time. The initial discussions of positive and negative discussions were often the most emotive, and it seemed that these were the issues that participants often wanted to discuss at length. Further, other topics appealed to other participants and since the content of these discussions was often pertinent and insightful, some of the early focus groups ran over-long and not all participants' views were necessarily explored in as much detail as might have been desired.

However, after a few sessions I learnt to moderate this by politely and emphatically thanking participants for sharing their views, but stressing that we must move on and that we could return to these issues later if there was time.

3.7.4. Data analysis

Following each focus group, the discussions were transcribed and observations aggregated, and a thematic analysis of the data was performed to enable comparison of viewpoints within and across groups. This involved the open-coding of text, followed by the grouping of codes into categories, and these categories being further grouped into key themes. Once the researcher had completed this process - these codes and themes were shared and discussed with the researcher's supervisors.

The analysis of the data revealed a number of emergent themes and sub-themes. These findings are described and discussed in the following section.

3.8. Findings and discussion

The following section is composed of four sub-sections. In the first section, the key themes and sub-themes that were identified through analysis of the data are presented and discussed. The second section presents the researcher's overall answer to the main research question. The third section outlines the implications of the findings for theory, for educators, and for the business and management community. The fourth and final section considers the opportunities for future research and the limitations of this study.

3.8.1. Key themes and sub-themes

In this section the key themes and sub-themes that were identified through data analysis are presented and discussed and, where appropriate, participants' voices are given priority in attempt to bring the reader closer to the often emotive discussions. Throughout, these findings are compared and contrasted with the relevant literature, and where appropriate, the implications of these findings for the overall research question are offered.

3.8.1.1. Positive perceptions and experiences

The first identified theme is that of students' positive experiences of group work. The first sub-theme identified is that such experiences were few and far between, as the following quotes demonstrate:

Second Year – Focus Group

Bejan: "Why don't we start with a general discussion of your positive experiences of group work" (Participant 5 laughs, her countenance displays a certain amusement)

Participant 5, Female: "Positive?" (She is still smiling)

Bejan: "Okay, we can skip positive and go straight to negative" (They all laugh)

Postgraduate – Focus Group 1

Bejan: "Okay so let's start off in a very general way - let's start with positive experiences of group work" (They look unsure, perhaps hesitant and there is a short silence)

Bejan: "Now there may not be any, which is fine and we can move straight to negative experiences but if anybody can think of anything they enjoyed about group work or that they learned from group work it would be a nice time to share it." (They all smile, some laugh)

Amusement, often accompanied by silence was a common reaction to the opening question about positive experiences in the majority of focus groups. The researcher's notes for the Second Year focus group read: "*I don't think this is what they came here to discuss!*" (:), an intuition that occurred in each focus group session. As negative experiences were discussed with greater frequency and at

greater length than positive experiences, this intuition is arguably supported. Further, it is important to note that the affective content of discussions was much greater when participants' were discussing their negative experiences of group work.

Although they were expressed less often, participants did share positive experiences of group work. Analysis revealed five broad themes: group work enabled students to share their skills and ideas with others, divide their coursework assignments, create relationships with their colleagues, learn how to work with others, and become acquainted with students from different cultural backgrounds. These themes recurred during discussions of group allocation, and preferred interpersonal relationships with group members, and so are discussed below.

3.8.1.2. Negative perceptions and experiences

The second key theme to emerge is concerned with students' negative experiences and perceptions of group work. The first sub-theme is that such experiences were common - and often impacted students emotionally and also had an impact on their learning and attainment.

Postgraduate - Focus Group 1

Participant 13, Male, Indian, Age: 32: "I am a victim of negative experiences" (He speaks loudly and with emotion. The other participants laugh, smile, and many offer what can be described as sympathetic looks)

The researcher felt as though students engaged enthusiastically with discussions of negative experiences. In the majority of focus groups, the initial question was met with laughter and smiles, and in some cases, the gentle nudging by participants of those they were sat closest to. In contrast to the discussions of positive experiences, participants seemed eager to discuss their negative experiences and perceptions. It is unsurprising then, that these discussions lasted longer and were more frequent. Interestingly, the discussions were also more emotive, and many students reported dissatisfaction with group work, and appeared to have found the experience distressing. Within the present study, participants described group work as stressful, frustrating, time consuming, and to often be the cause of interpersonal difficulties, resulting in social awkwardness and anxiety. Such reports are not surprising, it has been established within the pedagogic literature that group work can be a difficult and uncomfortable experience for students (Boud, 2001; McClelland, 2012).

Many of the comments made when discussing negative experiences anticipated questions that were asked later in the focus group sessions, and so have been interwoven with the preceding discussion. However, three predominant sub-themes did emerge. First, participants highlighted difficulties with "free-riders", that is, group members who made little or no positive contribution to

their group's efforts (and in some cases had a negative effect). Second, participants highlighted issues with leading groups and making decisions. Third, participants noted that working with students from cultural backgrounds different to their own could cause difficulties.

3.8.1.2.1. The free-rider problem

The following is representative of participants' experiences and concerns about free-riding:

Postgraduate – Focus Group 3

Participant 28, Male, Indian, Age: 25: “Group work is more time consuming, especially contacting each other and arranging meetings... there can be personality clashes and it is difficult to motivate people if they don't want to take part”

Participant 25, Male: “Yes it's very difficult to involve people who don't want to contribute”

Postgraduate - Focus Group 1

Participant 17, Female, Indian Age: 24: “...Some do their work for the sake of doing it while thinking that the other person will do very well, and that they will take care of the assignment - that person is really good at it and will take care of that assignment, so it is really a dependency and we face all these problems in group work”

Bejan: “So you said dependency... you mean they are dependent on you to do the work?”

Participant 17: “Yes”

Participant 13, Male, Indian, Age: 32: “Most of the members [in his group] were free-riders, we were given a deadline but we do the work and they don't, in the end the grade was much lower than it should be” (He is clearly distressed and angry, the rest of the participants agree with his point)

Within the pedagogic literature, the problem of free-riders has received considerable attention (see for example, Maiden and Perry, 2011; Popov et al., 2012). Within this study, participants' often reported that free-riding created a considerable burden for those students who regularly contributed to group work. Indeed, some participants described feeling compelled to undertake the tasks assigned to non-contributing group members to ensure that the work was completed:

Second Year – Focus Group

Participant 3, Female, British, Age: 21: "...It [group work] can sort of end up with one person doing a large majority of it and either this person resents the rest of the group or then takes all the credit even though they shouldn't have done"
(Participant 6 Agrees)

Third Year - Focus Group

Participant 9, Female, Chinese, Age: 22: "My only experience of group work is that it is terrible, in the end I did all the work"

Participant 8, Female, Chinese, Age: 23: "I'm not in favour of group work, it was not a good experience for me I had to stay up all night to complete other members work"

Despite their displeasure with such circumstances, participants often expressed that they recognised that motivations vary amongst students. The following is a typical example of the comments made:

Postgraduate – Focus Group 2

Participant 22, Female, European, Age: 23: "...Some people just come here to get the degree and the certificate because it's good to study in the UK university without the expectation to have an A or whatever, and other people come here, pay much money and maybe have a loan or whatever and really struggling to get the best out of it. And then it's hard if you see that somebody really doesn't care and you are caring a lot and you are all in the same boat. I get the feeling it's just really... What do they want from this, just passing or doing a really good job?"

Yet while some highlighted the free-rider problem as a purely negative experience, others viewed it as a chance to learn:

Postgraduate - Focus Group 1

Participant 18, Male, Chinese: "I think the purpose of group work is not just to finish the work, it's like you face some difficulty like free rider situation, how can you solve this problem. Or how can you.. move on? That's one of the skills you need to face when doing your group work, so if you want to do his or her job that's your choice you can do it but you can find another way to solve this problem... yeah"

It was found that participants in all year groups faced difficulties during group work due to free-riding. Reported effects of free-riding include frustration, lowered attainment and increased workload. These findings are consistent with the pedagogic literature that has examined free-riding (Davies, 2007; Maiden and Perry, 2011; Popov et al., 2012), and that has pointed to differences in students' perceptions of group work (Hillyard, Gillespie and Littig, 2010).

Although the resolution of the free-rider problem is beyond the scope of this study, it is evident that the occurrence of free-riding serves to reduce opportunities for knowledge sharing. Therefore,

reducing free-riding and increasing participation in group work activity is likely to increase the possibility that knowledge sharing will take place.

Arguably, the occurrence of free-riding provides evidence that the self-allocation method is preferable. Where students choose their own groups, they will be able to make judgements about who they believe is likely to make a positive contribution to the work of the group. Although this does not guarantee that free-riding and similar problems will not emerge, it does return ownership of the situation to students who often expressed believing that the outcome of group work was a matter of chance.

3.8.1.2.2. Group leading and decision making

The second sub-theme is related to participants' experiences of leading groups and decision making. Participants' experiences and perceptions varied within all year groups. However, there was consensus on two points: the student leading the group is burdened with extra responsibility but is hampered by a lack of power and authority to effectively influence their peers. Not all participants reported that it was necessary to have a group leader, and some adopted mechanisms of shared leadership and decision making, finding this a more appropriate way to manage their group work projects. Others highlighted that adopting a leader was more efficient as shared decision making was time consuming.

Third Year - Focus Group

Participant 12, Male, British, Age: (mature): "There shouldn't be a group leader; we weren't told there should be. Why should a student have that extra pressure? Everyone should be equal and no one should have to manage poor performance that should be done through the marking or by telling the module leader"

The following highlights the burden of group leadership, and a variety of problems faced:

Second Year – Focus Group

Bejan: “Something we’ve been talking about, we talked about it because you all mentioned it was the idea of a group leader, let’s try and develop that a bit, have you been group leaders and what does that involve?”

Participant 5, Female: “What does it involve? Calling them, chasing them, emailing them, messaging them...” (She laughs)

Participant 3, Female, British, Age: 21: “Trying to find a time that suits everyone”

Participant 5: “I know...”

Participant 3: “Okay Saturday at 3 O’Clock ooooooh, Sunday.. Sunday at 4, No... Some point in the future because the assignments due in two days” (The others are nodding)

Bejan: “So scheduling is difficult? You mentioned allocating tasks, let’s pick that up”

Participant 6, Female: “Well people tend to say ‘Well I’m prepared to do this’ but sometimes you just have to give people stuff do and sometimes they might not do it... so it’s hard... yeah that’s pretty much it”

Participant 3: “It does end up with one person trying to delegate to everybody, like more often than not people don’t like it, they don’t like being told what to do, but if they’re not told what to do they won’t do squat...”

Participant 5: “Exactly” (she laughs)

Participant 3: “I’ve been in a group where it was sort of like ‘Just leave it, it will be fine, she doesn’t want to fail, she’ll do it’ So it did end up with me having to rewrite the whole damn thing at like 10 o’clock at night, the hand in was midnight”

These problems were reported in the majority of sessions. Co-ordinating meetings and group activities were a common difficulty. These findings are consistent with prior research that has highlighted the importance of a variety of group working skills, including leadership and time management (Oakley et al., 2004; Ballantine and McCourt Larres, 2007; Boud, 2001; Sampson and Cohen, 2001a; Popov et al., 2012).

These issues led some participants to suggest that there may be too many group work assignments (some took part in four in one academic year) for them to engage in them all effectively. Yet despite the difficulties, the three second year participants who had been group leaders stated that their experiences had taught them how to be more effective in this role in the future, nonetheless they did not want to take part in group work again. This is consistent with the findings of Oakley et al (2004) and Ballantine and McCourt Larres (2007) who note that undertaking group work can increase an individual's group working skill set.

Two of the participants within the study reported having experiences that they perceived as being so negative that their module choices for their final year had been influenced - they purposefully sought modules that had little or no group work. Similar situations were described by a number of

postgraduate students, and one participant noted that a colleague had withdrawn from a module because he was unhappy with his group.

These findings provide support for the view that self allocation is the most preferable method of group allocation. While self allocation will not ensure a positive experience it might mitigate some issues by giving students the opportunity to work with those with similar motivations, expectations and timetables. It is expected that working with like-minded individuals is likely to result in a more positive experience for students.

3.8.1.2.3. Cultural backgrounds

Culture has been defined as the values, beliefs and assumptions shared by a group (Schein 1983). Participants' reported mixed experiences of working with students from different cultural backgrounds. Some students found working with those from other backgrounds to be entirely problematic but the majority stated that although difficult at times, it was an experience that benefitted their self-development.

Problematic experiences that were highlighted included the existence of language barriers, different attitudes to group work and education, and frustrations at different ways of working. Although participants tended to identify these issues as being due to differences in national culture, it could be argued that some issues were due to having to work with those who hold different values. That working with individuals with different cultural backgrounds and values can be difficult is unsurprising; and this issue is well documented within the field of organisational behaviour (see for example, Mullins, 2007) and the pedagogic literature (Hwang and Kim, 2007; Sackmann and Friesl, 2007; Popov et al., 2012).

The following extract of an exchange between three postgraduate participants is indicative of the majority of views, expressing the different aspects of the debate:

Postgraduate – Focus Group 2

Participant 23, Male: “You have to mingle with students from other countries; you have to learn to know about them”

Bejan: “So that’s interesting, for you it’s not just about the work it’s about something more?”

Participant 23: “Yeah because like people from other countries you can work with them, that’s a good experience for us”

Participant 20, Male, British, Age: 28: “It’s good experience for us because you can be friends with people but when you work with someone that’s when you get to really know their culture better so erm appreciating other people’s cultures it’s good”

Participant 22, Female, European, Age: 23: “To be honest I think now everybody hates me but I don’t agree with it, I know that lots of people are having the same thing – trying to avoid... it’s a bit hard to say, but try to avoid working with some cultures because it’s known that it’s hard to work with them. So I agree it’s interesting to get to know their kind of working style whatever but sometimes I get the feeling that, or experience from elsewhere that there is a big big big clash, I know that you can gain a lot from it but (garbled) most of the time it makes things really really complicated” (She occasionally pauses while talking and appears to be choosing her words carefully)

Participant 20: “Yeah I used to be of that opinion but I think it depends on the person”

Participant 22: “Sure” (She interrupts)

Participant 20: “Coz I used to think those people from that nationality... I’d rather not, but it depends on the person”

Participant 22: “Sure, I know it’s hard to say err like this nationality I’m not working with but I think in general it’s just a cliché, like a stereotype but in general you’ve done the experience before and erm you’ve seen it with other people and they are always like it. Okay it’s really not like this it’s just a thing in the head; I don’t think it’s good but...”

Participant 20: “It’s right eight times out of ten, you’re probably right but it depends on the individual doesn’t it”

Participant 22: “Yeah, sure sure and you have to think about it, it’s just I have a feeling that especially here in Bangor this gets really...”

Participant 21, Male: “I guess sometimes it’s difficult to work with other cultures because maybe with different culture different idea and different experience so maybe yah like she said maybe sometimes there’s a clash but I guess just with different idea, we can discuss areas together and figure out a way to solve this difference.”

Culture is an important consideration for knowledge sharing and group-allocation methods. As argued, engineering student groups to create culturally diverse groups provides the opportunity for students to receive and share their skills, values, beliefs and ideals with those who they may not otherwise come into contact with. In addition, given the globalised nature of many industries, it could be argued that working with those with different cultural backgrounds is a valuable experience

- being more representative of the real-life situations students will find themselves in following graduation (Ballantine and McCourt Larres, 2007). Indeed, numerous participants highlight the value of working with those from other cultures with precisely this in mind:

Postgraduate – Focus Group 1

Participant 17, Female, Indian Age: 24: “You mix with different cultures and you take option to understand that person’s knowledge, so there your experience is more. Because we are MBA students we need more experience not only the grades, we have to tackle problems tomorrow in the society so we have to step up in the group work so that is a great opportunity if we are picked randomly.... We are facing today the problems we are not waiting till tomorrow.... Again like the third option [engineering groups] you suggested such as working with different cultures, having that experience and that is also very good”

It could also be argued that such negative experiences of working with others is of value to students, as it indicates that they need to develop the skills required for multicultural group working. Alternatively, for some students, negative experiences might highlight that they do not wish to work in a global or multicultural environment.

However, it may be unwise to draw strong conclusions from this aspect of the research. Although some participants eagerly expressed their views about working with those from different cultural backgrounds, a number of participants (particularly those in the second year focus group) required significant encouragement to speak. Many seemed reluctant to engage in the debate and this may not have been helped by the multicultural mix of the sessions. Therefore, the views expressed about working with those with those from different cultural backgrounds may not be representative of all participants.

The various experiences (positive and negative) led the researcher to ask whether students preferred to undertake individual assignments or group work. With the exception of the second year focus group, the general consensus within other sessions was that group work is a valuable experience but individual assignments were also lauded.

Participants reported that they preferred undertaking individual assignments as they had more ownership of the quality and outcome of the work, could work at their own pace, pursue their own ideas, work to their own schedule, and not rely on others:

Second Year - Focus Group

Bejan: “Okay then if you all prefer individual assignments – what’s better about them?”

Participant 5, Female: “You can stick to your idea and if you don’ finish it you don’ finish it. You finish it you finish. It doesn’t depend on the members of a group, so yeah”

Participant 6, Female: “You can work at your own pace yeah... you have more control over it” (She giggles)

Participant 4, Male, Overseas Student: “It’s easier to manage time, don’t have to wait for slow group members”

Participant 3, Female, British, Age: 21: “You can work on it whenever you want. I work a full time job as well as doing my degree so I end up spending a lot of my time at 2 or 3am sat doing assignments and University work and let’s face it nobody else in a group with me would want to sit up at 2 or 3am they would all be too drunk”

Postgraduate - Focus Group 1

Participant 13, Male, Indian, Age: 32: “I think it is better to go individual assignment, individual work, as I told you before in group work you must depend on other persons for their contribution.”

Those who favoured group work provided multiple reasons: group work could be fun; it offers an opportunity to get to know people; it provides an opportunity to experience different cultural attitudes and new ways of working; it provides a forum for sharing knowledge; it is an opportunity to learn to work well with others, and is perceived as good practice for future employment. However, these positive evaluations often came with caveats: it was suggested that the benefits of group work are only realised in groups that work well together. Some students believed that they had to take part in too many group assignments and that there were significant diminishing returns on the value of the experience. Others highlighted dissatisfaction with the assessment weighting of group work projects (generally it was 60% group work 40% individual).

3.8.1.3. Knowledge sharing

The third identified theme was related to the knowledge sharing activities of students during group work. Participants in all focus group sessions were asked whether they had experiences of sharing their skills, and their beliefs, values and ideas with others during group work. These questions reflected the concepts of technical and cognitive tacit knowledge respectively. Participants were then asked if they believed it was easier to share these different forms of knowledge with group

members that they perceived they were close to, perhaps friends with, or those that they perceived to be competent, reliable and hard-working. These questions loosely reflected the concepts of affect- and cognition-based trust respectively. Three themes emerged from these discussions: first participants across all year groups had limited experience of sharing skills during group work. Second, participants frequently engaged in sharing their beliefs, values and ideas, and this was perceived to be a positive aspect of group work. Third, while interpersonal relationships were seen to impact the degree to which knowledge sharing took place - there was no consensus as to which types of interpersonal relationship were most conducive. Indeed, the major factor influencing knowledge sharing was participants' motivations for engaging in group work and their desired outcomes for their work.

3.8.1.3.1. Sharing of skills

Participants across all year groups highlighted that they rarely shared their skills, or had others share skills with them. Commonly reported skill transfers included showing (or being shown) how to use a software package, help with academic referencing, and one participant described being given help in the construction of a balance sheet. Arguably, the sharing of these skills cannot be classified as the sharing of technical tacit knowledge since they lack the embodied nature and complexity associated with this dimension of tacit knowledge. However, participants highlighted that undertaking group work helped them develop social skills. This is consistent with the literature that highlights that group work is a useful mechanism for the development of group working skills (see for example, Centre for Teaching and Learning, 1999; Ballantine and McCourt Larres, 2007)

Postgraduate – Focus Group 1

Participant 16, Female, Chinese, Age: 25: “Think it is very difficult to share the skills for example we have a group for say presentation someone might be quite good at preparing for the script, somebody may be good at searching information, someone will play the role of presenter so everybody has different skills and if we turn it around. **Example if different person plays another role giving the presentation but he's not quite good at that it might be problem** so yes maybe it's quite good sharing knowledge is easier rather than sharing skills” (Emphasis added)

Bejan: “Okay I think we'll come back to that in a second so no sharing of skills, anybody learnt anything from someone in a group – a skill?”

Participant 19, Male, British: “I've shown someone how to use software programmes”

It has been established that the sharing of skills is a time consuming and difficult process (Nonaka and Takeuchi, 1995) and so it is arguably unsurprising that more complex skills were not shared. Further, a number of participants highlighted that they believed it was most conducive to the

success of their group projects to allow group members to undertake the tasks that they believed they were most competent at. Such an approach necessarily limits the opportunity for knowledge sharing, having similar consequences as Goh's (2002) described notion of knowledge siloing, and it is also consistent with Chikoore and Ragsdell's (2013) findings that students tend to act in the manner described above.

Others highlighted that the structure of group work assignments and tasks presented a barrier to the sharing of skills, and often beliefs, values and ideas. The following is indicative of many of the comments made:

Postgraduate – Focus Group 1

Participant 19, Male, British: “Group work can be good for sharing skills and there is nothing inherently wrong with it, I think the problem is the structure of group work and usually on the assessment side of things, how it is assessed and that can cause imbalance and probably the wrong type of focus so you don’t really get the benefits from group work that group work can bring to the project and instead you just get some of the problems”

Postgraduate – Focus Group 2

Participant 20, Male, British, Age: 28: “Haven’t really developed my skills, got on with what I was good at and left them to do what they were good at, the end product was the best it could be”

Although participants reported completing a variety of group assignments, the majority described working on a group report or presentation. In undertaking these assignments they often opted to complete sections of the work individually and then compile these to create the final piece - with little consultation with each other. Participants expressed the belief that being able to draw on the skills of others in this manner was a positive aspect of group work:

Second Year - Focus Group

Participant 5, Female: “All though there is a task given, you don’t have to do every single thing, you can divide it in to little groups of people, so... I can do the introductions, so at the end you know you just do each part and put them all together... so I think that’s a nice thing”

First Year - Focus Group

Participant 1, Male, Indian: “So my opinion in a group work is... that proper allocation of time can be saved because as many other person are working together, so collective reports and people ideas occurs into a same place”

Similarly, a number of overseas students highlighted that it was useful to work with British students as they were able to benefit from their grasp of the English language, and in return were able to offer skills which they believed these students lacked (particularly mathematics):

Second Year - Focus Group

Participant 4, Male, Overseas Student: “It’s a good way to share my own skills, like Asian... Chinese or Vietnamese they are good at calculating numbers so like they can do the question about mathematics, they can figure it out. British is good at English and do the comments and this is very important”

Bejan: “So I’m hearing that maybe group work isn’t the best vehicle for sharing skills” (They all nod, laugh and agree)

Postgraduate – Focus Group 2

Participant 21, Male: “Like us our English is not that good so we can work together with some other friends, some other class mates they can just do the language part”

Participant 20, Male, British, Age: 28: “Everyone has got their own strengths, erm so like this guy [Participant 21] was saying, erm in some of my groups I’m not too great with computers but maybe someone in the group is so I could maybe write all of the English and one of the colleagues in a group could put it all together neatly in a presentation so everyone’s got their own strengths that they can contribute”

Although a lack of time and a focus on achieving the best assessment score are viable explanations for the lack of skill sharing, a number of other explanations may be offered.

First, it has been established within the literature that an important environmental consideration for the sharing of tacit knowledge is that individuals spend time together, within shared spaces (Eppler and Sukowski, 2000; Nonaka and Konno, 1998; Nonaka and Takeuchi, 1995). If participants completed the majority of their group work assignments separately then the opportunity for knowledge sharing is necessarily lost.

Second, the preceding discussion assumes that participants possessed (and perceived themselves to possess) skills that were relevant to the group work tasks, and so worth sharing with their peers. If participants did not possess such skills then they could not be shared.

Third, a number of participants will have been engaged on similar courses of study within university. If participants' skills were gained through their university education, then it is possible that participants may have achieved a similar level of mastery in similar skills. As a result there may have been no value in sharing these skills with each other.

3.8.1.3.2. Sharing beliefs, values and opinions

The second sub-theme relates to students' willingness to share their beliefs, values and opinions. As highlighted, the process of externalisation is undertaken to convert cognitive tacit knowledge into words or numbers so that it can be shared (Nonaka and Takeuchi, 1995; Nonaka and Konno, 1998). To examine participants' experiences of sharing cognitive tacit knowledge, they were asked about their experiences of sharing their beliefs, values and opinions with others during group work. In what follows, such activity is termed knowledge sharing, however, it is noted that not all offerings made by participants during such discussions will necessarily be expressions of their cognitive tacit knowledge.

Participants often described sharing beliefs, values and opinions during group work as a positive experience, and this type of knowledge sharing took place with a much greater frequency than the sharing of skills.

Undergraduate – Focus Group

Participant 2, Male, Indian: “Erm... Working in a group it's like you get many different, for one single goal or motive you have so many different views then... you have options to choose from because obviously your mind can't function in multi direction mind, you would gain something in your perspective in your own different view from rest of the people everyone has their own single view”

Third Year - Focus Group

Participant 12, Male, British, Age: (mature): “Group work is refreshing it's an opportunity to see others' experiences and I was impressed with their positivity - it was fun” (He speaks quickly and enthusiastically)

Participant 10, Male, Chinese, Age: 21: “It's good to share ideas and help others”

However, this type of knowledge sharing was also described as difficult by some participants. This is not surprising as it is well established that groups go through a *storming* stage during their development in which beliefs, expectations and preferences for ways of working are shared and negotiated (Tuckman, 1965; Ito and Brotheridge, 2008). Although this process may involve conflict, it is an important precursor to establishing group norms and effective working practices (Tuckman, 1965; Ito and Brotheridge, 2008).

Second Year - Focus Group

Participant 3, Female, British, Age: 21: “It’s difficult to work in a group with people especially if we all have separate beliefs of something because they vary so much from attitudes from experiences. Because you can use them as sort of tools in order to progress whatever you’re doing, beliefs are so strongly set that you can’t really have someone arguing with you in a group which then it makes it really awkward in a group”

Bejan: “Do you think that makes it difficult to share those beliefs and values with other people?”

Participant 3: “I think so yeah”

Participant 6, Female: “I think in that case you have to hold back some of your thoughts because you have to meet everyone half way basically”

A third perspective is that this form of knowledge sharing was not valued with respect to learning about the content of group work assignments. However, learning about others’ experiences was valued - although some argued that this could be achieved without conducting group work. It is clear from the extant literature that not all students have positive perceptions of knowledge sharing activity, but the majority are well disposed (Yuen and Majid, 2007; Yaghi et al., 2011; Wei et al, 2012; Chikoore and Ragsdell, 2013; Rahman et al., 2014). In addition, participants again highlighted that the way in which they chose to structure their assignments and complete their tasks independently led to a lack of opportunity for knowledge sharing:

Postgraduate - Focus Group 1

Bejan: “Okay then let’s forget about skills, what about sharing knowledge? Is it [group work] a good opportunity to share beliefs, values and ideas with other people?”

Participant 16, Female, Chinese, Age: 25: “Yes because I am taking the course of MBA so lots of students have work experience with different cultures and backgrounds so it is a good opportunity for them to share their experiences of their industry and their expertise”

Bejan: “And it happened? It has actually happened?”

Participant 16: “Yes”

Participant 17: “For personal experience I agree it’s not something you can easily get from a journal and find or go and read in a book, it has to come from other people so yeah”

Participant 18, Male, Chinese: “I don’t know, I’ve done some group works with different people from different countries and what we do is... yeah sometimes we share information because it is group work but different people do the specific areas they are good at. So when he or she does some work we can mix them all together but we don’t really need to really understand what’s that, because this is your part and we can link them all together and then we have this essay and it works. We don’t need to understand every single sentence what they mean we just need to make whole piece of work. So from my experience it’s not really working that way”

Participant 19, Male, British: “So the personal experience I was talking about probably doesn’t end up in the piece of work its actually just you know a thing on the side but I agree with what you’re saying that sometimes you specialise you do your little bit and then you piece it all together at the end and maybe if you’ve got an editor then they probably have a better grasp of the whole piece than anyone individual and there are areas that perhaps not everyone in the project will know about”

Participant 14, Male, Indian: “There may be some area to share, some opportunity to share personal experience but it is not necessary it should provide always because in some of the work there is no meetings. In one of my experience there is only one meeting for my group work so it is not providing any opportunity to share personal experiences”

A theme running through the discussions of knowledge sharing was that knowledge sharing often did not take place (or was inhibited) because participants’ groups were dividing work between them and pursuing their tasks independently. Thus, the researcher questioned students about their motivations for group work, asking whether they were more concerned with benefitting from the experience of group work, or if they were focused on academic attainment.

The majority view across all year groups was that academic attainment was more important than learning from the experience of group work.

Second Year - Focus Group

Bejan: “When you undertake group work are you focussed on the mark at the end or on the experience of working together?”

Participant 6, Female: “Group work I think is mmm at the end of days just to get marks y’know for the marks is the crucial part” (The other participants nod in agreement)

Postgraduate – Focus Group 2

Bejan: “When you were doing group work were you focussed on getting the best possible mark or benefitting from the experience of working in a group? Let’s go round the room and get everyone’s perspective”

Participant 20, Male, British, Age: 28: “Best mark” (He responds quickly)

Participant 23, Male: “Marks” (Again a quick response)

Participant 21, Male: “Marks first”

Postgraduate – Focus Group 3

Participant 24, Female, Indian, Age: 24: “I am focussed on having fun” (she smiles)

Participant 30, Female, Chinese, Age: 23: - (She doesn’t speak, and despite the facilitator’s efforts has spoke only once throughout the session)

Participant 28, Male, Indian, Age: 25: “Well we need to get the work done but also need to enjoy the group”

Participant 27, Female, Overseas student, Age: 24: “I want to maintain academic performance but I also want to enjoy the group work. There is an opportunity to learn lifelong skills, and university can be an incubator for that”

Participant 26, Male, Indian, Age: 27: “Yes, acceptable academic performance, but it has to be fun or the work will suffer”

Participant 25, Male: “Getting the work done but gelling also”

These findings are consistent with prior literature that has highlighted the importance of attainment for some students (Dweck, 1986; Pintrich and Schunk, 1996; Busato et al, 2000; Pitt, 2005) and the importance that students attached to learning during knowledge sharing activity (Yuen and Majid, 2007; Yaghi et al., 2011; Chikoore and Ragsdell, 2013). This understanding of participants' motivations is important as it provides vital context for understanding participants' views on interpersonal trust relationships and preferences for methods of group allocation.

3.8.1.3.3. Knowledge sharing and interpersonal relationships

The third sub-theme related to students' experiences and perceptions of how interpersonal trust relationships impacted their cognitive and technical tacit knowledge sharing. Throughout all focus groups, participants expressed different views on the issue of sharing knowledge with those they were close to and those they believed were competent, reliable and good at the work, reflecting McAllister's (1995) notions of affect- and cognition-based trust. Participants highlighted both

advantages and disadvantages, suggesting that the relationship between affect- and cognition-based trust and knowledge sharing is complex.

Third Year - Focus Group

Participant 7, Female, Chinese, Age: 22: "I'd rather work with someone who is good... my friends might be free riders and I care about my marks"

Participant 8, Female, Chinese, Age: 23: "Yes, I agree with that"

Participant 11, Male, Overseas student, Age: 21: "I rather with work with friends, it's easier to push them it's more comfortable"

Participant 12, Male, British, Age: (mature): "It's best to start off choosing friends and if they don't perform, next time you chose people who will perform. The natural inclination to go with friends because you trust them but if you don't know how they're going to perform it's best to go with good people"

In some of the discussions, participants expressed the belief that it was easier to share knowledge with those who they felt close to, while also commenting that it may be difficult to share knowledge with those who were seen as competent:

Second Year - Focus Group

Participant 6, Female: “Yeah, people you like better, you are more comfortable you can easily share what you ever you want to say, if you dislike a person it might come across in very different way in a more negative manner because you have that like.... towards them”

Bejan: “Okay let’s ask everybody”

Participant 3, Female, British, Age: 21: “Well if people are good at what they do then you can usually see that and it might make you take step back, but people you like you are obviously going to be a lot more comfortable, but it’s a little more difficult to say ‘actually you’re wrong’ if you like a person because they might take it on a personal level”

Participant 4, Male, Overseas Student: “I rather share with people I like”

Participant 6: “Yeah same... people because people who are good at the work are likely to think about everything they think is right, so whatever I say they are just going to do it their own way so I probably take a step back”

Bejan: “So let’s turn it round and ask who would you think it is easier to learn from?”

Participant 6: “I think it’s both in this case mmm because if you can see that someone’s good at the work you will be more trusting of their opinions or whatever and if you like them it will be easier to learn from them”

Participant 5, Female: “I think I can learn more from people who are good at the work. It depends whether the person I like is good at the work or not good at the work”

Participant 4: “Learn more from people who are good at work, they have experience, know how to do things learn from him”

Yet, as the above demonstrates, it was felt that it was more appropriate to gain knowledge from those who are competent and capable – and this is arguably an intuitive and rational choice. Further, this is consistent with the work of scholars, who have found that motivation is an important factor influencing knowledge sharing (see for example, Hansen, Nohria and Tierney, 1999; Seonghee and Boryung, 2008; Barachini, 2009). In addition, these findings are consistent with the pedagogic literature that has argued that students are often motivated to share knowledge due to an expectation of reciprocity (Wei et al, 2012; Rahman et al, 2014).

However, substantially different perspectives were expressed by participants in other groups. As the following extract shows, it was seen as preferable to work with those who were competent and it was also seen as being easier to share and learn from these people – as personal relationships did not interfere with the workings of the group:

Postgraduate – Focus Group 1

Participant 17, Female, Indian Age: 24: “Someone who is good at the work”

Bejan: “Do you think it may be easier to share ideas with these people?”

Participant 17: “Yeah exactly, obviously because you’re very official generally you don’t have any personal relationship. You can be friendly officially, it’s very good, both people are thinking in one aspect, so it’s very good both individual minds are thinking one information, so gathering information is more high so you can y’know get into that aspect or that area very easily so it will be very friendly to work with that person”

Participant 19, Male, British: “You worry less about treading on toes and disrupting other aspects of your relationship with people, if you’re working with some you don’t know as well but you know is good and will knuckle down to the work rather than close friends who may not necessarily have the same work ethic or whatever”

Bejan: “Is that something everyone feels?”

Participant 16, Female, Chinese, Age: 25: “Choosing a colleague is different choosing a friend so I can have a friend as well as a colleague”

Bejan: “And you prefer the colleague?”

Participant 16: “Yeah if it is a work case”

Bejan: “Any other thoughts?”

Participant 13, Male, Indian, Age: 32: “We are focussing on grade, so colleague, those who do well we are attaching to them”

Thus, the above discussions demonstrate that participants’ interpersonal relationships are important factors in their experiences and perceptions of group work. However, there is no consensus amongst participants as to which types of interpersonal relationships are most important or preferable. This is somewhat coherent with the knowledge management literature, which highlights the importance of both affect- and cognition-based trust for knowledge sharing and use (see for example, Lucas, 2005; Holste and Fields, 2010), and is consistent with the general importance of trust that is attributed to knowledge sharing in the pedagogic literature (DeVita, 2000; Yuen and Majid, 2007, Matveev and Milter, 2010; Yaghi et al, 2011; Chikoore and Ragsdell, 2013).

Based on these findings it does not seem possible to advance on method of group allocation over another to enhance knowledge sharing during group work. Given the differences in participants’ perspectives, it is arguable that is most appropriate to allow students to choose the method of group allocation they feel is most conducive to the achievement of their own aims. However, since the majority of participants described being motivated by attainment, it is likely that students would opt

for a method of allocation that is conducive to this aim. While this may increase attainment for individuals, it may also reduce opportunities for knowledge sharing, particularly if students approach their group assignments in the manner described in section 3.8.1.3.1.

3.8.1.4. Perceptions and experiences of group allocation methods

Postgraduate - Focus Group 1

Participant 19, Male, British: ‘At the start of the year it might be difficult picking other people for the group work and In those situations maybe it’s better that it’s either randomly assigned or distributed [engineered], but my personal preference normally is to be able to pick colleagues because otherwise you feel a little bit like you’re **rolling dice with your degree or you’re in a lottery** or something and when you’re coming to do a course you’re here for a reason, you’re paying money and you don’t want feel like you’re gambling with your grades.’ (Emphasis added)

Participants were asked about their preferences with respect to the three group allocation methods –self allocation, random allocation and engineered allocation (explanations were provided). The discussions revealed that participants’ preferences depended on three considerations: the first was their desired outcomes of group work; the second was the point in the academic year at which the group work was undertaken; and the third was their experiences and perceptions of the numerous problems and issues associated with group working that have been highlighted in this study.

Although participants held different preferences, the majority agreed with the sentiment expressed by Participant 19 (above) – being placed in a random or engineered group had the benefit of bringing them in to contact with new people, but also contained an element of chance. This element of chance meant that the process of group working, and their eventual level of attainment might be to a large extent outside of their control. Participants who were motivated by attainment and those who were concerned about the potential negative impact of working with those they did not know reported a preference for self allocation.

Third Year - Focus Group

Participant 11, Male, Overseas student, Age: 21: "I Prefer student assigned [self-selection], randomly doesn't really make sense"

Participant 12, Male, British, Age: (mature): "I think assigned is the best solution as it is the only solution where the student has input" (Others nod and vocally express agreement)

Postgraduate – Focus Group 1

Bejan: "Okay let's jump forward to semester two, we've already done some group work how would we pick now?"

Participant 19, Male, British: "Erm again pick my own"

Participant 18, Male, Chinese: "Yeah, in theory we should have group selected randomly but I would know some people who are good at something and from my point of view I would want to achieve as highest mark as we can so maybe want to chose good people in my group so I can get a higher mark so maybe I would chose, pick by myself"

Participant 17, Female, Indian Age: 24: "I have an opportunity to pick my own so I'm going to take it" (The rest agree that they would now self-assign)

Second Year - Focus Group

Participant 4, Male, Overseas Student: "The first one select group on my own chose friends it's more convenient, I don't like its allocated by the lecturer and third one there will be lots of conflict, cultural difference it's not a good thing"

However, a number of participants who reported a preference for this method of allocation also noted that it might be inequitable. These participants suggested that it was likely that the most able and competent students would chose to work together. Therefore, it was perceived to be fairest to allocate students randomly, as this increased the opportunity for knowledge and skills to be shared:

Postgraduate – Focus Group 2

Participant 20, Male, British, Age: 28: "People weigh each other up – it [self-selection] works but leaves the weaker people. Good from individual point of view but not overall"

Participant 23, Male: "Yes I agree it's better for me but not overall"

Participant 22, Female, European, Age: 23: "I prefer it, but it's not necessarily good for me – I could learn way more from tutor allocated"

Participants who described wanting to learn from the experience of group work, most often opted for the random allocation method:

Postgraduate – Focus Group 1

Participant 18, Male, Chinese: “Yeah I would prefer the randomly selected because for example, from year 1 to year 3 you’re doing group assignment with all your friends, I don’t think you can learn as much as with new people, I think you can learn from the group work it’s not really beneficial to find some group friends and doing all assignment together for three years. You can’t learn as much from the group work, you kind of lose the purpose”

Participant 16, Female, Chinese, Age: 25: “In this case would say maybe it depends on different personality because I am the one who is always willing to meet different people, new peoples so I chose random”

Postgraduate – Focus Group 3

Participant 26, Male, Indian, Age: 27: “Multicultural and other differences in a group can give more chance to learn”

Participant 31 expressed dissatisfaction with his experience of group work. He self allocated himself to a group with five of his countrymen and suggested that his learning experience would have been enhanced had he been able to work with those of different cultural backgrounds:

Postgraduate – Focus Group 3

Participant 31, Male: “And err... we can choose by ourselves the group members, so we chose err those students that are from the same country. I think that this maybe changed for some way because since I think it is better to have students from different countries in your groups, so it needs to be arranged maybe by organiser to err to assign different students to different groups, not to select by themselves”

The phenomenon described by Participant 31 is termed cultural clustering -this occurs where students spontaneously congregate in culturally similar groups (Davies, 2007). Cultural clustering may reduce opportunities for knowledge sharing as the opportunities for sharing and acquiring knowledge from individuals with different cultural backgrounds is lost. Davies (2007) suggests insisting on a mix of nationalities within groups but allowing students to join in pairs. Thus, a group may have two students from Japan, two from the UK and so forth. Adopting this method of group allocation has two distinct advantages and may preserve some of the benefits of the self allocation and engineered allocation methods. It may return a degree of ownership to students – reducing the perception that group work is a “lottery”, while also providing an opportunity for students to become acquainted with individuals from different cultural backgrounds.

Postgraduate participants were asked to indicate their preferences for group allocation at the beginning of the first semester, and to describe whether these would change by the second semester. The majority of participants reported a preference for random allocation at the beginning

of the academic year. This was due to a perception that the random allocation method provides opportunities to get know other people, and also to determine who not to work with again. The majority of participants reported a preference for self allocation in the second semester, and this was motivated by a desire to achieve higher academic attainment by having more control over the group work process. Participants who were desirous of meeting new people and working with those from different cultures reported a preference for random or engineered allocation methods at both junctures.

It is clear from the above that participants' motivations for engaging in group work are a key factor in determining their preferred method of group allocation. Based on this, the researcher would argue that the most equitable approach is to allow students to select the allocation method they believe is most conducive to the achievement of their own goals.

Ultimately, while it may be desirable to create diverse groups to provide the opportunity for knowledge sharing, it is likely that this will only be successful if students are actually willing and motivated to share knowledge. For the majority, this was not the experience they described – consistent with the views expressed by scholars regarding the necessarily voluntary nature of tacit knowledge sharing within organisations (Bock and Kim, 2002; Ehin, 2008; Barachini, 2009; Chen et al., 2012).

3.8.1.5. Improving group work

Discussions of how group work could be improved revealed three broad themes: module leaders should provide more guidance and support for students, and manage issues of non-contribution; training should be provided for students to prepare them for undertaking group work; and finally, assessment mechanisms for group work should be revised.

Although these themes emerged in all focus groups, the undergraduate groups discussed the recommendation that module leaders should be more involved with greater frequency and fervency than their postgraduate counterparts who emphasised the importance of their own training and preparation.

3.8.1.5.1. Module leader involvement

The first sub-theme related to the involvement of the module leader in facilitating and moderating group work. The following extracts are indicative of the comments made by most groups:

Second Year – Focus Group

Participant 5, Female: “If possible someone being there to supervise you, if you’re just left alone umm yeah then people can end up doing nothing so mm yeah I think it’s going to be good if like the lecturers are there saying, this week you have to focus on this, or by this week you have to finish your introduction”

Bejan: “So do you want supervision or guidance?”

Participant 3, Female, British, Age: 21: “I think like alternating it so like one week the lecturer says you right need to get this point off you go and then the next week you join up so ‘right how did you do let’s have a look at it and see if we can make it better”

Bejan: “So let’s return to this idea of supervision and guidance – specifically what would we be looking for? (There is a long silence) I mean if we were to implement this tomorrow what would you be asking the supervisor to do?”

Participant 5: “Tell the group members to choose the one who doesn’t work and mark them down”

Participant 3: “To be supportive point them in the right direction, usually if you get stuck in group work you email the lecturer who says ‘I’ve given you all information now get on with it’ which is sort of rubbish especially if you’re stuck”

Bejan: “Do you think the information provided at the beginning is sufficient?”

Participant 3: “For at that time, then probably yeah but as you get further into the group work there is obviously more challenges and a lot more issues that need resolving and they’ve not necessarily been catered for in the original planning”

Bejan: “Do you think the lecturer has to be the supervisor or can it be a teaching assistant?”

Participant 5: “It could be anyone”

Participant 6, Female: “As long as they have an idea about the work, coz if we’s ask questions and they don’t really know then it doesn’t help”

Postgraduate – Focus Group 2

Participant 22, Female, European, Age: 23: “There should be some kind of control to stop people doing nothing”

While there is a clear logic to the recommendations, the degree to which they can, and should be implemented is questionable. Logistically, the close-supervision of students’ group work activities is likely to be time consuming and may not be possible for those educators with heavy workloads. Further, it is not clear that the close supervision of students’ group work is even preferable. While it is clear that mechanisms need to be in place to deal with non-contributing members (Ballantine and McCourt Larres, 2007; Freeman and Greenacre, 2011), and to solve critical issues as they arise, an appeal of group work is that it offers a chance for students to develop group working skills

(Ballantine and McCourt Larres, 2007) and reliance on a module leader or tutor may serve to limit this.

Aware of the time-constraints placed on academics, the researcher often asked whether teaching assistants (typically doctoral candidates) would provide a suitable alternative to module leader involvement. The common perception was yes, but with the caveat that they have the necessary subject knowledge, time, interest and authority to perform their role competently. However, participants' responses may have been biased, as they may not have wanted to offend the researcher and the facilitator, who were both doctoral candidates.

3.8.1.5.2. Training sessions

The second sub-theme was that group working skills should be taught to students prior to their participation in group work.

At the time of the study, students on MBA programmes were given the opportunity to attend a workshop that focussed on working with those from different cultural backgrounds. The workshop was delivered off-campus by an external training provider. A number of participants reported that the workshop provided valuable skills and insights into group working, and recommended that similar opportunities should be provided in the future. Other participants reported that they had attended workshops or seminars provided by their module leaders and that these were also helpful in preparing them for group work.

The provision of such opportunities is likely to enhance group working skills and so mitigate some of the problems and difficulties with group work reported in this study. Indeed, the need for a variety of group working skills is established within the literature (see for example, Oakley et al, 2004; Ballantine and McCourt Larres, 2007; Boud, 2001; Sampson and Cohen, year; Popov et al, 2012).

3.8.1.5.3. Assessment

The third sub-theme related to the manner in which methods of assessment could be changed to improve group work. However, no consensus was found as participants' concerns surrounding assessment and their suggestions for improvement varied.

It was suggested by a number of participants that the use of group work was too prevalent.

Participants argued that the benefits of engaging in group work could be achieved with only two group work assignments. If the purpose of group work assignments is to develop an appreciation of the difficulties of group working, and to gain group working skills then this suggestion may be valid.

However, if the purpose of group work is to provide a forum for the sharing of knowledge then a variety of group assignments may be more appropriate.

Some participants felt that the weighting of their group assignments was too great. Participants were often enrolled on modules in which the group assignment was worth 60% of their overall module grade, while the individual assignment was worth only 40%. The weighting of group assignments coupled with a desire for high academic attainment was judged to exacerbate the frustrations and difficulties with group working that have been described in this study. Thus, lowering the weighting of group assignments may reduce some of the frustration and difficulty that participants have reported.

Participants also suggested that peer assessment could be used to mitigate the difficulties encountered with non-contributing group members. It was suggested that this would also return a sense of ownership of the outcomes of the work to contributing group members. Interestingly, some participants found this suggestion unfavourable:

Postgraduate - Focus Group 3

Participant 27, Female, Overseas student, Age: 24: *“Don’t like the idea of peer assessment it’s horrible/threatening”*

Participant 29, Female, British, Age: 38: *“That’s life though isn’t it...I’d be open to it but I think people do struggle to give objective and constructive feedback”*

Participant 24, Female, Indian, Age: 24: *“I openly invite feedback but worry about hurting people’s feelings”*

However, participants’ did describe one positive experience of group assessment. In a particular module students received two grades for their group work. One grade was provided for the overall group submission, while the other was provided for the individual student’s contribution. This would appear to be a valuable approach since it retains the importance of working effectively in a group while also providing a sense of ownership of the work for individual students.

3.8.2. The main research question

The findings presented above have important implications for the way in which group assignments are designed by educators, and undertaken by students. The purpose of this sub-section is to summarise the above findings and present the researcher's answer to the main research question:

Is there one best method of allocating students to groups when the purpose is to maximise tacit knowledge sharing?

It was highlighted in the introduction to this work that group working can provide a valuable opportunity for student learning and, importantly for the present study, an opportunity to share skill-sets and experiences (Livingstone and Lynch, 2000; Plastow, Spiliotopoulou and Prior, 2010). Yet, this only holds where students are willing to engage in knowledge sharing. The findings of this study indicate that while many participants were willing, and indeed described having shared knowledge, there were numerous barriers.

Consistent with prior literature (Davies, 2007; Maiden and Perry, 2011; Popov et al., 2012), the free-rider issue, and related issues of non- or limited contribution to group work were found to be a central cause of concern for participants, being a cause of frustration. Indeed, the discussions with participants revealed their dissatisfaction with unreliable group members, implying the importance of interpersonal relationships (specifically cognition-based trust) for effective group working and thus these results are somewhat consistent with prior research that highlights the importance of trust for student group working (see for example, Devita, 2000; Lin, 2007; Wangpipatwong, 2009; Matveev & Milter, 2010; Majid and Wey, 2011; Zaqout and Abbas, 2012; Chikoore and Ragsdell, 2013).

The free-rider problem also raises questions of student engagement. If the problem is as widespread as participants suggested, then a large portion of the student cohort may be significantly unmotivated and, potentially, not just with respect to group work. While this is, in itself, an important issue, it raises two barriers for knowledge sharing. First it implies apathetic attitudes to knowledge sharing, which reduces the likelihood that knowledge sharing will take place (Wang, 2006; Ehin, 2008; Alwis and Hartmann 2008). Second, it means that opportunities to spend time in shared physical or virtual spaces, which are necessary for knowledge sharing (Nonaka, Toyama and Konno, 2000; Viitala, 2004), are lost.

Concerns over a lack of opportunity to work together were also raised by participants, and often due to logistical difficulties in finding an appropriate time in which to meet. This is of importance, as it is a problem which has been found to reduce knowledge sharing in organisations (see for example,

Goh, 2002). Moreover, there is consensus within the knowledge management literature that direct communication between individuals is the most effective method of sharing tacit knowledge (Haldin-Herrgard, 2000; Politis, 2003, Peroune, 2008). Yet, while this may be problematic for some students, it is not insurmountable. Opportunities for communication via social-networking sites and email provide a virtual option and the university has a number of buildings which are available to students twenty four hours a day. In addition, the majority of lectures and tutorials do not run later than 5pm and so there is arguably ample opportunity for the majority of students to fit group working in to their schedules. It is likely that the problem is again an apathetic attitude to group working (and by extension knowledge sharing).

Apathetic attitudes towards knowledge sharing were also described or implied throughout the discussion of sharing skills, and beliefs, values and ideas (broadly akin to technical and cognitive tacit knowledge). Some participants were openly apathetic toward the value of knowledge sharing, this is somewhat surprising as prior literature reports that students have a generally positive attitude to knowledge sharing activity (Yuen and Majid, 2007; Yaghi et al., 2011; Wei et al, 2012; Chikoore and Ragsdell, 2013; Rahman et al., 2014).

Others highlighted that the ways in which group work assignments were completed - typically splitting tasks into sections and completing them independently - meant that little knowledge sharing took place. This latter finding is somewhat unsurprising being consistent with the work of Chikoore and Ragsdell (2013).

While this may be seen as a feature of the assigned tasks, which clearly did not necessitate interdependency and group working, it is also clear that the option for knowledge sharing was there for those who wished to partake. Yet, as the findings revealed, this often did not happen – and many participants reported that despite perceiving knowledge sharing to be a potentially positive aspect of group work – knowledge sharing did not always occur.

While solutions such as changing assessment mechanisms or instituting a greater degree of supervision over group work projects may convince some current and potential non-contributors to take part, it is unclear that this will have any real positive effect. There needs to be an intrinsic motive to share knowledge, as Ehin notes: “the generation of knowledge is an indiscernible voluntary cooperative process... New ideas cannot be forced out of people who often do not know exactly what tacit knowledge they possess” (2008:338).

The findings of the present work also demonstrate that interpersonal trust relationships are an important factor in group work; and they can be interpreted as highlighting the importance of both

affect- and cognition based trust for knowledge sharing. This is in line with the knowledge management literature on the topic (see for example, Lucas 2005; Holste and Fields, 2010) and the findings within the pedagogic literature (Devita, 2000; Wangpipatwong, 2009; Matveev and Milter, 2010; Chikoore and Ragsdell, 2013). However, these findings contrast with those reported in the previous chapter, in which affect-based trust was shown to not be a significant predictor of knowledge sharing. The reasons for this discrepancy are unclear, but may be due to the different methodological approaches taken, and the differences in sample size within the two studies.

Indeed, participants' views in this study were divergent and there was no consensus: for some participants affect- and cognition-based trust relationships were important for knowledge sharing activity, while for others they acted as a barrier. While this highlights the importance of interpersonal trust relationships it provides no rationale for adopting any particular method of group allocation. However, it does suggest that it may be worthwhile for educators to foster these types of interpersonal relationships amongst students.

This could be achieved by making more use of group work during lectures and seminars, which may provide opportunities for students to begin to develop both kinds of interpersonal trust relationships. Further, educators may choose to facilitate in class discussions between students so that students have an opportunity to demonstrate their competence to each other, increasing cognition-based trust. Yuen and Majid (2007) have suggested the use of informal social events to foster relationships between students – more formal activities such as field trips may also be beneficial, providing students with an opportunity to engage less formally than when they are in the classroom. However, since trust is created over time and developed through iterative processes (Lyons and Mehta, 1996; Huxham and Vangen, 2004) it is likely that a number of such activities be necessary. Arguably, such activities need to be embedded within the entire curriculum so that interpersonal trust relationships are developed between students from the beginning of their academic careers.

The analysis of participants' preferences for group allocation methods provided no rationale for adopting any particular method to maximise tacit knowledge sharing during group work. Participants' preferences depended on three broad considerations: their desired outcomes of the group work experience, the point in the academic year in which group work took place, and their perceptions of the implications of the three methods.

Random or engineered allocation methods were preferred by those who were focussed on meeting new people, exchanging views and ideas, and generally learning from the group work experience.

Participants who were motivated by academic attainment preferred to self allocate themselves to groups. For postgraduates, preferences were also influenced by when the group work took place. Thus, it is untenable to recommend one method of group allocation over another. If any of the three group allocation methods were adopted then this would only meet the needs of some students. It is contended that this would be an unsound and inequitable approach. There is arguably one answer to the main research question: there is no one best method of allocating students to groups to maximise tacit knowledge sharing.

Therefore, it is contended that the most equitable way to proceed is for educators to make a variety of allocation methods available for students. Students can then choose the allocation method that they believe is most appropriate and conducive to meeting their individual needs. For example, in a given class, one set of student groups may be comprised of students who have asked to be randomly allocated, while another set may be comprised of students who have opted to self allocate. It is contended that such an approach provides an opportunity for students to work with like-minded individuals, pursue their own aims, and fulfil their own needs during their group work experiences.

3.8.3. Implications of the findings

The following section draws on the findings of the research to provide implications of this study for theory, educators, and the wider business and management community.

3.8.3.1. Implications for theory

The major contribution of this work is that it is, to the researcher's best knowledge, the first to provide an in-depth qualitative examination of students' willingness to share tacit knowledge during group work.

While a number of studies have investigated the knowledge sharing behaviour and attitudes of students within higher education (see for example, Wangpipatwong, 2009, Yuen and Majid, 2007; Hassandoust and Perumal, 2011; Yaghi et al., 2011; Wei et al., 2012; Rahman et al., 2014) only one has investigated student knowledge sharing during group work within the UK (Chikoore and Ragsdell, 2013).

Given such a dearth of studies dealing with this topic, and a particular paucity of studies examining knowledge sharing in the context of group work, it is the researcher's contention that this study makes a small but significant contribution to the literature. While the findings of the present study are largely consistent with the work of Chikoore and Ragsdell (2013), the present work is dissimilar from that work, in that it provides an in-depth examination of the issues, and prioritises the voice of students.

As highlighted, many of the findings of the work are consistent with previous literature, yet a surprising finding is that many students within the sample find the experience of group work to be very emotional, and in some cases group work could be argued to have had a detrimental impact.

Finally, the work contributes to the literature that discusses different methods of group allocation, by presenting an answer to the question - is there one best method of allocating students to groups to maximize tacit knowledge sharing? The answer offered by the researcher is that there is probably no best method, but rather, the best way to proceed is to allow students to choose the allocation method they believe is most conducive to meeting their own goals.

3.8.3.2. Implications for educators

In addition to the answer provided to the central research question, this project has produced a number of findings that are of relevance to practitioners who make use of group work in their teaching. The researcher contends that the following issues are of import, regardless of whether a practitioner is, or is not, concerned with maximizing knowledge sharing:

1. Practitioners should be aware of affective impact that group work can have on students. It should be borne in mind that group work has the potential to severely distress some students, and thus, efforts should be made to reduce the impact of factors that are likely to cause such difficulties. Such factors include the occurrence of free-riding, and students' inability to effectively manage their peers during group work.
2. Practitioners should be aware that students may not have positive attitudes towards knowledge sharing activities, and the value of knowledge sharing more generally. Thus, practitioners may need to take steps to promote the value of knowledge sharing to students.
3. Practitioners should be cognizant that the needs of all students are not the same - and so group work should be designed to meet the needs of a variety of students; some are desirous of achieving high attainment, others of meeting new people, and yet others of learning about other cultures. Group work designs which meet a diverse range of needs are likely to be more favourably received by students.
4. Students do not necessarily have the skills required to effectively undertake group work - and the undertaking of group work does not necessarily lead to the gaining of such skills. With this in mind it is recommended that educators should make efforts to formally impart the necessary group working skills to students prior to their commencement in group work activities.

3.8.3.3. Implications for the business and management community

If the students in the sample studied share commonalities with other business and management students, then there are a number of important implications for the business and management community.

1. Employers may find that graduates lack experience of sharing their skills with others, and may not be well disposed towards knowledge sharing in general. In particular, graduates may fear the negative consequences of sharing their beliefs, values ideas and opinions with others.
2. Employers may find that graduates do not have the skills required to work effectively within teams. Working in multicultural groups may present particular difficulties for graduates, and graduates may also lack the necessary skills to lead and manage groups.
3. As a result employers may need to develop these skills in graduate recruits.

3.8.4. Opportunities for future research and limitations

This study has generated a number of opportunities for future research.

Within this study it was found that participants' interpersonal trust relationships impacted their willingness to share and use tacit knowledge during group work. However, there was no consensus as to whether affect- and cognition-based trust relationships motivated or inhibited knowledge sharing and use. Future research might aim to explore and understand the importance of these relationships for students' willingness to share and use tacit knowledge. Given that there is a paucity of qualitative research in this area, qualitative explorations are likely to make a valuable contribution to the literature.

In contrast to the prior literature, it was found that many participants had apathetic attitudes towards knowledge sharing. Therefore, future research might examine the motivations and barriers to students' willingness to share and use tacit knowledge during group work.

Group leadership was found to be an important (but often lacking) aspect of group performance in the present study. Future research may examine the importance of leadership in student groups and explore the most appropriate manner in which students can lead their groups. Researchers may also choose to focus on the relationship between leadership in student groups and students' willingness to share and use tacit knowledge.

An unexpected finding is that group working was often an emotional experience for participants. When discussing their experiences and perceptions of group work, participants often demonstrated considerable affect, with emotions ranging from joviality and amusement through to frustration and distress. Thus, future investigations into the emotional impact of group working and its effects on knowledge sharing and use may be fruitful.

There are a number of limitations to this work.

First, the qualitative nature of the study means that generalisability and transferability of the findings to other higher education contexts may be low.

Second, the research was conducted at a point in the academic year when a large number of the student body may no longer have been present. As a result of this different numbers of participants were drawn from each year group, and it is likely that their views may not be representative of the wider student population.

Third, the study made use of a convenience sample, and so it is possible that the views expressed by participants may not be representative of those held by the wider student population within Bangor Business School.

3.9. Summary conclusion

This study was undertaken to provide an answer to the research question - is there one best method of allocating students to groups to maximise tacit knowledge sharing? Additional aims of this study included achieving an understanding of students' experiences and perceptions of undertaking group work within Bangor Business School; determining the extent to which students were willing to share and use tacit knowledge during group work; examining the influence of interpersonal trust relationships on students' willingness to share and use tacit knowledge; and gaining an understanding of students' preferences for methods of group allocation.

Focus groups were conducted with 32 undergraduate and postgraduate students. Data collected during focus groups were transcribed and the data was subjected to qualitative thematic analysis, following the steps outlined by Saunders, Lewis and Thornhill (2007).

There were a number of key findings: participants reported few positive experiences and perceptions of group work, with the majority of reported experiences and perceptions being negative. Causes of particular concern for participants were the non-contribution of peers during group work, difficulties working with people from other cultures, and difficulties in group leadership and decision making. There were few reports of students sharing skills with others, and those who did report such activity, did not report a transfer of skills that were sufficiently embodied to be classified as technical tacit knowledge. There were numerous reports of students sharing their ideas, values and beliefs and it was thus argued that students were more regularly engaged in cognitive tacit knowledge sharing. Across all groups there was a consensus that interpersonal trust relationships impacted knowledge sharing, but there was no consensus as to whether affect- or cognition-based trust were more or less conducive to knowledge sharing. When questioned about how group work could be improved within Bangor Business School, participants suggested a greater involvement from module leaders (to provide structure, support and guidance, and to deal with free-riders), the provision of training to increase their group working skills, and students also suggested a range of different group work assessment methods, but no consensus was found.

Analysis of participants' preferences for group allocation provided no compelling rationale for adopting any one method of group allocation to maximise tacit knowledge sharing during group work. Participants' preferences were based on a number of considerations, including their desired outcomes of group work, the point in the academic year in which group work took place, and their perceptions of consequences of different allocation methods. Thus, it was concluded that the most equitable way to proceed with group work is to make multiple methods of group allocation available

to students within a given module, and then allow students to choose the method that they feel is most conducive to meeting their individual needs.

There is a dearth of studies addressing the issue of students' willingness to share and use tacit knowledge during group work. Thus, it is contended that this study makes a small but important contribution to a nascent body of literature. In addition, it is contended that the findings of this study can assist educators in making informed decisions about managing group work to increase student engagement in knowledge sharing activity.

Chapter 4: Influencing electronically mediated intergroup knowledge sharing

4.1. Another change in direction

The studies presented in the two previous chapters explored tacit knowledge sharing amongst students during group work within the context of higher education. While these studies shared a common aim, they were informed by different philosophical considerations – representing the described shift in my conceptions of research philosophy and approaches to research. The first study was based in the positivist tradition and the second was informed by social constructionism.

The study presented within this chapter is evidence of further change in my approach to research. While I had been content to *passively* explore issues related to knowledge sharing between 2010 and 2012, I found that at the beginning of 2012/2013 semester, I had a desire to create change. I believed that I knew so much more about student knowledge sharing within higher education that it would, at that point, have been unethical not to try and improve the current reality for students. Moreover, I believed that through my actions I could influence the knowledge sharing behaviour of students, remove barriers to knowledge sharing and achieve beneficial learning outcomes for students.

This study also adopts a different approach to the study of knowledge management than that adopted in the previous two studies. The previous two studies focussed on intra-group tacit knowledge sharing, and largely adopted, in Wiig's (2000) terms, a social approach to knowledge management - sharing knowledge through the face-face interaction of people. Such an approach is often termed a personalisation strategy when it is adopted within organisations, and is argued to be the most effective method of tacit knowledge sharing (Hansen, Nohria and Tierney, 1999). The current study adopts a socio-technical approach (Wiig, 2000) and is more akin to a codification strategy within organisations, which focuses on the management of explicit knowledge using technological means (Hansen, Nohria and Tierney, 1999).

4.2. Research background and context of the study

This study presents an action research project designed to remediate what I considered to be a previous professional failure: In the 2011/12 academic year I had attempted to influence explicit knowledge sharing amongst final-year undergraduates who were undertaking group work assignments while enrolled on a Human Resource Management (HRM) module. As described below, the attempt did not yield the desired results for a number of reasons. However, I would argue that these issues could have been largely mitigated if it was not for one overarching failure - my own failure to apply and make use of my understanding of knowledge management when designing the pedagogic activity. In the 2012/13 academic year I determined to make a concerted effort to influence explicit knowledge sharing based on my knowledge and understanding of knowledge management.

Both attempts at influencing e-mediated intergroup knowledge sharing (EMIKS) took place within the context of a third year undergraduate HRM module, delivered at Bangor Business School within the first semester of the academic year. The module has been delivered by an established Professor for a number of years, and I undertook the role of module tutor during the 2011/12 and 2012/13 academic years. As module tutor, my responsibilities included designing and delivering content for tutorials, providing assistance for students who were completing assignments, and undertaking formative and summative assessment of individual and group work assignments.

The HRM module is a compulsory component of a number of the Business School's business and management programmes, and is optional in others. It regularly attracts between 100-120 students who are diverse with respect to gender, nationality, degree programme and work experience. The module content includes a basic introduction to HRM, including sessions on recruitment and selection, human resource development, performance management, managing the employment relationship, and global issues in HRM. The module is assessed through both individual and group assignments.

The group assignment – for which the EMIKS was introduced - requires students to work in groups of around six and undertake a case study of a chosen organisation's HRM practices, and present conclusions. The individual assignment requires students to produce a reflective essay that examines and explores their experiences of group work, drawing on their knowledge of HRM and organisational behaviour.

The initial introduction of the EMIKS in the 2011/2012 academic year was in part a response to the research undertaken and described in the previous chapter. Based on the findings of that research the manner in which the tutorials for the module were delivered was modified in a number of ways. For example, to improve students' perceptions of being supported by myself and the module lecturer, and to provide students with sufficient structure and guidance for the group work activity, the number of tutorials was increased from three to six, and the course-work assignment was 'broken down' into a number of tasks. Within each tutorial I focussed on the explanation and completion of the task for that week, and discussed each group's progress in the following week. Further, I promised to be available when needed, answer emails promptly, and generally expressed to students my (authentic) desire to help them progress and develop. While these modifications were largely judged to be successful there was one exception - the attempted introduction of the EMIKS initiative:

During the first lecture in the 2011/2012 academic year, I informed students that a discussion board had been placed on the course page of the Blackboard Virtual Learning Environment (VLE). I encouraged them to use this forum to share drafts of their assignments and ask any relevant questions. I informed the students that if they did so, then the module leader and myself, would read their work, consider their questions and provide formative feedback. I (perhaps foolishly - see discussion in later sections) informed students that... 'this online forum business is a fantastic opportunity for us all, but it's also a lot of work – I won't use it if you don't'.

It is perhaps unsurprising that, with the exception of one student, who made one comment once, they did not. Indeed, it is well established that the mere presence of a knowledge exchange system is no guarantee of its use or success (Davenport, DeLong and Beers, 1998; Kankanhali, Tan and Wei, 2005).

4.3. Research problem, objectives and questions

The problem that this action research study is concerned with is that students failed to make use of the EMIKS initiative when it was launched in 2011/12. Students did not use the forum, and so explicit knowledge in the form of drafts of work was not shared. Thus, I spent the majority of the semester repeating work - having similar conversations with numerous students, and providing formative feedback to both individuals and groups that was very similar.

The objectives of the revised study were the same as those that went unmet in 2011/12:

- Objective 1: To increase the sum of knowledge available to students

It is well known that groups can generate greater sums of knowledge than individuals (McNally 1994). Since students are typically drawn from diverse cultural backgrounds, are of different ages, and studying towards different degrees it is possible that they could provide different perspectives and insights on their case study projects. However, my experiences of students engaged in group work are that for the most part, individual groups do not communicate with each other, or communicate minimally. Thus, any knowledge created is retained within individual groups and other groups do not benefit from its creation. This is similar to a situation in organisations termed “siloing” described by Goh (2002) as occurring when knowledge is not shared across inter-organisational boundaries. It was intended that the revised EMIKS initiative would overcome this problem and that the knowledge created by individual groups would be made available to all.

- Objective 2: To reduce my workload

Having undertaken formative and summative assessment of the work of students enrolled on the module in previous years, I was aware that the mistakes students made when completing assignments tended to be similar. It was intended that by influencing students to place drafts of their work in the public domain, I would be able to provide formative feedback and that other students could access and learn from these drafts and the feedback provided. It was intended that this would hopefully reduce the mistakes made by other students, thus reducing my workload.

The two research questions that this study intended to answer are the corollaries of the two objectives, namely:

- Research question 1: Is the revised EMIKS initiative effective in increasing the sum of knowledge available to students?
- Research question 2: Is the revised EMIKS initiative effective in reducing my workload?

4.4. Research rationale

The present study adopts an action research methodology to achieve its objectives and answer the research questions. Action research is a form of applied research (Hussey and Hussey, 1997) and is often undertaken to provide solutions to specific problems (Hussey and Hussey, 1997; Saunders, Lewis and Thornhill, 2009; Bryman and Bell, 2011). Further, the undertaking of action research to solve problems within the educational context is well established, and has been found to be particularly appropriate within that context (Zuber-Skerrit, 1992; Norton, 2001).

The principal rationale for undertaking the present study is that it is expected that the achievement of the objectives listed above (see 4.3) will result in beneficial outcomes for the participating students and for myself: students should benefit from being able to access a wider range of explicit knowledge sources, enhancing their learning and thus potentially, their attainment. For myself, it was hoped that the initiative would reduce my workload. It is contended that these are inherently valuable and desirable outcomes.

It has been argued by scholars that *good* action research should have implications that are of import and relevance to those operating beyond the immediate context of the investigation (Hussey and Hussey, 1997; Greenwood, 2013) and it is contended that the present work has implications for both scholars and educators.

For scholars, the work makes a novel contribution to the extant literature on knowledge sharing in the context of higher education. To my best knowledge few studies have examined knowledge sharing in higher education (Chowdhury, 2005; Lin, 2007; Sackmann and Friesl, 2007; Yuen and Majid, 2007; Wangpipatwong, 2009; Hassandoust and Perumal, 2011; Majid and Wey, 2011; Yaghi et al, 2011; Wei et al, 2012; Zaqout and Abbas, 2012; Chikoore and Ragsdell, 2013; Chong, Teh and Tan, 2014; Rahman et al, 2014) and only one study has examined the phenomenon within the UK (Chikoore and Ragsdell, 2013). Further, these studies could be considered, in Hussey and Hussey's (1997) terms, *basic* research as they have been undertaken to make a general contribution to the literature – while the study presented in this chapter is *applied* research being undertaken to solve a particular problem.

Thus, the extant literature could be characterised as having adopted a knowledge management lens to explore and describe knowledge sharing behaviour within higher education. To my best knowledge the study presented in this chapter is the first to draw on the literature to attempt to

influence voluntary intergroup explicit knowledge sharing to achieve the objectives listed above. In doing so the study examines the relevance of a range of proposed barriers to knowledge sharing - and the efficacy of a number of solutions proposed in the knowledge management and pedagogic literatures.

For educators, the research provides insights into how such an initiative can be developed and undertaken, and examines the effectiveness of a range of practices in influencing knowledge sharing. Thus, the study may assist educators in designing similar interventions. It is contended that such evidence is valuable - that students are not necessarily well disposed towards knowledge sharing has been a recurrent finding in the previous two chapters.

In addition, the study highlights the potential difficulties for educators who may wish to undertake a similar initiative. Indeed, it is contended that the work serves as a warning for others since it emphasises the potentially negative affective impact of (ineffectually) managing such an initiative.

4.5. Organisation of the chapter

In determining how to approach the study (discussed in section 4.8) I ultimately decided upon the use of action research. Action research is highly applicable to the pedagogical context due to its ongoing nature and ability to acknowledge “the rich complexity and wholeness of the educational situation and the willing acceptance to embrace that complexity and be ready to re-evaluate and change in the light of the available evidence” (Norton 2001:21). I was familiar with Norton’s conception of action research within the pedagogic context, having made use of her framework when completing ‘learning cycles’ while enrolled on a Postgraduate Certificate in Teaching in Higher Education. Thus, the present work has been conducted, and is reported, according to the five-stage pedagogical action research method proposed by Norton (2001):

1. Identifying a problem with your practice
2. Thinking of ways to tackle the problem
3. Doing it
4. Evaluating it
5. Modifying your practice

The remainder of the chapter is organised as follows:

Section 4.6 provides an overview of the design of the revised EMIKS initiative. Although the design is discussed and defended in detail in section 4.9, it is contended that an understanding of the initiative will ensure that the reader is able to follow the discussions in the following sections, particularly with respect to the choice and design of data sources and instruments.

Section 4.7 discusses the methodology of the research, including a discussion of research philosophy, action research and describes and defends the design of the research and the methodological choices made.

Section 4.8 "Identifying problems with my practice" presents an analysis of the data gathered from the initial introduction of the EMIKS initiative in 2011/12 that explores why participants in that cohort did not participate.

Section 4.9 “Thinking of ways to tackle the problem” draws on this analysis and the knowledge management and pedagogic literatures to present and defend the revised EMIKS initiative. Since I

(as tutor) take a central role in attempting to influence the knowledge sharing activity of students a significant portion of the literature reviewed is within the field of leadership and knowledge management. Thus, this section begins with a review of this literature.

Section 4.10 “Doing it” describes the procedure of undertaking the research – and highlights the degree to which the research was successful in achieving its participatory intent (see below).

Section 4.11 “Evaluating it” presents an evaluation of the EMIKS initiative – examining its effectiveness in achieving the objectives of the study – and in doing so draws on the extant knowledge management and pedagogic literature. This section opens with a discussion of the results of the data collection phases, and then considers the objectives and associated research questions in turn.

Section 4.12 “Modifying practice” draws on the evaluation presented in the preceding section and considers how the EMIKS initiative may be revised to enhance its success.

The remaining sections consider the limitations of the work, opportunities for future research and the implications of the work for scholars and for practitioners. The work is concluded with a summary conclusion.

4.6. Overview of the EMIKS initiative

A full description and rationale for the 2012/13 electronically mediated intergroup knowledge sharing (EMIKS) initiative is presented in section 4.9. This brief overview is included to provide the reader with a sufficient background to interpret and follow the discussion of research methods presented in section 4.7:

Within the first lecture I attempted to influence students' engagement in the EMIKS initiative by first outlining the initiative, being honest about the previous year's failure, and then providing a hopefully compelling vision and rationale for participating in the initiative. Students were asked to form groups in the second HRM lecture and based on the findings and recommendations of Chapter 3, students were first given the option to self-allocate, and if unwilling or unable to do so, were placed into groups by myself or the module tutor. During the six HRM tutorials, I outlined a weekly task that must be completed by the each assignment group. When combined, these tasks formed the majority of the group assignment. If they chose to do so students could submit their work to me via email. Once received, I would render the work anonymous, and then provide formative feedback on the work using track changes in Microsoft Word. Each week a discussion board was set up on Blackboard (the VLE), and the drafts of participating groups were uploaded. Membership of the weekly discussion board was limited to those who had sent me drafts. Within the following tutorial the feedback was, if necessary, discussed face-face with students. I continued to promote the value of the initiative throughout the module, emphasising my belief in its importance and value in lectures, tutorials and via email. I also attempted to behave in a friendly, supportive and approachable manner with students to further encourage participation.

4.7. Methodology

Within this section the methodological choices considered in the design of the research are described and defended. The section is comprised of several sub-sections that consider research philosophy, action research methodology, the type of research undertaken, the collection and analysis of data, and ethical considerations.

4.7.1. Research philosophy

The previous chapter presented a detailed discussion of my philosophical stance and approach to research. To avoid unnecessary repetition that discussion is not repeated here since my stance and approach had not changed in significant ways during the undertaking of this research. However, a few points require explanation:

1. As noted, while still holding to the social constructionist position, I became dissatisfied with attempting to only explore and understand how participants interpret their social worlds. Instead, I became desirous of creating change – influencing and creating a different reality of group work that would be more beneficial (in my conception) to students. The desire to create change is not one that I can readily explain; the best explanation I can give is to point to a desire to improve students' experiences. Within the study reported in Chapter 3, it was found that group work can be a negative experience for students, and I believe not acting to reduce suffering when one is able to do so, is morally defective.

2. Within the Chapter 1 my qualitative turn was outlined, and I described a change in research philosophy leading to the position that is explicated in Chapter 3. While I still contend that the social world is not reducible to laws of cause and effect, and that any attempts to do so are necessarily flawed - I have taken what might be called a pragmatic approach to the use of quantitative data within this study. The pragmatic approach argues that one can operate within different paradigms when conducting a research project and the decision to do so should be guided by the belief that is likely to yield useful answers to the research question (Saunders, Lewis and Thornhill, 2007). This study makes use of a questionnaire that contains open and closed questions. The closed questions asked students to self-report their agreement to a number of statements relating to myself and the EMIKS intervention using a five-point Likert scale. The results are used with considerable caution giving my overriding belief that such instruments do not necessarily always yield meaningful and valid results. My principal concern with using such instruments is one of concept equivalency; there is no guarantee that one respondent's "Mostly agree" is equivalent to another's. Nonetheless, I would argue that such instruments have some use in providing some insight into the general perceptions of respondents. For example, if 50 respondents all "Strongly disagree" to certain

statements relating to a teaching intervention, then although a fine-grained and "rich" understanding is not gained, it does provide some evidence that the intervention is not working well.

4.7.2. Action research methodology

There are multiple definitions of action research, and a multitude of ways in which it can be conceived and performed (Zuber-Skerrit, 1992; Dehler, 2006; Saunders, Lewis and Thornhill, 2007). Kurt Lewin is typically credited with the first exposition of action research, describing action research as a process of identifying an objective that is to be achieved, formulating a plan to achieve that objective, implementing the plan, monitoring the results of the implemented plan and then making modifications to the plan where appropriate, and then repeating the cycle. While these core components are central to most conceptions of action research, Raelin (1999) cited in Dehler (2006) notes at least six different strategies that may be employed, namely, participatory research, action research, action science, action learning, developmental action inquiry and co-operative inquiry. Despite the multiple conceptions and forms of action research, Saunders, Lewis and Thornhill (2007) note that four key themes are evident within most:

First, action research is principally about research in action, as opposed to research about action. To that end, action research is concerned with the resolution of organisational issues. Second, action research involves collaboration with either (or both) internal and external stakeholders during an action research project. Third, action research processes are iterative, involving (broadly) cycles of planning, implementing and reflecting. Finally, action research creates research outputs that are of value and have implications outside of the immediate research context.

Within this action research project, the following broad conception of action research within the context of higher education that is advanced by Zuber-Skerrit (1992) is adopted. Thus, action research is understood as a:

“...collaborative, critical enquiry by the academics themselves (rather than expert educational researchers) into their own teaching practice, into problems of student learning and into curriculum problems. It is professional development through academic course development, group reflection, action, evaluation and improved practice.” (Zuber-Skerrit, 1992:1-2).

A further distinction can be drawn between three kinds of action research based on its aims (Carr and Kemmis, 1983). Carr and Kemmis (1983) distinguish between *technical* action research that aims at improving practitioner skills, *practical* action research that builds professional understanding and contributes to group development, and *emancipatory* action research that aims at the emancipation

from organisational constraints through the action research process. Based on this conception, this action research project would be classified as a technical action research project.

However, given the increasingly nebulous nature of the term action research (Dehler, 2006) it is necessary to explicate the form of action research undertaken. The approach to action research adopted Norton's (2001) model developed for undertaking action research projects with higher education. However, it is also informed by Greenwood and colleagues' conceptions (Greenwood, Foote and Harkavy, 1993; Greenwood, 2012) of participatory action research (PAR). These are described below.

4.7.2.1. Norton's (2001) ITDEM model

Norton's (2001) ITDEM model is comprised of five distinct stages (see below).

Stage 1: Identifying a problem in your practice – This involves identifying the problem(s) or issue(s) that one wishes to resolve during the research. Given the cyclical nature of action research (Norton, 2001; Dehler, 2006; Greenwood, 2012) it is recognized that these may change throughout the process.

Stage 2: Thinking of ways to tackle the problem – This involves identifying and planning new ways to tackle the problems identified.

Stage 3: Doing It – This stage involves the undertaking of the action research project.

Stage 4: Evaluating it – This involves evaluating whether the plan determined during *Stage 2* and implemented during *Stage 3* were effective in resolving the problems identified

Stage 5: Modifying your practice – This stage involves drawing on the findings of the evaluation of the research to determine whether modifications need to be made to the practices adopted. This modification may be put into practice as part of a continuation of the research process or may be disseminated to inform others' practice.

4.7.2.2. Participatory Action Research

Participatory action research (PAR) is similar to the form of AR described above, yet, it emphasises collaboration and participation with internal and external stakeholders. Indeed, the central difference is that AR involves the input and collaboration of those whom the research is concerned with, or will affect (Greenwood, Foote and Harkavy, 1993; Greenwood, 2012). One of the premises on which action research is based is that all actors have key and pertinent expertise and knowledge, and so are capable of making a contribution to the analysis and solution of problems (Greenwood,

2012). Therefore, within PAR, the professional researcher and organisational members are viewed as collaborators who work jointly throughout the research process, from the formulation of the problem to the application and assessment of any solutions (Whyte, Greenwood and Lazes, 1991). The noted advantages of such an approach are that key stakeholders bring their expertise to the project (in terms of problem specification and resolution), and so have more 'buy-in' to the project (Greenwood, 2012).

However, as a caveat it is important to note the distinction between the participatory intent and the actual degree of participation achieved (Greenwood, Foote and Harkavy, 1993). While it may be intended that an action research project is highly participatory, the actual extent to which this may occur cannot be guaranteed at the outset of the project. Rather, a confluence of factors will determine the degree to which the participatory intent is realised. As Greenwood (2013:128) highlights, many of the problems with PAR stem from its collaborative nature, and that it "...is ethically incoherent and methodologically impossible to order a group of people to do an AR project and to do it in a particular time framework". Thus, although PAR is intended – it cannot be guaranteed.

4.7.2.3. Justification for adopting Participatory Action Research

There are a number of advantages to undertaking action research within the context of higher education, and there are four principal reasons why it has been adopted for this project.

First, the action research process serves as a tool for self-development, allowing one to improve one's own practice by implementing new strategies and behaviours within the pedagogic context and then reflecting upon and refining one's approach (Carr and Kemmis, 1987; Norton, 2001). For some, action research is defined in part by its potential for self-improvement. For example, Gilbert (1995:107) notes that action research is "...a form of self-reflective enquiry undertaken in order to improve practice." Within higher education, action research has gained ground as a way of improving teaching and learning. Kember and Gow (1992) argue for its use as a tool of staff development, highlighting a number of action research cycles undertaken by colleagues which led to improved effectiveness within the classroom. Similarly, action research cycles are used as a method of formative and summative assessment for staff undertaking Postgraduate Certificates in Teaching in Higher Education within Bangor University.

Second, the use of action research recognizes a commitment to teaching and learning, and puts the student experience and student outcomes at the centre of research (Carr and Kemmis, 1986;

Norton, 2001). The use of action research provides a method by which one can engage in research which is directly relevant to, and supports the aim of, enhancing teaching and learning.

Third, the use of action research allows for greater autonomy in decision making within the educational setting (Carr and Kemmis, 1986) Norton, 2001). Norton (2001) notes that one of the benefits of action research is that it provides the rationale for creating change from within higher education that occurs at the behest of the teacher-researcher, potentially having broader implications for the sector. While this may be true for academic staff in general, it is perhaps even more so for a doctoral candidate like myself, who, under normal circumstance may not be allowed to trial new innovations with the same freedom as experienced colleagues. The use of action research, as a research method that both informs and researches practice, provides a rationale and framework for experimentation that may not ordinarily be available to a doctoral candidate.

Fourth, Norton (2001) highlights that action research transcends the traditional dichotomy of teaching and research – the two activities that academics principally undertake. For someone like myself who is a keen researcher, but *passionate* about teaching and learning – the use of action research allowed for the combination of interests and to pursue research into, and develop my own practice.

Finally, although I had specified the problems and objectives of the action research project and the initial design of the initiative, it was my intention to engage in PAR by seeking feedback from students throughout the process. Where possible this feedback was to be incorporated into the initiative design. It was hoped that this participatory intent would result in an initiative that benefits from students' unique understanding of their own educational needs and experiences, and result in an initiative that meets these. Further, while the project contains two clearly defined problems that I believe can be solved through taking action, it is recognized that the 2012/13 cohort may differ substantially from the previous years. Since, the intervention is partly based on the evaluation of the 2011/12 cohorts' experience the addition of a participatory dimension allows for any necessary adjustments to be made.

Yet despite its attractions, action research has fallen out of vogue, and is not considered as a mainstream approach to research (Greenwood, 2012) and is often criticised for a lack of academic rigour (Melrose, 2001). However, a recent article by Jack Whitehead (Whitehead, 2009) has argued for the explanatory power of the theories generated by action research, it is argued that such theories help individuals to develop their own practice. Whitehead argues for living theories: "In living theories *individuals generate their own explanations* of their educational influences in their own learning"

(Whitehead, 2009:87). Drawing on the literature, Whitehead (2009) distinguishes between two forms of living theory that are generated by action research.

The first is concerned with acting through opposing forces, and is grounded in the contradiction of the individual, of the 'I'. The 'I' may be in contradiction by being committed to certain values, but with the recognition of the "denial of these values in practice" (Whitehead, 2009:87). For example, within the context of higher education, a tutor may wish to provide on-going and continual support to each student that they work with, and may truly believe that this is the most desirable way to proceed, and that this value should be lived and enacted. However, given the constraints on their time, they may not be able to undertake such behaviours.

The second form of theory generated by action research is grounded in inclusionality, in relationally dynamic awareness. Whitehead outlines the notion of inclusionality as follows:

"At the heart of inclusionality... is a simple shift in the way we frame reality, from absolutely fixed to relationally dynamic. This shift arises from perceiving space and boundaries as connective, reflective and co-creative, rather than severing, in their vital role of producing heterogeneous form and local identity"

Rayner (2004) cited in Whitehead (2009:87).

Such living theories generate unique insights, and unique explanations – and are in stark contrast to the propositional theories, that rely on conceptual abstractions of the relationships between propositions (Whitehead, 2009).

While some may question the academic rigour of action research (Melrose, 2001), Whitehead (2009) argues for educational principles justified by generalisations from operational practice, such as individual actions, practices and experiences. He is against the view that a rationally developed theory must have principles with fundamental theoretical justifications at its base. Typically, within action research, meanings are communicated via the printed word on the page, and this makes it difficult to express the explanatory principles generated in action research (Whitehead, 2009). Whitehead notes the difficulty in "communicating the meanings of the life-affirming energy with values in living relationships", and highlights that in his experiences, such explanatory principles cannot be communicated "from within a set of propositions" (2009:89).

Thus, there are a number of sound reasons to pursue the action research approach. Action research may not produce the same form of theoretical contributions as other approaches, yet, following Whitehead (2009), this does not mean that it lacks value. On the contrary, it can be argued that it provides unique insights with considerable explanatory power, and practical significance (Whitehead, 2009).

However, an experimental design that made use of randomized controlled trials (RCTs), was also considered as a potentially viable research method since it a) allows for the intervention to be trialled and b) is often lauded for its academic rigour (Bryman and Bell, 2011). Such approaches involve (in short), the application of the intervention(s) to different groups, with (typically) one

group receiving no intervention so that a comparison between groups can be made with the purpose of examining the efficacy of the intervention (Saunders, Lewis and Thornhill, 2007). While such an approach is methodologically sound it does raise some ethical issues. Since I believe the intervention will have a positive effect on the students, I would consider the decision to wilfully withhold the intervention from some students (potentially to their detriment) to be unethical.

4.7.3. Type of research

As in Chapters 2 and 3, following Hussey and Hussey (1997), a schema of classifying research according to its purpose, process, logic and outcome is adopted to describe this study.

4.7.3.1 Research purpose

As noted in Chapter 2, research can be exploratory, descriptive, analytic or predictive. This study contains elements of the first three research purposes. It is exploratory in that few other studies have examined knowledge sharing within higher education, and none that I am aware of have attempted to influence knowledge sharing through action research using the knowledge management lens within the context of the UK. It is descriptive in that it describes the extent to which the initiative was effective in achieving its objectives, and there is a focus on providing detailed descriptions of participants' experiences of the initiative. However, the research is also analytic as it attempts to explain the success and failure of the initiative.

4.7.3.2. Research logic

With respect to research logic, the study can be characterised as being primarily inductive. The EMIKS intervention has been designed based on findings generated from primary data collection which have then been further explored and examined using relevant evidence from the knowledge management and pedagogic literature. However, the study also involves some deductive logic, since the evaluation of the EMIKS initiative involves the testing and examination of the proposed initiative. It is also important to note that while the study adopts both inductive and deductive research logic, much of the reasoning process was abductive.

Abductive reasoning is often traced to the work of the pragmatist Charles Pierce (Fischer, 2001) (cited in Gold et al, 2011). Abductive reasoning takes a markedly different form to that of inductive and deductive reasoning. Inductive reasoning involves inferences from specific instances to generalisations, and deductive reasoning involves inferences from generalisations to specific instances (Saunders, Lewis and Thornhill, 2007). By contrast, abductive reasoning involves inferring what might be the case (Kapitan, 1990), and is useful for generating new ideas and potential

solutions (Gold et al, 2011). It has been argued that during the process of problem solving, abductive inference takes the following form:

"The surprising problem *C* is observed.
But if *A* worked/was implemented *C* would be resolved.
Hence there is reason to suppose that *A* will work."

(Pierce 1903, cited in Gold et al, 2011:234)

This form of reasoning was adopted in the design of the EMIKS initiative (outlined in 4.9). The designed proposed in 4.9 emerged based on the consideration that if the elements adopted had worked, they would resolve the issued determined in section 4.8. The generated proposals were then supported by a review of the relevant literature.

4.7.3.3. Research process

As highlighted in Chapter 2, the process of research can be either qualitative or quantitative. The process of this study is primarily qualitative as it focuses on examining and reflecting on the perceptions of participants in order to achieve an understanding of the social world (Hussey and Hussey, 1997).

4.7.3.3. Research outcome

Since this action research study aims to provide a solution to a practical problem the research is characterized as applied. However, the study also has some basic outcomes - it is intended that the research will also make a contribution to the body of literature examining knowledge sharing in higher education.

4.7.3. Data collection, procedure and analysis

This section describes the design of the data collection and analysis methods adopted in the on-going and final evaluation of the EMIKS intervention. The data collection methods that inform the identification and exploration of the initial problem, and the evaluations of Objective 1 and Research question 1, and Objective 2 and Research question 2 are considered in turn. Consideration of the choices available ultimately led to the adoption of a mixed-methods approach, making use of researcher notes, questionnaires with quantitative and qualitative components, and semi-structured interviews. Thus, the evaluation of the intervention utilizes both data and source triangulation (Hussey and Hussey, 1997).

4.7.3.1. Exploring the initial problem

The problem that this action research study aimed to solve was known prior to beginning the project: students did not engage with the EMIKS initiative in 2011/12 and this led to an increase in my workload.

However, it was not clear why these students had not engaged. Fortunately, I had, in the final semester of the 2011/12, distributed a questionnaire (in the final tutorial and electronically) to students as part of a research cycle I was undertaking for part assessment of a Postgraduate Certificate in Higher Education. Fortuitously, that questionnaire contained a relevant open question that was not used in the final evaluation or reporting of that work; it asked:

"Why did you not make use of the online forum?"

Although the question is limited in scope it does provide insights into why students within the context of study did not participate in 2011/12. However, the relevance of these findings for the present research cycle might be questioned since there is no guarantee that students in the 2012/13 cohort would report similar barriers to participating. The rationale for the inclusion of this data is that it provides the best evidence of the potential barriers within the context of study - and can be buttressed through a comparison with the relevant findings within the knowledge management and pedagogic literature.

4.7.3.2 Objective 1 and Research question 1

To evaluate the effectiveness of the EMIKS initiative in achieving objective 1, and to answer research question 1, a number of data sources were used (summarised in Table 4.1 below).

Table 4.1: Data sources for evaluating Objective 1 and answering Research question 1

<u>Data Sources</u>	<u>Description</u>
Field notes of informal discussions	These were used to record my impressions of the tutorials and conversations with students. Adopted to provide insights into students perceptions of the initiative throughout the project. These notes were typically recorded on paper.
EMIKS Questionnaire (closed questions)	The closed questions were used to determine participants' overall perceptions of the initiative and their perceptions of the effectiveness of the individual elements.
EMIKS Questionnaire (open questions)	The open questions provide an opportunity to gain an understanding of students' perceptions of the initiative. They are also adopted to identify issues that could be further explored during interview.

Module evaluation questionnaire (open questions)	The formal module evaluation forms were not intended to be a data source for evaluating the objective but the comments that 'emerged' provided insights into students' perceptions of the initiative.
Semi-structured interviews	The semi-structured interviews were used to explore students' perceptions of the initiative in detail.

4.7.3.2.1. Field notes of informal discussions

Field notes of informal discussions were recorded as part of the on-going evaluation of the EMIKS initiative and were the key component of the attempt to achieve PAR. When meeting with each student group during tutorials, I asked questions about their perceptions of the EMIKS initiative, including the following:

- Was the feedback helpful?
- Could it be improved?
- Why didn't you send me anything?
- Did you look at others' work?
- Did it help?
- Should I be doing anything differently?

Rationale

The rationale for adopting this approach stemmed from the participatory intent of the research. PAR requires collaboration with participants who are assumed to have pertinent expertise and knowledge (Greenwood, 2012). I would contend that the actors with greatest expertise as to effects of the initiative on students are the students themselves. Thus, I expected that capturing participants' experiences and perceptions of the initiative *in vivo* would provide evidence as to its effectiveness potentially providing a rationale for modifying the initiative. The recording of additional observations (behaviour and mood) was intended as an active process of triangulation (Stake, 1995) allowing me to make a judgement as to whether body language or mood (or both) appeared to be consistent with participants' spoken responses.

Procedure

The field notes were recorded on various mediums media, either on A4 paper, or in an A5 notebook and were used to note the outcomes of these informal discussions with students, and to make observation about the groups non-verbal behaviour, and my perceptions of the shared mood and

feeling of the discussion. Thus, this use of informal discussions of field notes spans, in Yin's (2009) terms, different sources of evidence, containing elements of interviews and focus groups (gathering personal experience of participants), direct observation (the recording of behaviour) and participant observation (judgements of shared mood and feeling).

4.7.3.2.2. EMIKS questionnaire

The questionnaire (see Appendix C) was designed to provide data on the overall effectiveness of the EMIKS initiative in achieving Objective 1, to provide an answer to Research question 1, to determine the extent to which the initiative produced the beneficial outcomes that were expected, and to provide insights into participants' experiences of initiative.

Questionnaire design

The questionnaire contained both open and closed questions. The closed questions were used to gather data on the overall effectiveness of the initiative and the group work experience and the individual elements of the initiative. A five-point Likert-scale was used and participants were requested to rate their agreement to the statements provided, where 1 = "Strongly disagree" and 5 = "Strongly agree". Closed questions are preferable to open questions when the aim is to produce comparable responses, and are also often quicker and easier to answer (Saunders, Lewis and Thornhill, 2007). Open questions allow respondents to give answers in their own way (Fisk, 2003) and were used to gather data on participants' experiences and perceptions of the initiative.

To ensure the anonymity of participants, the questionnaire collected no demographic data from participants, but did require them to name the organisation they had studied for their assignment. This question was included to ensure that questionnaires could be removed if individuals who had not participated in the initiative had nonetheless provided answers for questions relating to participation.

Lacking pre-existing instruments to examine the EMIKS initiative it was necessary to create new questions. My own experiences within the research setting provided a range of insights into the effectiveness of the initiative and provided the rationale for the inclusion of the majority of questions. The questions exploring participants' overall perceptions of the effectiveness and outcomes of the EMIKS initiative and the rationale for their inclusion are displayed below (see Table 4.2)

Table 4.2: Questions examining the experience and outcomes of the initiative

<u>Question</u>	<u>Rationale for inclusion</u>
I often looked at other groups' drafts	Through informal discussions with students it became apparent that they did not often access other groups' drafts. These questions were included to determine the extent of this phenomenon.
Looking at other groups' drafts was an incentive for me to participate	
The feedback I viewed on other groups' drafts helped me to learn about HRM	It was expected that viewing the feedback on others drafts would help them to learn about the subject matter and about writing and structuring a report. These questions were included to determine whether this occurred.
The feedback I viewed on other groups' drafts helped me to learn about writing and structuring a report	
The group work assignment helped me to increase my understanding of HRM	As the initiative progressed I became concerned as to whether the group work experience was beneficial and positive for students, and whether students preferred the approach taken to their other experiences of group work.
Overall the group work experience was positive	
Overall the group work experience was better than the experiences of group work I have had in other modules	
Receiving feedback on my draft(s) was an incentive for me to participate	It became apparent through informal discussions with students that the majority participated primarily to receive feedback. These two questions were included to determine the importance attached to the feedback given.
If Bejan had not provided feedback I still would have participated	
The feedback I received helped me to learn about HRM	Through the provision of feedback I noticed that I tended to provide feedback about either a) the subject matter or b) the writing and structuring of a report. These two questions were included to determine the greatest benefit of the feedback for students
The feedback I received helped me to learn about writing and structuring a report	

The remainder of the questions were intended to examine the individual elements of the EMIKS initiative (see 4.9). For most elements participants were asked to indicate the extent to which they agreed with a statement relating to the degree to which the element was successfully implemented, and then to rate the extent to which the element influenced them to share their drafts and to look at the drafts shared by others. This approach to the questions was adopted as it became apparent through informal discussions with students that the initiative was more successful in influencing the sharing of drafts than the accessing and using of drafts. The following questions were included:

Table 4.3: Questions examining the effectiveness of the individual elements of the EMIKS initiative

Question	EMIKS element
Through his interactions with me, Bejan convinced me that the draft sharing innovation was an important and valuable activity that would benefit myself and others	Creating and promoting a vision and rationale
This influenced me to share my draft(s)	
This influenced me to look at other groups' drafts	
Bejan made the reasons for trialling the innovation clear	
This influenced me to share my draft(s)	
This influenced me to look at other groups' drafts	
Bejan identified what was good about the drafts, and what needed improving	Providing feedback
This influenced me to share my draft(s)	Anonymity of the initiative
This influenced me to look at other groups' drafts	
The anonymity of the draft sharing initiative influenced me to share my drafts	
The anonymity of the draft sharing initiative influenced me to look at other groups' drafts	
The anonymity of the draft sharing initiative influenced me to share my drafts	Ease of sending and accessing drafts
It was easy to send my drafts and view feedback	
This influenced me to share my draft(s)	
This influenced me to look at other groups' drafts	Reciprocity
Only those groups who sent drafts each week could view the work of others for that week. This influenced me to share my draft(s)	Tutor behaviours
Bejan created an atmosphere in which I felt comfortable sharing my drafts	
This influenced me to share my draft(s)	
Bejan was friendly	
This influenced me to share my draft(s)	
This influenced me to look at other groups' drafts	
Bejan was supportive	
This influenced me to share my draft(s)	
This influenced me to look at other groups' drafts	
Bejan was approachable	
This influenced me to share my draft(s)	
This influenced me to look at other groups' drafts	

The following open questions were also included in the questionnaire (see Table 4.4):

Table 4.4: Open questions on the questionnaire

<u>Question</u>	<u>Rationale</u>
Why did you participate?	This question was included to explore why participants took part in the initiative - and to determine whether the elements of initiative influenced participation
What did you gain from participating?	This question was included to determine whether the expected benefits of the initiative were achieved.
Why didn't you participate?	This question was included to determine why participants did not participate within the initiative. It was expected that this question would potentially reveal additional barriers to those identified within section 4.8 - and determine whether the elements were effective in overcoming the identified barriers.
How could I have encouraged you to participate further?	This question was included to determine what could have been done to encourage further participation
What was done well?	This question was included to gain an understanding of participants' perceptions of which elements of the initiative were well conceived and implemented
What could be improved?	This question was included to gain and understanding of participants' perceptions of which elements of the initiative could be improved.
Do you have any other thoughts or comments?	This question was included in case participants had any additional comments about issues that had not been covered in the questionnaire

Rationale for the use of a questionnaire

The questionnaire was adopted to gain a broad understanding of participants' perceptions of the initiative. A questionnaire is an appropriate choice as it is a relatively cheap and quick research instrument that can be used to reach large numbers of participants, especially when compared to other methods of data collection such as interviews which may involve considerable time and financial costs (Saunders, Lewis and Thornhill, 2007; Yin, 2009; Bryman and Bell, 2011).

However, there are a number of limitations to the use of a questionnaire to evaluate the EMIKS initiative. First, there are concerns with regards to the validity and reliability of the data collected, due to the issue of concept equivalency. This is problematic with respect to the use of rating items and the interpretation of comments within open questions: it is not clear whether the 'strong agreement' to a statement by one participant is equivalent to the 'strong agreement' reported by

another. Furthermore, it is not clear whether my interpretations of the meanings of participants' responses to open questions will necessarily cohere with their intended meaning. For example, based on our individual conceptions of the adjective, my interpretation of the phrase 'a brilliant idea' may differ radically from a participant's intended meaning. Second, the decision to conduct data collection in the final tutorial before students received their summative feedback may have created participant bias. Given that students are motivated by attainment (Dweck, 1986; Pintrich and Schunk, 1996; Busato et al, 2000), and that I was undertaking the summative assessment of their work - it is possible that some participants may have over-inflated or exaggerated their positive comments in attempt to influence that process. The opposite case could also be made – participants' judgements may have also been influenced by their achieved grades, if I had opted for collecting data after summative feedback had been received. Ultimately, as Saunders, Lewis and Thornhill (2007) note, it is impossible to conduct value free research. Thus, the former option was chosen as it was expected that this would result in a higher participation rate, as the use of a delivery and collection administration method would have been more difficult when students were no longer attending HRM tutorials or lectures.

Despite these concerns it is contended that the questionnaire is useful in gaining a broad understanding of participants' perceptions of the initiative, even if the findings must be interpreted with caution.

Pilot study

The importance of conducting a pilot study is emphasised in many research methods texts (see for example, Hussey and Hussey, 1997; Saunders, Lewis and Thornhill, 2007; Bryman and Bell, 2011) and was demonstrated in Chapter 2 following the failure of two questionnaire items. Unfortunately, the time pressures of managing the EMIKS initiative (see 4.11) meant that I was unable to perform a pilot study with actual participants, thus, I again opted to conduct the pilot study with a group of friends (n=6), who included current and former students, and university academics. The pilot study revealed no issues with the design of the questionnaire.

Procedure

As described in Chapter 2 there are multiple ways in which questionnaires can be designed and administered. As the intention was to reach as many participating students as possible, I opted for a questionnaire that was administered through delivery and collection, and was made available through the electronic medium. I decided to distribute and collect the questionnaire during the final tutorial of the module as I expected this would increase response rates. Following the final tutorial

the questionnaire was hosted on the questionnaire hosting site Survey Monkey and students were emailed inviting them to respond if they had not completed already completed a paper version of the questionnaire. As noted in section 4.7.4 participants were provided with a description of the purposes of the research, the uses to which the data would be put and the processes that would be adopted to ensure anonymity and confidentiality.

4.7.3.2.3. Module evaluation questionnaire

At the end of each module that is delivered within Bangor Business School, a module evaluation questionnaire is distributed to students during the last lecture of the module and then made available online. The purpose of the module evaluation questionnaire is to gain an understanding of students' perceptions and experiences of the design and delivery of the module, the availability of resources and their own contribution. The evaluation form contains the following closed questions, and makes use of a five-point Likert-scale where '1' = 'Strongly disagree' and '5' = 'Strongly agree':

1. Staff were good at explaining things, and made the module interesting
2. Feedback on my work has been prompt
3. Feedback on my work showed me where I could improve
4. The module has a well developed Blackboard site
5. The IT, Library and other resources are appropriate
6. Analoui, Bejan was an informative and enthusiastic lecturer
7. Analoui, Bejan provided useful information promptly when asked
8. Overall I am satisfied with the module

Answers to these questions were not included in the evaluation of the EMIKS initiative as it is not clear whether students' responses related to my actions during the lectures, or the EMIKS initiative, or both. However, the evaluation form also contains the following open questions:

- Which aspects of this module were most valuable?
- Are there aspects of this module that could be improved?
- How could I have improved my own contribution?
- Did I learn any skills that I could transfer to future employment?

The module leader had instructed students not to consider my role as tutor, or the EMIKS initiative, when completing the module evaluation questionnaire, and therefore this data source was not intended to be a part of EMIKS evaluation. However, some students disregarded this instruction and so the evaluation form 'emerged' as a data source (for discussion see 4.11).

4.7.3.2.4. Semi-structured interviews

Interviews are an often used data collection method in many different types of research; the benefit of interviews is derived from the ability to gain an account of the participants' views, beliefs and experiences on a range of topics (Ackroyd and Hughes, 1982). In addition, Stake (1995) who emphasises the value of observation as a data collection method highlights that interviews allow researchers access to accounts of events that they were not able to observe themselves.

There are different types of interviews, and different typologies have been presented. As Saunders, Lewis and Thornhill (2007) note interviews are usually distinguished by the degree to which they are standardised in terms of the questions, and the order in which questions are asked. Three interview types were considered: the *structured* interview, the *un-structured* interview and the *semi-structured* interview.

The structured interview is termed a face-to-face questionnaire by Saunders, Lewis and Thornhill (2007) as it involves the interviewer asking all interviewees specific, set questions in the same order and in the same manner. The *unstructured* interview can be seen as in-depth conversation between interviewer and interviewee in which the interviewer allows the interviewee to discuss issues they feel are of importance while not guiding the conversation to any great extent (Ackroyd and Hughes, 1982). While these types of interviews have their respective benefits, they are inappropriate for the current study: the structured interview does not allow the necessary freedom to explore pertinent issues and points of interest that may arise, and the unstructured interview may lead to too much deviation from areas of interest.

Rationale for the adoption of semi-structured interviews

The semi-structured interview lies between these two extremes and involves making use of an initial set of questions which are relevant to the research topic and cover the relevant areas of interest; importantly researchers are not limited to asking these questions, and they need not be asked in the same order in each interview (Saunders, Lewis and Thornhill, 2007). Thus, the semi-structured interview is to be adopted as it provides sufficient structure to ensure that the research question is answered, while also providing the freedom to pursue areas of interest as they arise to gain a deep understanding of participants' views and experiences.

A central concern with interviews is that the reliability and validity of interview data can be impacted by the problem of bias, which can arise from the interviewer misinterpreting the data and from the interviewee providing answers which are not truthful, perhaps due to fears of how they will be perceived when their answers are included in the final research report (Bryman and Bell, 2010).

While it is difficult to be certain if one has overcome these biases Saunders, Lewis and Thornhill (2007) provide some useful guidance that can help mitigate these problems when conducting interviews and in accordance with this guidance, I followed the steps detailed below.

To reduce interviewer bias, the interviews were digitally recorded and transcribed, and to reduce interviewee bias participants were provided with a participant information sheet that summarises the aims of the research, an overview of the issues that would be covered and the efforts that have been made to ensure their anonymity and the confidentiality of their answers.

Interview schedule

The interview schedule was determined following the examination of the findings of other data sources. The following key questions were asked of each respondent and used as the basis for further exploration of the issues (see Table 4.5):

Table 4.5: Interview schedule and rationale

<u>Questions</u>	<u>Rationale</u>
How often did you/your group participate?	This question was included to determine extent of participation
What was your overall experience like?	The answers provided in the questionnaire were largely positive - this question was included to explore divergent views
What did you gain from participating?	This question was included to determine whether the expected benefits of the initiative were achieved.
Where there any negative effects of participating?	This question was included to determine whether there were any negative effects of participating.
Did you often view other groups' drafts?	This question was included to explore whether participants made use of the drafts produced by other groups – and if so
Why did you (or did you not) participate?	This question was included to explore why participants took part in the initiative - and to determine whether the elements of initiative influenced participation
Why do you think others did not participate?	This question was included under the assumption that participants are likely to have a better understanding of the motivations of their peers
What could I have done to encourage greater participation from you and others?	This question was included to determine how the initiative could have been modified to enhance participation.
Do you believe that the scale of the initiative could be reduced and the same benefits achieved?	This question was included in an attempt to determine whether the EMIKS initiative could be modified to operate in a less resource-intensive manner

During the interviews I made use of checking questions, which involve paraphrasing participants' responses to ensure that I had correctly understood their meanings (Bryman and Bell, 2011). To gather rich descriptions and insights into participants' experiences I also asked for pertinent examples, and asked probing questions.

Sampling

The entire cohort was invited to participate in interviews. If the number of interested participants had become un-manageable, then a sampling procedure would have been applied. However, given the limited numbers who participated in the previous study (Chapter 3) this was not anticipated. Thus the sample achieved is best characterized as a convenience sample (Bryman and Bell, 2011).

Procedure

All students were invited to participate in the interviews via email, with one email per week being sent following the start of teaching within the second semester for three weeks. Each email contained a participant information sheet and consent form (see Appendix D) that described the purposes of the research, the manner in which data would be stored and used, and the provisions that were put in place to ensure the anonymity and confidentiality of participants. Participants were offered a small financial incentive of £10 for participating.

Interviews were conducted in February and March of 2013 - after the January exam period, and after the start of the second semester. This timing was deliberate and motivated by three considerations. First, it ensured that participants' preparation for and completion of exams was not impacted by participation. Second it was hoped that conducting the interviews at this time would lead to potentially greater numbers of participants, as the start of the second semester is not as 'intensive' for students as the end of the first semester or the January exam period. Third, I required time to analyse the questionnaire data and produce the interview schedule.

However, as with the timing of the questionnaire, the decision to conduct the interviews after students had received their summative feedback may raise some issues with respect to bias. Potentially, participation and answers to question may be influenced by bias based on their perceptions (positive and negative) of their individual and group assignment grades. However, I judged that this was unavoidable as it would be unethical (as it might potentially be of detriment to students' attainment and so cause harm) to garner participation in the final weeks of semester 1,

when a number of assignments are typically submitted for summative assessment and during the exam period when students are (hopefully) concentrating on preparing for and taking their exams.

4.7.3.3. Objective 2 and Research question 2

To evaluate the effectiveness of the EMIKS initiative in achieving Objective 2 and to answer Research question 2, two data sources were used: field notes and a standard stopwatch.

Field notes were used to record my impressions, thoughts, feelings and behaviours while managing the EMIKS initiative at home/from the library/PhD rooms. These notes were typically recorded in a Microsoft Excel spread sheet or transferred to the spread sheet if recorded away from the computer. As such the field notes should provide insights into the lived experience of undertaking the EMIKS initiative.

The standard stopwatch was used to record the time spent in managing the different tasks of the initiative. Time taken for tasks was recorded according to two categories - providing feedback and administration. The former involved tasks relating to the provision of formative feedback on students' work, while the latter related to activities involved in managing the initiative, such as creating forums on Blackboard, uploading drafts, and sending emails to students that related to the EMIKS initiative. The rationale for adoption of these categories stems from the assumption that administrative tasks such as using Blackboard involve a learning curve - and as such may require less time if I were to repeat the initiative in the future, or may require less time for an educator who was already proficient with Blackboard and *au fait* with its nuances.

4.7.4. Analysis of the data and presentation of the findings

The quantitative data collected has been analysed using descriptive statistical techniques. This is an appropriate choice since the purpose of collecting the quantitative data was to describe the phenomenon under study (Hussey and Hussey, 1997).

The qualitative data within the questionnaires was subjected to a thematic analysis, following the procedure outlined in Chapter 3 and this produced a number of themes and sub-themes relating to the EMIKS initiative and my role as tutor. The same procedure was carried out for the analysis of the interviews. However, the interviews resulted in approximately 14 hours of audio and so initially, I chose to only transcribe and analyse portions of the data that was directly relevant to the objectives and questions of study – the semi-structured nature of interviews meant that discussion often diverged. The remainder of the audio was then transcribed at a later date and the audio files were destroyed.

There are a number of ways in which the findings of research can be presented (Hussey and Hussey, 1997). In evaluating the EMIKS initiative and presenting answers to the research questions I have opted to combine the findings from each data source, to create a discussion of key themes and sub-themes relevant to each research objective and question. There are two reasons for doing this. First, it allows for a broad presentation of the different data sources and demonstrates the degree to which triangulation has been achieved. As noted triangulation is a desirable characteristic of research as it increases the reliability of findings (Saunders, Lewis and Thornhill, 2007). Second, the individual presentation and discussion of each distinct data source, its results and themes and sub-themes would have resulted in a considerably lengthier document - far beyond the word-limit allowed for the submission of a doctoral thesis. Third, it was my intention that the main body of the work should provide an edifying but also entertaining narrative that others can engage with (Humphreys and Watson, 2009). I judged that a mechanistic and detailed discussion of each individual component would significantly subtract from this endeavour. In addition to this a number of themes emerged from the research that were not entirely pertinent to the research, and could have been explored in further depth. For example, participants often noted the emotional nature of group work and the lack of support they felt they received while at university. I would argue that these issues require and deserve a detailed treatment in a later work.

4.7.5. Ethical considerations

In the previous chapter, the key ethical consideration of the avoidance of harm, and the provision of anonymity and informed consent to avoid harm were considered in detail. Thus, that discussion is not repeated here. However, issues pertinent to this study are explicated below.

4.7.5.1. Potential for harm

The avoidance of harm is a key ethical consideration and researchers should attempt to determine the potential for harm that their research might entail (Saunders, Lewis and Thornhill, 2007). As noted, harm is a multifaceted concept extending to physical and affective damage, and detriment of a range of future prospects (Bryman and Bell, 2011).

I judged that the potential harm that could come to participants in the study is low. However, the publication of students' experiences, perceptions and opinions of their peers and their university may potentially affect their reputation or cause interpersonal issues with others. To mitigate these risks the research presented within this chapter has been conducted in accordance with Bangor University's research ethics policy, and following the guidelines proposed by a number of scholars (see for example, Hussey & Hussey 1997; Saunders, Lewis & Thornhill 2007; Humphreys and Watson,

2009; Bryman & Bell 2011) and a number of measures were undertaken to ensure that participants could provide informed consent and were afforded anonymity.

4.7.5.2. Informed consent

First, students were informed as to the purpose of the research at the outset of the module during the first lecture, and again within the first tutorial. They were also told that I would take notes, but that these would be anonymised (would not refer to specific groups and individuals), and that students could 'opt out' and have nothing recorded about them if they required. Further, it was made clear that there would be no detriment to students for not participating in the EMIKS intervention - or the research process (including informal discussions of the EMIKS intervention, completing of questionnaires, and interviews). Thus, students could expect the same level of support with their assignments, and the same process of assessment whether they did or did not participate. There was one exception - since the intervention was designed to enhance knowledge sharing, students would not have access to valuable knowledge resources if they chose not to participate. However, it was emphasised that non-participation would not place them at a significant disadvantage compared to participating peers since the assessment was criterion-based and not reference-based. Students were told that they should only participate under their own volition and that they could withdraw at any time. The extent to which students believed that there would be no detriment if they chose not to participate is of course questionable - and some may have felt compelled to participate. However, I am fairly confident that this is not the case, a considerable number of students chose not to participate, and I detected no apparent discomfort or concern during my interactions with those students that did.

Second, prior to the distribution of the questionnaire, students were once again reminded of the purposes of the research, and the uses that the data may be put to (completion of this thesis, the production of research articles and other scholarly outputs). They were informed that they would remain anonymous and that no identifying data would be collected or requested.

Finally, prior to interview students were provided with a participant information sheet that summarised the purposes of the research and the uses of data, and the rights of participants. This can be found in Appendix D.

4.7.5.3 Anonymity and fictionalisation

To ensure the anonymity of participants, no identifying information was purposefully collected - and none was reported. Further, as with the research project presented within the previous chapter, a process of semi-fictionalisation was undertaken (Humphreys and Watson, 2009). This has involved a restructuring of events and accounts in presenting the findings of the work. This has been undertaken to ensure that participants are not identifiable.

4.8 Identifying problems with our practice

The core problem with which this research project is concerned is students' non-participation with the EMIKS intervention, and the resulting frustration of its intended aims - to increase the sum of knowledge available to students, and to reduce my own workload as module tutor. In identifying the reasons for the lack of participation two lines of inquiry were pursued.

First, as described data was collected from the students enrolled on the module in 2011/2012 through one open question in an end of semester module evaluation questionnaire. The question simply asked why students they had not made use of the forum on the VLE. The questionnaire was delivered to students during the final lecture of the module in December 2011 and was also hosted online to allow those students not in attendance to participate. Ultimately, usable responses were gathered from 37 of the 114 students, representing a response rate of 32.45%. These responses were subjected to a thematic analysis (as described in Chapter 3). Examples of the process used in thematically analysing the data are presented in Appendix F.

Second, the knowledge management and pedagogic literature dealing with knowledge sharing through virtual medium was searched, and used to further explore the identified barriers. The literature search took place on a number databases including ProQuest, Emerald, others and finally Google Scholar. Key words such as 'online' 'knowledge' 'sharing' 'codification' 'higher education' 'barriers' and similar were used. The barriers identified through thematic analysis were found to be consistent with those within the broader knowledge management and pedagogic literature.

4.8.1. Barriers to the EMIKS intervention 2011/12

When subjected to thematic analysis, the question which concerned students' non-participation revealed a number of key themes and sub-themes. These included the negative consequences of participating, a lack of perceived value in the activity, an unawareness of the activity, technical difficulties with the VLE, and a perceived lack of time in which to participate.

4.8.2. Negative consequences

Perceptions of the negative consequences of engaging in any type of knowledge sharing activity are among the most common barriers to knowledge sharing within the literature (Hislop, 2009). Responses within the key theme of negative consequences can be grouped within two further sub-themes: a fear of plagiarism and a fear of embarrassment. These are encapsulated in the following response:

“Receiving feedback from peers you don't know and have never spoken to doesn't seem very appealing. Also, by publicly submitting a draft it means people may directly or indirectly copy some parts of the work, leading to issues about plagiarism and proving who was in the wrong” (Participant 17, December 2011)

That students may fear losing face is unsurprising, putting their work in the public domain may be a daunting prospect. DeVita (2000) has argued for the importance of mutual respect and a reduction of fear if knowledge sharing is to occur. Similarly, Remedios, Clarke and Hawthorne (2008) found that a fear of losing face was a common barrier to non-participation in class discussion within the higher education setting. Similarly, studies by Wei et al (2012) and Rahman et al (2014) investigated knowledge sharing patterns amongst undergraduates in Malaysia and Bangladesh respectively. Both studies adopted a questionnaire survey (Wei et al, 2012) and found that shyness was a barrier to participation in knowledge sharing. This suggests a fear of (undetermined) negative consequences of participation. The fear of losing 'face' is also a commonly reported barrier within the knowledge management literature (Ardichvili et al, 2006; Hislop, 2009). For example, a study by Ardivichili et al (2006) on electronic knowledge sharing across cultural (and geographical) boundaries found that some participants were concerned that their communication in other languages may be a cause of embarrassment. However, this finding is not universal; Kankanhalli, Tan, and Wei (2005) found that image is not an important factor for those considering contributing to codification strategies within public organisations in Singapore.

The findings with respect to a fear of plagiarism are consistent with recent research by Chikoore and Ragsdell (2013), their mixed method study (described earlier) that involved a survey of 325 undergraduate students found that a central concern of students engaged in group work was that knowledge sharing may lead to plagiarism.

Based on these findings, it is clear that I failed to create an environment in which students would feel safe sharing their knowledge without detriment.

4.8.3. Perceived lack of value

The second barrier was a perceived lack of value in the EMIKS initiative. The following responses are representative of participants' comments:

"You were easily accessible by email and readily met up with us in person so I didn't really see the need of uploading our work" (Participant 27, December 2011)

"Happy with the feedback that we received from Bejan" (Participant 1, December 2011)

"As a group we didn't want to submit our drafts for everyone to read. We e-mailed our drafts to Bejan and he was very good at giving us feedback. This worked well, so we didn't find the need to use the forum" (Participant 33, December 2011)

A lack of perceived value is a common barrier. Many scholars report the inhibitory effect of apathetic attitudes to knowledge sharing (Wang 2006; Alwis and Hartmann 2008) and the need to motivate knowledge sharing by providing a perception of value for the individual (Bock and Kim, 2002; Ehin, 2008; Barachini, 2009; Chen et al, 2012) to undertake what is primarily a voluntary activity (Ehin, 2008; Chen et al, 2012).

Similarly, Sampson and Cohen (2001b:53) have highlighted that it is important to provide a rationale and clearly articulate to students the educational reasons for introducing peer learning, arguing that they cannot "overestimate the importance of providing a compelling rationale both for the use of peer-learning in general and for the particular strategies chosen".

The lack of value attributed the EMIKS initiative by participants is apparently not a reflection of my ability to provide feedback. Rather, it seems that the need for the forum was obfuscated by my own actions - I provided feedback in person, via e-mail, and was regularly available to meet students to discuss their work over coffee. It is apparent that a major flaw with the EMIKS intervention in 2011/12 is that I acted in a way that reduced its value.

4.8.4 Unaware of the activity

The third identified barrier was that students were not aware of the existence of the VLE or the EMIKS initiative; the following comments are representative:

"*I didn't know there was an online forum set up!!*" (Participant 12, December 2011)

"I forgot about it" (Participant 28, December 2011)

These comments suggest that not enough was done to initially communicate the importance of the EMIKS initiative to students, or to remind them of its existence. This is not surprising as the EMIKS initiative was described in the first lecture, and was not mentioned again by either myself or the module leader.

Arguably, this is a somewhat basic error; the literature on leadership and knowledge management (considered in the next section) highlights the importance of providing a vision for knowledge management and continually reminding individuals of this vision. The vision serves to promote knowledge management initiatives, articulate its importance and ensure everyone understands their role (O'Dell and Grayson, 1998; Pan and Scarborough, 1999; Nonaka, Toyama and Konno, 2000; Viitala, 2004; Loo, 2006; O'Neil and Adya, 2007)

4.8.5. Technical difficulties

The fourth barrier identified was technical difficulties in using the VLE. The following are representative of the comments made by students, and as described later mirror my own frustrations in 2012/13:

'I never used it [the VLE] because I'm not familiar with it' (Participant 7, December 2011)

"I have never used one [VLE], therefore don't know how to. Maybe in first tutorial, be shown how to use it." (Participant 19, December 2011)

That technical difficulties plague codification (or other technological approaches) is well established in the knowledge management literature (Desouza, 2003, Hislop, 2009). Further, Hansen, Nohria and Tierney (1999) in their well-known article on the codification approach argue that it is necessary to ensure that individuals have the right skills to undertake knowledge management activity. However, it had not occurred to me that students may have required training to use the VLE. I had assumed that since they used it to access lecture materials they would know how to use all of its functions. There is evidence for the importance of providing training in the pedagogic literature. A recent study by Chong, Teh and Tan (2014) examined knowledge sharing amongst Malaysian university students

in six public and private universities. Based on the 474 questionnaires received (67.71% response rate), they found that providing technology support is important for promoting knowledge sharing amongst students.

However, while *prima facie* technical difficulties or a lack of systems training seems a meaningful barrier, the converse could be argued. While students may not have had an understanding of how the VLE worked it is noteworthy that no student expressed the difficulty prior to the questionnaire, or asked myself or the module leader for instruction. This may suggest that other barriers (such as a lack of perceived value) were of greater importance.

4.8.6. Lack of time

The final barrier identified was that participants reported having a lack of time to engage with the activity. A lack of time for engaging in knowledge management activity is a less commonly reported barrier although it appears in some studies within the knowledge management (Riege, 2005; Hislop, 2009; Seba, Rowley and Lambert, 2012) and pedagogic literature (Wei et al, 2012; Rahman et al, 2014). For example, Seba, Rowley and Lambert (2012) investigated the factors affecting knowledge sharing in the Dubai police force and found that having sufficient time was a predictor of knowledge sharing activity.

The following comments are representative of this theme:

"We really meant to but my group kept missing our self-set deadlines and work never got done it time to upload it before a chance came to see you in person"
(Participant 37, December 2011)

"There wasn't any time to do this! We already had our own Facebook group where discussions were carried on! It would have just been double the work."
(Participant 22, December 2011)

"I REALLY HAS NO TIME TO GO FOR THIS OPPORTUNITY AND ME AND MY GROUP HAD ALREADY ANOTHER ONLINE FORUM TO FOCUS ON GROUP ASSIGNMENTS: FACEBOOK, GOOGLE ACCOUNTS" (Participant 11, December 2011)

The comments above also highlight that students within the sample did not perceive there to be much value in using the VLE to communicate - and were using familiar social networking tools to communicate with each. This would suggest that while they saw the value of intra-group collaboration, they did not see the value inter-group collaboration or the value of interacting with the tutor and lecturer through the virtual medium. Potentially, this is because the tutor was readily available to meet in person and communicate through email.

However, a different perspective was offered with respect to this barrier by Professor Jenny Rowley (in conversation), who argued that time is a resource that people own, and that they choose to expend in the manner most conducive to their aims and goals. Following this perspective it could be argued that this barrier is further evidence of lack of perceived value in the activity: had students believed it to be worthwhile, they would have allocated their time resources to it.

This perspective is supported by the literature on the strategic learner (see for example, Biggs, 1987) which argues that some students act strategically - engaging with pedagogic activity in a manner, and to an extent, that is intended to meet their overall aims. Further, that students within the Business School are likely to act in this fashion was established in the previous chapter. Thus, it might be contended that 'a lack of time' can be translated as 'this won't help me achieve my goals', demonstrating a lack of perceived value.

The analysis of students' responses to the open question revealed a number of barriers that were consistent with the findings of both knowledge management and pedagogic scholars. The following section describes the manner in which these barriers were addressed in 2012/13 and provides a rationale for the redesigned EMIKS Initiative.

4.9. Thinking of ways to tackle the problem

In thinking of ways to tackle the problem, I determined that it would be necessary to design a pedagogic intervention that would overcome the barriers to knowledge sharing revealed above and also to motivate knowledge sharing amongst students. This initial thought led me to consider the problem from the perspective of the share/hoard dilemma. The share-hoard dilemma highlights that when faced with the option to share or not-share their knowledge, individuals often weigh the potential negative and positive consequences before deciding how to act (Hislop, 2009). The share-hoard dilemma thus commits one to the view that knowledge sharing is a choice, made on a largely rational basis. In examining the feedback from the 2011/12 cohort it is apparent that the identified themes could be subsumed within two further meta-themes: namely that the students in the sample feared the negative consequences of engaging in the activity, and that they did not perceive value in the activity.

Thus, in formulating an approach for tackling the problem I determined that the approach should address these findings – it should reduce the potential (or perceived) negative consequences of participation, while also motivating participation. Such an approach is well supported, reducing barriers to – and increase drivers for change is a common-place strategy for influencing change (Lewin, 1952). However, since there was no guarantee that students within the 2012/13 cohort would respond in a similar manner to those in the 2011/12 cohort, I decided to consult the knowledge management literature and the pedagogic literature that concerned knowledge sharing to determine whether additional barriers or motivators could be discerned, that would be of relevance to the intervention.

Barriers and motivations to knowledge sharing were considered at some length in the previous chapter and so, rather than engaging in repetition, a diagrammatic summary of the intervention is provided (see Figure 4.2) and an attending explanation of the rationale for adoption of each element is presented. It is important to note that the first eight components of the intervention can be conceived of as pertaining to the structure of intervention (the tasks and activities of which it is comprised) and the last component related to the behaviour of the tutor. This latter point requires some explanation, having previously investigated the role of leadership in knowledge management, I was aware of the importance of leadership for knowledge management activity within organisations (Analoui, Doloriert and Sambrook, 2012), and having tutored a number of courses, was acutely aware of the critical role that a tutor can have in impacting the behaviour of students. Thus, much of the intervention focussed on the influence that I could exert through the use of leadership skills. Leadership is a convoluted and nebulous concept (Kent, 2005) and can be approached in multiple

ways (Mullins, 2007). While a full account of my understanding of the way in which leadership can (and should) be approached, and the role of leadership for influencing knowledge management is beyond the scope of this work, it is contended that a brief outline is necessary to justify the adoption of certain behaviours within this action research intervention.

4.9.1. Leadership and knowledge management

Leadership has often been argued to be an important factor in the success of organizations (Stodgill, 1974; Kakabadse, Bank and Vinnicombe, 2004; Huczynski and Buchanan, 2007). Kakabadse, Bank and Vinnicombe (2004) note the critical role of leadership in organizational performance, suggesting that leadership distinguishes successful companies from those that perform poorly, and that business failures can often be accounted for by weak leadership. The importance of leadership for knowledge management activity is also becoming apparent. As Lakshman (2009) notes, recent developments in the relevant literature have highlighted the importance of leadership for the success of information and knowledge projects, and often stressed the lack of leadership support as a central reason for failure. For example, Yahya and Goh (2002) have argued that initiating knowledge management projects requires significant organizational change and therefore that the training of leaders is important when attempting to initiate knowledge management. They argue that leadership skills are most important to middle-level managers as they are the ones who lead the change in the lower levels of the organization. As Hislop (2009) notes, in general terms the current state of the combined leadership and knowledge management literature is fairly limited, and there is scope for a great deal of further study.

Lakshman (2009:339) has argued that there is a great potential for integrating the leadership and information and knowledge management literature, from the point of view of identifying relevant leadership roles in knowledge management. He suggests that "Such an effort is likely to be beneficial for theory and practice, and thereby to make a key contribution to our knowledge of leadership." This study goes some way in this endeavour by undertaking a qualitative examination of the existent and desired roles of leaders in a public sector organization, for influencing knowledge sharing and use amongst their followers.

Kent (2005) argues that the lack of consensus between scholars as to precisely what leadership as a concept entails is problematic, and often results in confusion between debating scholars. Thus the main purpose of the present section is to explicate the definition of leadership adopted, and the approach to the study of leadership that is undertaken throughout this work.

The global literature on the topic of leadership is vast and diverse (Huczynski and Buchanan, 2007); Kent (2005:1010) describes scholarly discussion on leadership as a “Tower of Babel”. Indeed, numerous authors have expressed divergent views on leadership, and thus leadership is a term and concept that has received multiple interpretations (Kent, 2005; Mullins, 2007). Indeed, over 15 years ago, Crainer (1995) identified more than 400 different definitions of leadership. Kakabadse, Bank and Vinnicombe (2004:122), state that the following components are common to most definitions of leadership:

- Leadership is an influencing process;
- There are two or more people involved – a leader and one or more followers,
- Leadership occurs when people are trying to achieve given, implied or unconscious objectives.

On this view leadership is a mutually constituted interpersonal process of influence. Leadership is a phenomenon that requires not only that an individual wishes to influence others towards an objective, but that those others accept that influence and follow. Given the broad scope of this definition of leadership, it follows necessarily that one who ascribes to it must also hold another common view, namely that leadership can occur at all levels within an organization (Kakabadse, Bank and Vinnicombe, 2004; Huczynski and Buchanan, 2007) and does not necessarily take place within the hierarchical structure of the organization (Mullins, 2007). Consistent with this view is that leadership can occur within a wide range of contexts, including education (Avolio, 2010). That a module tutor, lecturer or teacher can be considered as a leader is not particularly contentious. When an educator successfully influences a student to achieve an objective held by both parties (e.g. learn material, pass an exam) then leadership can be said to have occurred.

Multiple definitions of leadership are not the only complexity within the leadership literature; as Mullins (2007) notes there are many alternative ways with which to analyse leadership theory, and as such it is useful to have a theoretical framework with which to approach the topic. Mullins highlights the range of ways in which the practice and study of leadership can be conducted (see Fig 4.1).

It is clear from the literature that the majority of studies have adopted the situational leadership styles and transformational approach to examining knowledge management (see Lakshman, 2009; Hislop, 2009 for discussion).

For the purposes of this study, the functional approach has been adopted when consulting the literature on leadership and knowledge management. By adopting this lens, which focuses on what

leaders actually do, it is possible to subsume the findings of researchers who have adopted other approaches under a 'functional banner', to determine potential interventions that might help to achieve the aims of the EMIKS initiative.

Figure 4.1: Mullins' (2007) framework for the study of managerial leadership

Qualities or Traits Approach

Assumes leaders are born and not made. Leadership consists of certain inherited characteristics or personality traits. Focuses attention on the person in the job and not on the job itself.

The Functional or Group Approach

Attention is focussed on the functions and responsibilities of leadership, what the leader actually does and the nature of the group. Assumes leadership skills can be learned and developed.

Leadership as a Behavioural Category

The kinds of behaviour of people in leadership positions and the influence on group performance. Draws attention to a range of possible managerial behaviour and importance of leadership style.

Styles of Leadership

The way in which the functions of leadership are carried out and the behaviour adopted by managers towards subordinate staff. Concerned with the effects of leadership on those being led.

The Situational Approach and Contingency Models

The importance of the situation. Interactions between the variables involved in leadership situation and patterns of behaviour. Belief that there is no single style of leadership appropriate to all situations.

Transformational Leadership

A process of engendering motivation and commitment, creating a vision for transforming the performance of the organisation, and appealing to the higher ideals and values of followers.



Inspirational Leadership

Based on the personal qualities or charisma of the leader and the manner in which the leadership influence is exercised.

Source: Adapted from Mullins (2007:366)

However, when attempting to influence students through my behaviours, it could be argued that I adopt a form of relational leadership. Uhl-Bien (2006:655) defines relational leadership as follows:

“I identify relational leadership as a social influence process through which emergent coordination (*i.e.*, evolving social order) and change (*e.g.*, new values, attitudes, approaches, behaviours, and ideologies) are constructed and produced”.

Relational leadership is a new term and so its meaning is still somewhat uncertain (Uhl-Bien, 2006). In her examination of the literature Uhl-Bien (2006) identifies two distinct perspectives – the entity and relational perspective. As Uhl-Bien (2006:655, emphasis in the original) notes, “both *entity* and *relational* approaches view leadership as a social process, what they mean by process, particularly with respect to their ontology, and epistemology, is quite different”. Table 4.6 (see below) highlights differences between the two perspectives:

Table 4.6: Entity and relational perspectives of relational leadership

	Entity	Relational
Ontological assumptions	Realist (assumes an objective reality): Views individuals in relationships as separate, independent bounded entities	Relational (assumes a social reality): All social realities – all knowledge of self and of other people and things – are viewed as interdependent or co-dependent constructions existing and known only in relation
Approach to process	Cognitivist, constructivist: Individuals performing internal cognitive operations (separable from external social influences) to make sense of and understand how things really are	Constructionist: Person and context are interrelated social constructions made in on-going local-cultural-historical processes
Approach to methodology	Views relating as an individual act: These acts are reduced to one-way causal relations with feedback; therefore, the basic unit of analysis is the individual and the studies are operationalized using individual level variables	Assumes the primacy of relations: Focuses on communication as the medium in which all social constructions of leadership are continuously created and changed
View of leadership	Emphasises the importance of individual relationships: Focuses primarily on leadership in conditions already being organised	Emphasizes the importance of relating and relatedness: Consider leadership as a process of organising

Source: Adapted from Uhl-Bien (2006:665)

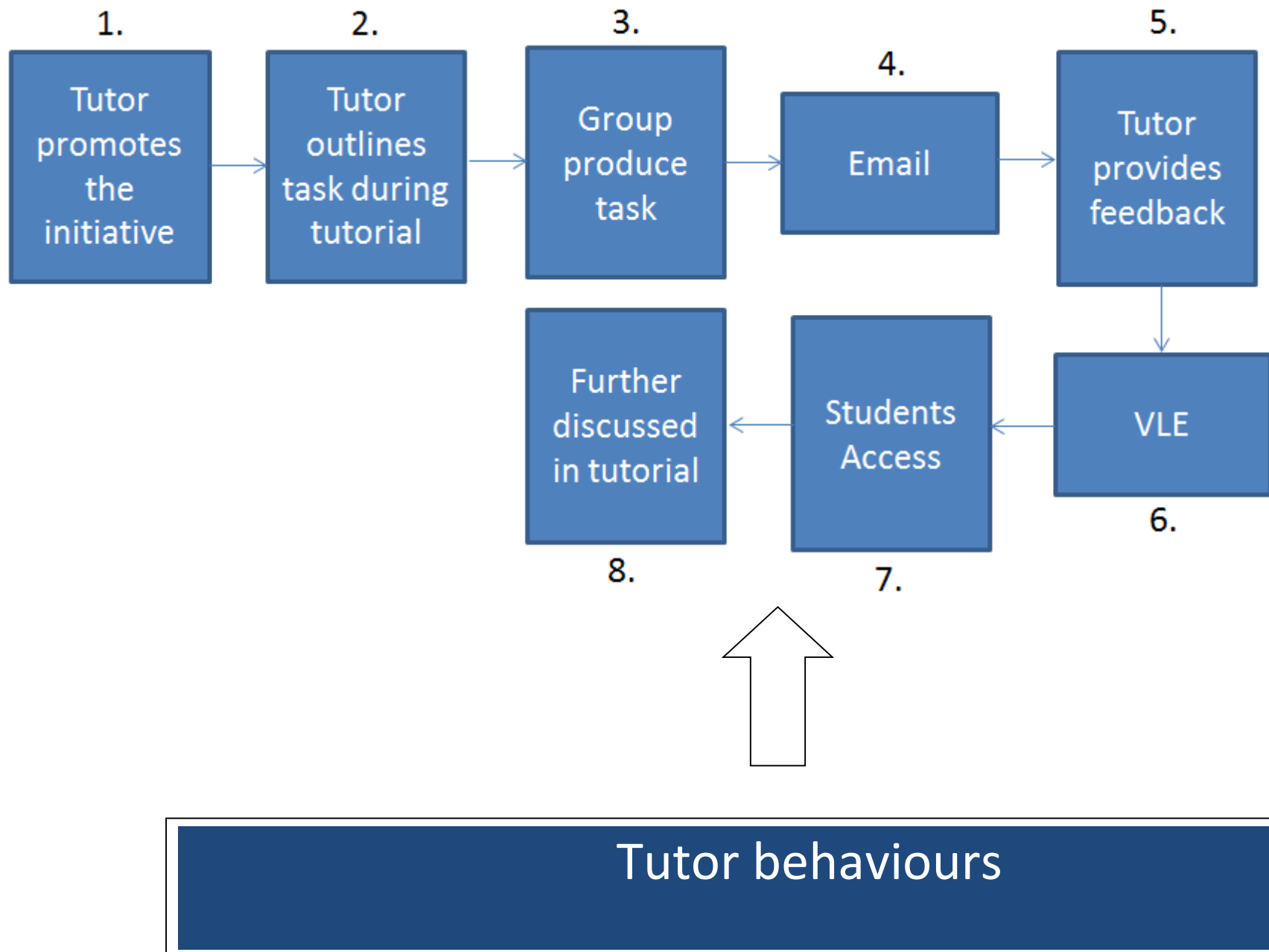
Drawing on the literature Uhl-Bien (2006) identifies common themes across both the entity and relational perspective. She notes that both perspectives place emphasis, and focus on relationships, although given their ontological assumptions, relationships are conceived differently. Second, both perspectives view leadership as occurring in a wide variety of situations. Third, both perspectives recognise the importance of the context in which leadership is embedded.

Given the social constructionist position on which this action research project is based, it may be argued that the relational perspective of relational leadership theory is an appropriate framework through which to understand my behaviours when attempting to enact and create leadership during the EMIKS initiative (see 4.9.2). Working with Uhl-Bien's (2006) definition, it could be contended that I, and my students will aim to co-construct a reality in which knowledge sharing and use takes place, and is hopefully interpreted in new and positive ways by all social actors involved.

4.9.2. The proposed intervention and rationale

Following the review of the literature and analysis of the feedback from the 2011/12 cohort the intervention was designed (see Fig 4.2). It was intended that this design would be modified based on feedback from participants, and my own experience of undertaking the initiative. This iterative approach is consistent with the action research philosophy, and the revision of practice to serve the needs of participants is congruent with the participative approach that was desired. Ultimately, no changes were made to the design of the intervention. The potential reasons for this failure to achieve the participatory intent are considered in section 4.11.

Figure 4.2: Process and elements of the EMIKS intervention



4.9.2.1. Providing a vision and rationale

Based on the review of the literature, it was determined that it was important to promote a vision to motivate and mobilise students to engage with the activity. The notion that creating a vision is an important leadership function is well supported within a range of leadership (Bass, 1985; Westley and Mintzberg, 1989; Avolio, 2010) and knowledge management literature (O'Dell and Grayson, 1998; Pan and Scarborough, 1999; Nonaka, Toyama and Konno, 2000; Viitala, 2004; Loo, 2006; O'Neil and Adya, 2007; Analoui, Doloriert and Sambrook, 2012).

Indeed, Nonaka, Toyama and Konno (2000:23) state:

"To create knowledge dynamically and continuously, an organisation needs a vision that synchronises the entire organisation. It is top managements' role to articulate the knowledge vision and communicate it... The knowledge vision defines what kind of knowledge the company should create... The knowledge vision gives a direction".

Yet this leadership function need not be restricted to leaders at the top of organisational hierarchies. Writing more generally, O'Dell and Grayson (1998) highlight that leaders should constantly and consistently seek to promote the greater good that comes from sharing and using knowledge; they argue that effectiveness of this approach relies on generating an interest and desire to learn on the part of individuals, such that they actively seek out and make use of new knowledge. They suggest that leaders can facilitate this by promoting success stories, and providing support. The promoting of a knowledge sharing vision however need not be confined to the organisation. O'Neil and Adya (2007) highlight that communicating the organisation's commitment to knowledge sharing amongst all stake holders will help clarify the organisation's expectations of knowledge sharing.

There is also empirical evidence to support these ideas. First, Viitala's (2004) research discussed above found that a commonly identified function of knowledge leaders was to orient and direct the learning of their subordinates – and promote its link to the vision and goals of the organisation/work unit. Case study evidence can be seen in Pan and Scarborough's (1999) well known qualitative study of Buckman Laboratories, which highlighted that its leader played a crucial role in pioneering and championing the company's knowledge sharing vision.

Sampson and Cohen (2001b) have highlighted that it is important to provide a rationale and clearly articulate to students the educational reasons for introducing peer learning. They argue strongly that

students have a right to an explanation of how peer-learning will benefit them, why it is important to the course, how it fits with academic expectations, workplace needs and the relationship to assignment criteria.

The vision and rationale I created for the EMIKS initiative was simple: If students produce work – I will provide feedback, as a result the students will learn more and achieve higher marks, and they can learn from the work of others, while my own workload would be reduced. Where possible I shared this vision with students and reminded them of the benefits of participation. I expressed my vision for the EMIKS initiative within the first lecture, at the beginning of each tutorial, and regularly sought participation via email.

4.9.2.2. Outlining tasks during the tutorial

The rationale for splitting the coursework assignment into discrete tasks and then outlining these during the tutorial is grounded largely in the findings of the previous chapter. Participants within that study highlighted that they felt they lacked direction and guidance when completing group work. In an effort to provide more structure and certainty the tasks were broken down (as described above) and explained - with opportunities for students to check their understanding and ask questions.

It was also hypothesized that this (in conjunction with anonymising their drafts) would help reduce students' fears about participating in the initiative: if they knew how to approach the tasks correctly, then there should be less concern that they would make errors and this should reduce their fear of losing face, an established barrier (Ardichvili et al, 2006; Remedios, Clarke and Hawthorne, 2008; Hislop, 2009). There is some empirical support for this - it has been argued that when individuals are aware of the standards expected of them, there is an increase in comfort (Feldman, 1984).

4.9.2.3. Group produces the task

Following the tutorial the group was tasked with completing a draft of the initiative. Although participation in the EMIKS initiative was voluntary, the completion of weekly tasks was a compulsory aspect of the module. This stemmed from the desire to provide more structure for students undertaking the assignment, and as an attempt to curb the free-riding of some group members – issues highlighted in the previous chapter.

4.9.2.4. Group emails task to tutor

The groups that participated were required to email the draft of that week's task to me so that I could anonymise the draft. The anonymisation of drafts was undertaken to reduce the barriers of

fear described in the previous section. While numerous knowledge management and pedagogic scholars have highlighted the importance of trust for influencing knowledge exchange (Levin and Cross, 2004; Chowdhury, 2005; Lucas, 2005; Mooradian, Renzl and Matzler, 2006; Usoro et al, 2007; Holste and Fields, 2010; Chikoore and Ragsdell, 2013) I determined that attempting to build trusting relationships between the entire cohort would be difficult as such a process takes time (Lyons and Mehta, 1996; Huxham and Vangen, 2004). However, it is contended that the act of rendering tasks anonymous mitigated the need for building trusting relationships: groups did not need trusting relationships, or need to fear embarrassment, as others would not be aware of who had authored the work.

4.9.2.5. Tutor provides formative feedback

The fifth action is the provision of feedback on the work submitted. Formative feedback is important to students because it demonstrates the gap between what was achieved and what was expected - and so provides an opportunity for learning (Shute, 2008; Hatziapostolou and Paraskakis, 2010). As attainment has been found to be an important motivator for students (Dweck, 1986; Pintrich and Schunk, 1996; Busato et al, 2000), it was contended that the provision of formative feedback would influence students to participate in the EMIKS initiative if (see 4.9.2.1) they could be convinced of the link between receipt of feedback, learning and attainment. Such a link is not contentious; regular feedback has been found to increase student learning (Smith and Gorard, 2005; Taras, 2005; Weaver, 2006; Shute, 2008; Hatziapostolou and Paraskakis, 2010), and where assessment criteria measure learning outcomes, this should be reflected in attainment. Further, the provision of feedback on the drafts was intended (see 4.9.2.7.) to influence students to access the work of others. While students who are resistant to peer-learning often feel that they and their fellow students have little to offer each other (Sampson and Cohen, 2001a) it was expected the feedback would ensure that there is some reason to peruse the work of others, regardless of the individual student's perception of its quality. This practice is also supported by the knowledge management literature. It is often highlighted that an issue for organisations who wish to manage knowledge is that they are not aware of the knowledge that they possess (Guptara, 2000; Smith, 2001).

There are numerous ways in which feedback can be provided, with feedback varying with respect to its specificity, length complexity, error-flagging and degree of verification (Shute, 2008). Hatziapostolou and Paraskakis (2010) contend that if it is to effectively promote learning then feedback must be timely and manageable, motivational and personal. Thus, when providing feedback I ensured that:

- I provided an overall judgement about the positive aspects of the draft as a whole
- Where possible, I commented on students' progress from the previous week's task, for example, their grasp of referencing and citations, the progress in their arguments and analyses
- I focused on specific elements - such as individual arguments, sub-sections and analyses, flagging errors and providing verification
- For identified errors concrete examples were offered: for example I would write an explanation and give an example of the proper manner in which to cite a source. When considering students' arguments I would provide my opinion, and then offer alternative lines of inquiry
- I provided feedback within seven days of receiving the task, and
- following Weaver (2006), the use of negative, vague and general comments were avoided.

4.9.2.6. Uploading the draft to the VLE

The sixth action is placing drafts on the VLE. Given that one of the barriers students reported was having difficulty with the VLE, I chose to upload all drafts myself. It was hoped that this would cut down on students' difficulties with accessing the system.

4.9.2.7. Students can access drafts on the VLE

Students were able to access the drafts on the VLE once they had been uploaded. To mitigate difficulties in using the VLE students were shown how to access the forum and download/view drafts that had been uploaded during the first and second tutorials. To mitigate fears of plagiarism, one of the negative consequences identified in the 2011/12 cohort, students were informed that if the final versions of their work submitted for summative assignment were flagged as containing plagiarised material then I would simply need to review the uploaded drafts to determine ownership.

In addition, only students in groups who had submitted a draft were able to access the drafts of other groups. It was intended that this would ensure that the sharing of knowledge between students was somewhat reciprocal. This was deemed to be important - Hislop (2009) notes that individuals are often reluctant to share knowledge as they judge that doing so involves losing a source of power or advantage. By making the process somewhat reciprocal it was expected that groups would not perceive themselves as losing an advantage but would perceive themselves as gaining an advantage by being able to access the work and formative feedback provided to other groups. Further, recent work by Wei et al (2012) and Rahman et al (2014) that has examined

knowledge sharing amongst students has found that reciprocity of knowledge sharing is a motivating factor for some.

4.9.2.8. Drafts further discussed in tutorials

The feedback I provided largely consisted of cognitive tacit knowledge (my experiences, perceptions, beliefs and subject insights) that had been externalised. The conversion of tacit to explicit knowledge is inherently difficult, and much of the tacit knowledge is likely to be lost in the conversion (Nonaka and Takeuchi, 1995). Thus, the face-face discussion provided an opportunity to ensure that the students understood the feedback, and provided an opportunity for further questions to be asked and feedback to be provided. Face-face opportunities for tacit knowledge exchange are often argued as most conducive to tacit knowledge sharing (Nonaka and Takeuchi, 1995).

4.9.2.9. Tutor behaviours

Noting the important role attributed to leadership for promoting knowledge sharing within the knowledge management literature (Nonaka, Toyama and Konno, 2000; Eppler and Sukowski, 2000; Viitala, 2004; Singh, 2008; Lakshmann, 2009) and my own experiences of influencing student behaviour as a module tutor I attempted to adopt behaviours that would influence students to partake in the EMIKS initiative. Through my behaviours I intended to create a comfortable and trusting atmosphere for students, in which they felt safe sharing their knowledge and further, I intended to behave in such a manner that I would be perceived as friendly, supportive and approachable.

The importance of creating an appropriate atmosphere is well established. Viitala (2004) suggests that leaders must foster a climate that supports learning, which involves supporting trust, dealing proactively with mistakes, showing an interest in the thoughts and ideas of subordinates and willingly receiving feedback from subordinates. Similarly, Nonaka, Toyama and Konno (2000:28) note that "For knowledge (especially tacit knowledge) to be shared and for the... process of knowledge sharing to occur, there should be strong love, caring and trust amongst organisation members". Within the pedagogic literature, DeVita (2000) has argued for the importance of trust and a supportive atmosphere as a precursor to knowledge sharing. Based on my own experiences of tutoring this and other modules I had found that being approachable, friendly and supportive was important to students and positively influenced participation in class activities and interactions with me. Indeed, I had often been told by students (on evaluation forms and in person) that they enjoyed my tutorials and liked working with me because I was approachable, friendly and supportive. Thus, I expected that behaving in this manner would also influence participation with the EMIKS initiative.

However, I did not specify in advance the precise behaviours that I would adopt to achieve the desired outcomes. Consistent with the ontological and epistemological standpoint of this work, and socially constructed nature of leadership identified by Uhl-Bien (2006), I judged that any attempt to specify these behaviours in advance would be futile. Judgements of my behaviour are necessarily subjective and socially constructed - and it would be students' perceptions of my behaviour that were of import. Thus, having being told I was these things in the past, I drew on my own stores of cognitive tacit knowledge, that is, my subjective insights and experiences to adopt behaviours I believed to be appropriate.

To create an atmosphere that was comfortable, I often emphasised that learning does not occur without mistakes being made and rectified. To demonstrate that it was okay to make mistakes, I freely admitted my own and sought feedback on my practice from students. To present myself as approachable and friendly I regularly invited students to talk to me both during and outside tutorials and lectures. I tried to make my communications informal and veered away from what might be considered a traditional tutor-tutee relationship. Rather, I focused on treating students as I would any other colleague, which is, in an authentic and open manner. Further, I demonstrated that my interest and concern for students extended beyond the HRM module by regularly inquiring about their well-being and progress in other modules. I also used what I considered to be welcoming and warm non-verbal language when interacting with students, such as smiling and adopting open posture. To present myself as supportive, I regularly asked if the feedback I was providing was sufficient and helpful, asked students if I needed to do anything differently and if they needed further help.

The plan highlighted within this section was implemented, and is described below.

4.10. Doing it

In October of 2012, the plan described in the preceding section was put into action. I gave a short presentation in the first lecture of the module outlining who I was, and providing an explanation and rationale of the EMIKS initiative. I was honest about the previous year's failure, and shared my vision of the EMIKS initiative and its rationale. I highlighted to students that it was my hope that the initiative would help them secure higher grades, and learn from and with each other.

I informed the cohort that six tutorials would take place, and that each week they would be set tasks, which were portions of the assignment, to complete outside of tutorial time (see Table 4.7). If they emailed these tasks to me, I would render them anonymous, provide formative feedback, and place them on a forum on the VLE that only those participating in the EMIKS initiative that week could access.

Table 4.7: Description of weekly assignment tasks

Week	Description of Task
3	Produce a summary of chosen organisation's mission, strategy and goals
4	Produce sections that describe and critically analyse Recruitment and Selection, and Human Resource Development policies and practices
5	Produce a section that describes and critically analyses Reward and Performance Management policies and practices. Produce a section detailing the research method(s) adopted, and likely limitations of the work
6 & 7 (Reading week)	Produce a section that describes and critically analyses Employee Relations policies and practices. Produce the discussion section of the assignment. Produce the recommendation section of the assignment
8	Produce a conclusion and an abstract Assemble first draft of assignment
9	Produce a second draft of the assignment

During the first tutorial, which took place three weeks after the first lecture, students were reminded about the EMIKS initiative, and shown an example of the feedback that would be given to them (see Appendix E). Using the projector, I opened an individual assignment from a previous year that I had assessed and demonstrated to students how, throughout the document, I had added comments pertaining to: structure, referencing, use of academic evidence, flaws in arguments, and suggestions for further reading. I then asked, "Do you normally get this kind of feedback?" In each of the four tutorials, the conversation followed a similar pattern:

Bejan: (Smiling) Do you normally get this kind of feedback?

Student(s): No

Bejan: What kind of feedback do you get?

Student(s): A few lines once the work has been marked

Bejan: Is it legible?

Student(s): Not always

Bejan: (Raising an eyebrow): Is that useful to you?

Student(s): No it's pointless

Bejan: Do you think my way is better?

They agreed, and were informed that if they wanted detailed feedback from the tutor, then the following process would be followed:

1. Students would complete weekly task(s)
2. If they sent this to me, I would provide formative feedback, highlighting what was done well and what needed work
3. I would render the document anonymous and place it on a Blackboard forum that only those who had submitted drafts could access.
4. Students would then be able to see each other's drafts (and my comments) and use this as a resource
5. I would then give more detailed verbal feedback to those groups who had participated during the next tutorial
6. Those groups who hadn't participated would be given whatever feedback was possible during the subsequent tutorial if they brought their work with them
7. The next week the process would be repeated for the next task, with a new forum being used

I also went to great lengths to stress that the EMIKS initiative was experimental. We had, I explained, based it on prior research that should solve problems we had encountered in the past, but ultimately there was no guarantee this would work for the students. We would, I insisted, like to improve the process and try to secure better outcomes for them (whatever that may mean for individual students and groups); with that in mind I noted that we would like them to be an active part of the research. We would ask for suggestions and feedback ourselves, and try to make adjustments where they seemed reasonable and appropriate.

This process was followed, and I made use of each tutorial (and any lectures delivered) to promote the use of the EMIKS initiative, and thank students for their contribution and request feedback. Although the number of groups in each tutorial varied, I tried to spend at least 5 minutes with each group discussing their work and asking, where appropriate, the following questions: Was the feedback helpful? Could it be improved? Why didn't you send me anything? Did you look at others' work? Did it help? Should I be doing anything differently? Answers to these questions, yielded very little in the way of suggestions for change. Indeed, the answers to the above questions were often, respectively:

"Yes, great!"

"No I don't think so"

"We were really busy with an assignment for another module"

"Yes, one or two"

"I think you answered all our questions anyway, but it was nice to see how they structured their section"

"No!"

Thus, it is contended that the participatory intent of the action research project failed. The potential reasons for this are discussed below in section 4.13

4.11. Evaluation

This section presents the evaluation of the initiative. The section is comprised of six sub-sections. First, the results of the data collection methods undertaken are described. Second, participants' positive perceptions of the EMIKS initiative are presented. Third, participants' negative perceptions of the initiative are discussed. Fourth, the extent to which the initiative met the first objective is considered. Fifth, the corresponding research question (research question 1) is answered. Sixth, the extent to which the initiative met the second objective is considered. Seventh, the corresponding research question (research question 2) is answered. Eighth, findings relating to how the EMIKS initiative could be modified are presented.

4.11.1. Results of data collection

The final evaluation of the EMIKS initiative drew on four data sources (see section 4.7). The results of data collection are described below.

4.11.1.2. Field notes

As described, two sets of field notes were recorded. The first set was completed after each tutorial, and was used to gather insights into the effectiveness of the initiative. Fourteen such notes were made, at which point it was judged that data saturation had occurred - the point when additional data collection reveals no new insights (Bryman and Bell, 2011).

The second set of field notes were completed following the tutorials, lectures or while I provided feedback and uploaded the drafts to the VLE. These recorded my cognitions, behaviours and affect during the research process, and included a record of the amount of time spent on individual tasks (measured with a stopwatch). These notes were mostly recorded on a Microsoft Excel spread sheet (or transferred there if recorded elsewhere), with 87 field notes being recorded in total.

4.11.1.2. EMIKS questionnaire

As described, the evaluation questionnaire contained both open and closed questions designed to determine students' experiences and perceptions of the project and their reasons for participation or non-participation. The questionnaire was delivered to students during the final tutorial, and was also made available online through the questionnaire hosting website Survey Monkey. 56 questionnaires were collected from 104 students. However, six responses were deemed unusable since they were completed by students who did not partake in the initiative but whose answers indicated that they did. This resulted in 50 usable questionnaires, giving a final response rate of 48%.

4.11.1.3. Module evaluation form

Within the final lecture the module leader distributed the questionnaire to students, and a link to complete the questionnaire was sent to students. Thirteen questionnaires were completed in total. The response rate for the open questions varied between 4.8% and 9.6% - with questions being answered with the following frequency:

- Which aspects of this module were most valuable? (n=10)
- Are there aspects of this module that could be improved? (n=8)
- How could I have improved my own contribution? (n=5)
- Did I learn any skills that I could transfer to future employment? (n=8)

The module leader insisted that students should not reflect on their experiences of the EMIKS initiative when completing the evaluation form. However, students did not follow this instruction, and many of the responses mentioned me or the initiative. This could be interpreted (charitably) as evidence of students' overwhelming (positive and negative) reactions to myself and the EMIKS initiative. An alternative explanation is that students simply failed to follow the module leader's instructions.

4.11.1.4 Semi-structured interviews

As described, the purpose of the semi-structured interviews was to gather further perspectives from students, and to explore any relevant issues arising from the questionnaires. Multiple requests for students' participation within semi-structured interviews were made by email. Twenty students indicated that they would attend but ultimately only thirteen did. The interviews were undertaken in March and April of 2013. By the fifth interview the point of data saturation was reached and little new insight was achieved. Thus, having completed the thirteen scheduled interviews, no more were requested. Arguably this is because the sample was somewhat homogenous, students were from high-performing groups (the majority achieving a distinction), and many were in the same group, with the thirteen interviews being drawn from 5 student-assignment groups. Further, it was suggested in one interview that a number of students participated at the behest and encouragement of a single student who felt that it was important to help me with my research in return for the support I had provided - suggesting further bias. Ultimately, efforts to seek disconfirming evidence through interview were unsuccessful.

4.11.2 Positive perceptions and impact on participants

Based on an analysis of all data sources it is evident that participants' general perceptions of the EMIKS initiative were positive. This is evidenced by comments received during informal discussions

with students, on the module evaluation form, the EMIKS questionnaire, and during the interviews.

The following are representative:

"This module was one of the best i've ever done" (Module evaluation questionnaire)

"It was the best module we've had!" (Interview Participant 3, March 2013)

"I think the tutorial process with Bejan was fantastic and really helped with my work" (Module evaluation questionnaire)

"The real hands on approach taken by Bejan, made for a real enjoyable learning experience" (Module evaluation questionnaire)

"I really enjoyed this module. Very different ways of teaching, it makes you feel recognised and also encourages you to do work well." (EMIKS Questionnaire Participant 13)

A number of key themes were discerned from the thematic analysis of the EMIKS evaluation questionnaire and semi-structured interviews. It was found that provision of feedback helped students learn about the subject and gain academic skills, feedback on their own and others' work increased their confidence and motivated them to perform to a higher standard, the manner in which the work was structured was also found to focus groups' efforts as they worked on the tasks, and finally, the initiative made students feel valued.

4.11.2.1 Increased confidence and motivation

For some students, participating in the EMIKS initiative increased their confidence and motivation.

There were two identified reasons - the feedback provided on students' work identified how the work could be improved, and the feedback they viewed on others' work provided a reference point for understanding the standard of their work in relation to their peers.

"Unlike previous modules, Bejan's new approach to marking the assignments gave me more confidence when writing and expressing opinions about HRM, as I know that I would gain immediate feedback and constructive advice. Even though the HRM assignment is all our own work, Bejan's input helped us to try that bit harder and go that extra mile." (EMIKS Questionnaire Participant 17)

Bejan: "Why did you look at other groups' work?"

Interview Participant 7: "I looked at everyone else's work before each tutorial to see how well we were doing, it was good to see that I was better than some, my confidence with work went up"

An unexpected finding during the interviews was that for some students, the skills they gained and their increase in confidence had an impact in later modules. The following is the most *powerful*, but a number of stories were related:

Interview Participant 8: "It's been huge for me, it's given me so much confidence. Before this module I was getting good grades, in the sixties, but now I'm getting distinctions in everything and I'm going to apply for [funded further study]. It's made a huge difference to my life."

4.11.2.2. Group focus

It was found that the structured manner in which assignment tasks had to be completed helped some groups to focus on the assignment and complete the work in a timely fashion. The desire to submit a draft and contribute to the initiative within the deadline influenced students to work to the schedule. The following quote is representative:

Interview Participant 9: "I normally [she pauses and smiles]... actually we all normally do our assignments close to the wire but the way you structured it helped us, we encouraged each other to get it done so we could get it in"

These findings are consistent with those in the previous chapter, where it was found that more structure would be advantageous for students when completing group assignments.

4.11.2.3. Feeling valued

"Awesome feedback and level of help/feedback that I have never noticed in 3 years at Uni. Most staff are are useless and just dont care." (EMIKS Questionnaire Participant 19)

Within the interviews the final key positive perception and impact was that the EMIKS initiative made students feel valued, something that they described as not having happened often during their time at university. The following are representative:

Interview Participant 1: "Apart from you and a few PhD students most people don't seem to care about us"

Bejan: "What could we do?"

Interview Participant 1: "Just take an interest. They say things like 'See me in office hours', 'I can't talk now', no feedback it's just ridiculous... a lecturer has almost literally pushed me out of his room after my ten minutes were up"

Bejan: "You said you don't feel like other lecturers care?"

Interview Participant 3: "Yeah they are not interested - they just say go away and read a book"

These findings are consistent with those in the previous chapter, in which it was argued that some participants felt as though they did not receive enough guidance and support from academic staff.

4.11.3. Negative perceptions and experiences

Three themes with respect to negative perceptions and experiences were reported during the interviews. These were a lack of time to participate, interpersonal difficulties within the group and dissatisfaction with being involved in the research process itself.

4.11.3.1. Time

A number of participants felt that the time constraint of having to prepare their drafts within a one-week period from the end of the tutorial became something of a burden. While groups were free to *not* participate, those interviewed felt that the opportunity afforded by the initiative was one that was so valuable (discussed below), that they felt it was important to participate. As a result, other academic tasks and pursuits were set aside, or did not receive the attention that they may otherwise have done. The following quotes are representative:

Interview Participant 4: "The only really negative thing was the time needed. I felt like we really had to get it done and get it in.... sometimes I worked at HRM before doing my other assignments, it was like a weekly deadline and all the stress that goes with that"

Bejan: "So why did you keep going if it was stressful?"

Interview Participant 4: "We wanted to do well and your help was too good to miss"

For some this additional workload had a negative impact on their other studies:

Bejan: "Did the time commitment impact your other studies?"

Interview Participant 1: "Impact my other studies? Yeah, it reduced the time I could spend on it, and they all bunch together at the end [of the semester]"

In addition, some participants highlighted that having to address the formative feedback from the previous week's tasks and work on the next task took up a considerable amount of time:

Interview Participant 5: "So we ended up where I [the participant is the group leader] was fixing the work from the last week, and trying to get them [other group members] to do the next task, and checking on them. It took a lot of my time"

4.11.3.2. Interpersonal conflict within groups

The free-rider problem has often been reported (Ballantine and McCourt Larres, 2007; Maiden and Perry, 2011; Popov et al, 2012), and interpersonal conflict is a common feature of group working (Tuckman, 1965; Ito and Brotheridge, 2008). The issues were manifest within some groups in the

2012/13 cohort, and in some cases the interpersonal conflict arose as a result of some participants wanting to take part, while others did not:

Interview Participant 13: "I was excited by the whole thing but some of our team just didn't want to do the work on time, or they wouldn't do it properly"

Bejan: "What do you mean by properly?"

Interview Participant 13: "It was sloppy, no referencing, last minute stuff"

Bejan: "So what happened?"

Interview Participant 13: [Her countenance displays anger and embarrassment] "We did it for them"

4.11.3.3. Dissatisfaction with the research process

Although negative experiences were principally sought through the interview process, two comments on the module evaluation form demonstrated a considerable dissatisfaction with the module, the EMIKS intervention, and being asked to participate in the research process.

In response to the question "How could I have improved my own contribution?" one student wrote:

"Get less wound up by lecturers using us as research guinee pigs"

In response to the question "Are there aspects of this module that could be improved?" a student wrote:

"Yes. Unfortunatley i have many concerns with this module firstly you both want to take on feedback constantly however this module has some major "Elephants in the room" Post it notes showing how some people are annoyed because other talk etc are not going to get us better grades major issues that need looking at are Amount of work needed for 10 credits - i believe its close to pushing regulations i.e all together too many words needed TIME - unfair amount of tutorials and group meetings etc again pushing regulations Unfair marking of drafts which is most probally breaking unfair advantage regulations. Marking of work is inconsistant with university guides and slow overall i have taken so little because of my gripes with the moudle and am so disapointed with a module i thought would be the highligh of my 3rd year My advise stop building on this module and try something new next year, your desire for reasearch on group work is really affecting students there grades and performance dont get me wrong i know group work is needed but the guinee pig trials are affecting us and i dont feel its fair"

The manner in which the online module evaluation works makes it impossible to determine whether the comments are offered by the same student. These comments are extremely disheartening and could be interpreted as demonstrating that a sufficient rationale and explanation of the intervention was not provided for these students - who seem to perceive the intervention as being mandatory as opposed to voluntary. Providing a clear rationale was a key task that I had set myself, and at least for these students it would appear that I had failed to do so.

4.11.4. Objective 1: Increasing the sum of knowledge available to students

It is contended that the initiative was partially successful in achieving the first objective. Of the 19 student groups a minimum of 4 and a maximum of 13 participated each week (see Table 4.8 below).

Table 4.8: Student group participation by week

<u>Week</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>8</u>	<u>9</u>
Groups Participating	12	13	10	6	9	4

Thus, participation rates varied between 21% and 68%. It is contended that although this is a partial success, it is a relative triumph compared to the attempt made in 2011/12 in which the extent of participation was the making of one comment by one student on the VLE. Further, it can be only be judged to be partially successful as the majority of those participating spent little time accessing and learning from the feedback left on other groups' work, rather students participated primarily to get feedback on their own work. This is evidenced by closed questions on the questionnaire (see Table 4.9), and further confirmed by thematic analysis of the open questions on the questionnaire and the semi-structured interviews. As argued in section 4.11.5.1 students primarily participated gain feedback on their own work - this being the primary motivation for participation.

Table 4.9: Responses to EMIKS questionnaire items concerned with viewing others drafts

<u>Question</u>	<u>N</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>SD.</u>
I often looked at other group's drafts	50	1.00	5.00	3.14	1.01
The feedback I viewed on other group's drafts helped me to learn about HRM	50	1.00	5.00	3.48	1.00
The feedback I viewed on other group's drafts helped me to learn about HRM	50	1.00	5.00	3.50	1.04

The mean scores for the three items in Table 4.8 are slightly higher than 3 with a standard deviation of approximately 1. This indicates that that the overall participation with this portion of the initiative, and the benefit gained from accessing other students' drafts was moderate. Thus, participants were only moderately likely to access and use the explicit knowledge shared by other students. This is somewhat consistent with the findings presented within the first study, where it was shown that participants within the Business School were only moderately willing to use knowledge gained from their peers during group work.

The following Tables (see Tables 4.10, 4.11 and 4.12) display the frequency of responses to these questions. Indeed, Table 4.9 makes clear that the majority reported that they did not often look at other groups' drafts, with more respondents disagreeing and strongly disagreeing with the statement than those who agreed or strongly agreed.

Table 4.10: Frequency of responses to the EMIKS evaluation questionnaire item "I often looked at other groups' drafts"

<u>Score</u>	<u>Frequency</u>	<u>Percent</u>
1	2	4
2	11	22
3	20	40
4	12	24
5	5	10

Tables 4.11 and 4.12 (below) evidence that the majority of respondents agree or strongly agree with statements relating to learning from the feedback on others work. This would suggest that this portion of the initiative was valuable for some and enhanced their learning.

Table 4.11: Frequency of responses to the EMIKS evaluation questionnaire item "The feedback I viewed on other groups' drafts helped me to learn about HRM"

<u>Score</u>	<u>Frequency</u>	<u>Percent</u>
1	2	4
2	6	12
3	14	28
4	22	44
5	6	12

Table 4.12: Frequency of responses to the EMIKS evaluation questionnaire item "The feedback I viewed on other group's drafts helped me to learn about writing and structuring a report"

<u>Score</u>	<u>Frequency</u>	<u>Percent</u>
1	1	2
2	9	18
3	12	24
4	20	40
5	8	16

Responses to the questionnaire items indicate that not enough was done to convince students that learning from the work of others would be valuable. Thematic analysis of answers to the open question "*Why did you participate?*" confirmed this. Overwhelmingly, students reported participating to gain feedback on their own drafts (discussed below) while only a few students reported wanting to see and learn from the feedback on the work of others:

“When we participated with the sending and sharing we wanted to be able to have feedback and not only to improve that piece of work. But also to take the comment on board to apply to the next section, and if we didn’t understand at all we could look at other work and compare the standards of other peoples work” (EMIKS Questionnaire Participant 25)

Interview Participant 2: "No we didn't bother - we know we were at an A* so I didn't see the point"

Bejan: "What could I do?"

Interview Participant 2: "Well you could put something in there like 'the group on [organisation] have mentioned a really excellent theory' and don't tell us where we have to go and find it"

Thus, it is contended that the initiative was partially successful in achieving objective1: It succeeded in garnering (some) student participation, although the majority of students did not participate. Further, the majority of students did not report learning from the feedback provided on others’ work.

4.11.5 Research question 1

Research question 1 is concerned with evaluating the overall effectiveness of the re-designed EMIKS initiative. The EMIKS initiative had a number of core components that were adopted to either motivate participation or overcome expected barriers. These were evaluated using two primary data collection tools – the EMIKS evaluation questionnaire and the use of semi-structured interviews. The following sections present an evaluation of each component.

4.11.5.1 Providing feedback on students drafts

As highlighted, the provision of feedback on students’ drafts was expected to be a strong motivation for participation. This expectation was proved to be correct as evidenced by the open and closed questions on the EMIKS evaluation questionnaire, and the semi-structured interviews.

Table 4.13: Responses to the items on the EMIKS questionnaire concerned with the provision of feedback

<u>Item</u>	<u>N</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>SD.</u>
Receiving feedback on my draft(s) was an incentive for me to participate	50	1	5	4.46	0.79
The feedback I received helped me to learn about HRM	50	2	5	4.12	0.87
The feedback I received helped me to learn about writing and structuring a report	50	1	5	4.38	0.75
If Bejan had not provided feedback I still would have participated	49	1	5	3.12	1.2
Bejan identified what was good about the drafts, and what needed improving	50	1.00	5.00	4.68	0.68
This influenced me to share my draft(s)	50	1.00	5.00	4.04	0.99
This influenced me to look at other groups' drafts	50	2.00	5.00	3.58	0.91

Based on the high mean score (4.46) and low SD. (.79) for the first item in Table 4.13 it is evident that the provision of feedback provided a strong incentive for students to participate in the EMIKS initiative. Moreover, the mean score for the final item (3.12) and high SD (1.2), suggest that a significant number of participants would not have participated in the initiative if feedback had not been provided.

Further, the responses to the second and third items in Table 4.13 demonstrate that participants report that the feedback provided helped them to learn both about the subject and about writing and structuring a report. That the feedback was judged to be useful was found to be a factor that motivated students' participation.

Analyses of the open questions on the EMIKS evaluation questionnaire: *"Why did you participate?"* and *"What did you gain from participating?"* and similar questions during the interviews revealed two themes relevant to the provision of feedback on their own work. First, students participated to

achieve higher grades. Second, others highlighted that they participated to increase their learning, although they always added the addendum of wanting to improve their work, arguably indicating that the principal interest was in attainment.

The following are representative of the comments made on the both the questionnaires and during interviews with respect to the first theme:

Bejan: "So why did you take part?"

Interview Participant 2: "To get a high grade. The grade is the most important thing for me... We participated because it gave us an advantage, your initiative was unlike anything we've seen before."

Bejan: "Did the rest of your group feel the same?"

Interview Participant 2: "Yeah mostly but not everyone was as bothered but everyone found it valuable?"

"1. I want Bejan's feedback of our work so that I can know where we should improve." (Questionnaire Participant 32, December 2012)

That the primary reason for participation in the initiative was due to participants' beliefs that receiving feedback on their work would enhance their attainment is unsurprising. The knowledge management and pedagogic literature is replete with evidence that extrinsic motivation is an important factor in motivating knowledge sharing (Hansen, Nohria and Tierney, 1999; Yuen and Majid, 2007; Chen et al, 2012; Minbaeva, Mäkelä and Rabbiosi, 2012; Chikoore and Ragsdell, 2013) and it has been established that students are motivated by attainment (Dweck, 1986; Pintrich and Schunk, 1996; Busato et al, 2000; Pitt, 2005). Thus, these findings are consistent with this prior research.

The following are representative of the comments made on the both the questionnaires and during interviews with respect to the second theme:

Bejan: "Why did your group participate?"

Interview Participant 8: "To learn and improve our work"

"To learn more about the subject [illegible] to gain knowledge of how to produce other assignments properly" (EMIKS Questionnaire Participant 34)

However, when questioned during the semi-structured interviews, the majority of participants indicated that they would not have participated in the initiative if the feedback was not provided. This finding is consistent with the scores for the final item in Table 4.13 (see above), and with the finding that the perception of achieving either a higher grade or learning from the feedback is a motivating factor. This is somewhat consistent with findings within the pedagogic literature, it has

been established that the opportunity to learn from each other motivates students to engage in knowledge sharing (Wei et al, 2014; Rahman et al, 2014).

However, one interview participant suggested that they would have taken part in the initiative even if feedback had not been provided, as the initiative provided a degree of structure for the group working process:

Bejan: “So would you have participated if no feedback was provided?”

Interview Participant 3: “Yeah – the way you organised it gave us the structure and we were committed anyway. The feedback was a bonus”

4.11.5.2 Viewing feedback on other groups’ drafts

As discussed, one of the major failings of the initiative was to encourage students to view the feedback left on other groups’ work. Few responses to the open questions “Why did you participate?” and “What did you gain from participating?” mentioned viewing the feedback left on the groups’ work. Similarly, few interview participants highlighted this as a motivating factor. Discussions with interview participants revealed a number of reasons why they did not view feedback on others’ work, encapsulated in the three following themes:

- 1) They did not have the time to do so
- 2) They had poor perceptions of others’ work
- 3) They believed that enough feedback was provided on their own work that it was unnecessary to consult the work of others

As with the 2011/12 cohort a reported barrier was a lack of time – a finding consistent with the knowledge management literature (see for example, Riege, 2005; Hislop, 2009; Seba, Rowley and Lambert, 2012), and the pedagogic literature examining knowledge sharing amongst students (Wei et al, 2012; Rahman et al, 2014). During interviews participants reported not having, for various reasons, enough time to regularly view the feedback provided on others’ work. The following is representative of the comments made:

Interview Participant 4: “After looking at and considering our own feedback and then making improvements there really wasn’t that much time left to look at other peoples work.”

The second theme was a poor perception of others’ work – a common issue within peer-learning (Sampson and Cohen, 2001a). Some interview participants expressed the view that they thought they had little to learn from the work (and feedback left on others’ work) because their own work and ability was superior, and so chose not to view it:

Interview Participant 3: “I think we were better than the other group looking at [organisation] so what was the point?”

The final theme was a perception that looking at other groups’ feedback was redundant and lacked value. Since they had already been provided with formative feedback on their own work, reading the work of others was not judged to be necessary:

Interview Participant 5: “You gave us feedback on our work and told us what we needed to do to get an A. We couldn’t see a reason for going through all the other drafts.”

Arguably, this provides further evidence that not enough was done to provide a vision and rationale for viewing others' feedback (see below).

4.11.5.3 Providing a vision and rationale

There is a consensus within the knowledge management literature that it is important to provide a vision to motivate knowledge sharing (O’Dell and Grayson, 1998; Pan and Scarborough, 1999; Nonaka, Toyama and Konno, 2000; Viitala, 2004; Loo, 2006; O’Neil and Adya, 2007). Similarly, within the pedagogic literature it has been argued that it is necessary to provide a rationale for any peer-learning initiative (Sampson and Cohen, 2001b).

The evidence collected indicates that overall the vision and rationale of the EMIKS initiative were properly communicated, and that this had an influence on participants’ willingness to share their drafts and view those produced by others.

As evidenced in Table 4.14 the vision and rationale were well communicated, with participants reporting high levels of agreement, with respective scores for these questions being 4.04 and 4.14. However, mean scores for questions measuring agreement to statements relating to whether the vision and rationale influenced the sharing and viewing of drafts were fairly moderate. However, the vision and rationale were found to have a greater impact on influencing the sharing of drafts than the viewing of drafts.

Table 4.14: Responses to the items on the EMIKS questionnaire concerned with the providing a vision and rationale

<u>Item</u>	<u>N</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>SD.</u>
Through his interactions with me, Bejan convinced me that the draft sharing innovation was an important and valuable activity that would benefit myself and others	50	1.00	5.00	4.04	0.95
This influenced me to share my draft(s)	50	1.00	5.00	3.76	0.85
This influenced me to look at other groups' drafts	50	2.00	5.00	3.44	0.86
Bejan made the reasons for trialling the innovation clear	50	1.00	5.00	4.14	0.86
This influenced me to share my draft(s)	49	1.00	5.00	3.55	0.94
This influenced me to look at other groups' drafts	50	2.00	5.00	3.40	0.86

Further, interview participants reported that they were aware of the reasons for trialling the initiative and were able to summarise the reasons during interviews. The following is representative:

Bejan: “Did I make my reasons for trialling the initiative clear – I mean, did you know what I wanted to achieve?”

Interview Participant 9: “Absolutely you did”

Bejan: [Smiling] “Can you tell me what they were?”

Interview Participant 9: “To get use to share our work so that we learnt more from each other and got higher grades and so that you would have less work to do”

However, given the level of participation achieved it is clear that the vision and purpose of the EMIKS initiative were either not sufficiently communicated or sufficiently appealing to all students. Thus, while these findings are consistent with prior literature – it is not clear whether the vision itself was necessarily the correct one to influence all students.

4.11.5.4 Anonymity

Table 4.15: Responses to the items on the EMIKS questionnaire concerned with anonymity

<u>Item</u>	<u>N</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>SD.</u>
The anonymity of the draft sharing initiative influenced me to share my drafts	50.00	1.00	5.00	3.84	1.09
The anonymity of the draft sharing initiative influenced me to look at other group's drafts	50.00	1.00	5.00	3.58	1.03

Arguably, the element of anonymity overcame the barrier of fear identified within the 2011/12 cohort. Responses to the closed questions on the questionnaire (see Table 4.15, above) indicate that the anonymous nature of the initiative influenced the sharing of drafts (mean = 3.84, SD = 1.09) to a greater extent than it influenced looking at the work of others (mean =3.58, SD=1.03).

However, there is limited evidence from open questions on the questionnaire that the anonymous nature of the initiative is valuable:

"Anonymity is good" (EMIKS Questionnaire Participant 46)

Further, for some participants questioned during interview, anonymity was not perceived to be particularly important. One participant describes his position as follows:

Interview Participant 1: "The anonymizing thing I didn't really see the point of it. I didn't mind if people saw our work, it's not like it was embarrassing - I might have then!"

This would suggest that embarrassment and a fear of losing face is not a barrier for all - this is in contrast with some reports within the knowledge management and pedagogic literature (Ardichvili et al, 2006; Remedios, Clarke and Hawthorne, 2008; Hislop, 2009).

Some participants also reported that the efforts made to ensure anonymity were not always successful - although individual students were not identified as the authors of work, some students were aware of which groups were working on particular case study organisations:

Interview Participant 4: "Doesn't really matter, if you have friends you know who they are anyway."

4.11.5.5. Reciprocity

As evidenced in Table 4.16 (below), the majority of participants reported that the reciprocal element of the initiative influenced them to share their drafts.

Table 4.16: Responses to the items on the EMIKS questionnaire concerned with reciprocity

<u>Item</u>	<u>N</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>SD.</u>
Only those groups who sent drafts each week could view the work of others for that week. This influenced me to share my draft(s)	50	1.00	5.00	3.90	0.99

This was further evidence by a limited number of responses to the EMIKS evaluation questionnaire:

"The criteria to see other groups work. Only if you hand in your own and then you can see others work" (EMIKS Questionnaire Participant 46)

"It's good that you to send something if you want to participate – otherwise it's like giving it away" (EMIKS Questionnaire Participant 24)

That reciprocity is important is unsurprising as the importance of reciprocity for motivating knowledge sharing is well established within the pedagogic (Wei et al, 2012; Rahman et al, 2014) and knowledge management literature, being a key motivating factor for some individuals (Hislop, 2009). Similarly, a fear of giving away or losing a source of power when engaging in knowledge sharing is reported as a key barrier (Hislop, 2009). However, for some participants, although there was a reciprocal exchange of drafts, the perceived content and quality of the drafts meant that the exchange was not perceived as being truly reciprocal:

Interview Participant 8: "Some of the one's [drafts] going in were terrible. They shouldn't be on there, they were just too poor.... you got straight in to the work on [the VLE] and they were looking at ours and getting a lot without putting any real effort in themselves. The feedback helped to overcome that"

Thus the findings suggest that reciprocity is important – but that more needed to be done to ensure that the exchange was truly reciprocal.

4.11.5.6. Ease of use

As evidenced in Table 4.17 (below) participants reported that the process of sending the drafts to me and then viewing the feedback on the VLE to be straightforward. This influenced students to share their drafts to a greater extent than it influenced them to look at the drafts of other groups.

Table 4.17: Responses to the items on the EMIKS questionnaire concerned with ease of use

<u>Item</u>	<u>N</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>SD.</u>
It was easy to send my drafts and view feedback	50.00	2.00	5.00	4.46	0.93
This influenced me to share my draft(s)	50.00	2.00	5.00	4.22	0.91
This influenced me to look at other group's drafts	50.00	2.00	5.00	3.76	0.98

A number of responses to the open question "*What could be improved?*" on the EMIKS questionnaire suggested the use of different online systems for sharing and accessing drafts:

"Not use blackboard. Make other lecturers do the same thing!" (EMIKS Questionnaire Participant 8)

"I found it complicated to find + access the first few times I used it." (EMIKS Questionnaire Participant 34)

Similarly, during interviews some participants suggested that the VLE was somewhat difficult to use, and that the use of well-known social media sites would have been preferable since they were already au fait with their nuances and operations. That students have positive perceptions of using social networking sites for knowledge sharing activities has been reported in recent research that examines knowledge sharing amongst students in Malaysia (Kaeomanee, Dominic and Rias, 2014). Given the difficulties I had in operating the VLE (see 4.11.6), the use of a well-known social networking site may have also been beneficial for me.

4.11.5.7. Tutor behaviours

As highlighted, I attempted to moderate my behaviour when interacting with students to create a comfortable atmosphere, appear friendly, supportive and be approachable. Four questions on the EMIKS questionnaire (see Table 4.18 below) asked participants to report their perceptions of the extent to which this had been achieved.

Table 4.18: Responses to the items on the EMIKS questionnaire concerned with tutor behaviour

<u>Item</u>	<u>N</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>SD.</u>
1a. Bejan created an atmosphere in which I felt comfortable sharing my drafts	50	1.00	5.00	4.32	0.82
1b. This influenced me to share my draft(s)	49	1.00	5.00	4.04	0.91
2a. Bejan was friendly	50	1.00	5.00	4.78	0.68
2b. This influenced me to share my draft(s)	50	2.00	5.00	4.44	0.76
2c. This influenced me to look at other group's drafts	50	2.00	5.00	3.78	0.97
3a. Bejan was supportive	50	1.00	5.00	4.74	0.66
3b. This influenced me to share my draft(s)	50	1.00	5.00	4.36	0.94
3c. This influenced me to look at other group's drafts	50	2.00	5.00	3.86	0.95
4a. Bejan was approachable	50	1.00	5.00	4.64	0.85
4b. This influenced me to share my draft(s)	50	1.00	5.00	4.36	0.92
4c. This influenced me to look at other group's drafts	49.00	2.00	5.00	3.88	0.99

"I enjoyed attending tutorials due to Bejan's friendly personality and the atmosphere created." (EMIKS Questionnaire Participant 36)

It is evident from the high mean scores to questions 1a, 2a, 3a, 4a that this was mostly achieved. Further, it is clear, when comparing the mean scores and SDs for questions 2b, 3b and 4b with those of 2c, 3c and 4c that adoption of these behaviours were more conducive to influencing participants to share their drafts than to look at those of others. This is in keeping with the general finding that, overall, the redesign of the EMIKS initiative was more successful at influencing the sharing of drafts than the use of drafts submitted by others.

That I managed to create a comfortable atmosphere, be supportive, friendly and approachable was further evidenced in the interviews:

Interview Participant 12: “You’re one of the friendliest people in this building”

Interview Participant 10: “You were just great – so easy to talk to. I felt like we could have asked you anything and you never made us feel stupid. I think a lot of us wouldn’t have bothered if it wasn’t for you”

Many of these interviews revealed that there was a general perception (as found within the previous chapter) that other academic staff were not perceived as being supportive and approachable – and that this was something students bemoaned. The following are representative:

Interview Participant 4: “You were so supportive and easy to talk to. Most other lecturers don’t care – you really made us feel like you wanted us to learn and wanted us to do well”

Interview Participant 1: “It was the juxtaposition more than anything, between you and my dissertation supervisor. You always had time [the supervisor] couldn’t wait to get rid of me. It’s ridiculous really isn’t it? You should expect more from [senior member of staff] than a PhD student – no offense though”

That a supportive and approachable style is conducive to influencing knowledge sharing and use is well supported within the leadership knowledge management literature (see for example, Nonaka, Toyama and Konno, 2000; Viitala, 2004) and is consistent with the needs of students identified in the previous chapter. Arguably, the lack of perceived support from other academic staff enhanced the positive perceptions of the behaviours that I adopted.

4.11.5.8. Additional motivators and barriers

The findings presented above provide support for the argument that the design and implementation of the EMIKS initiative was partially successful in achieving Objective 1. However, it is clear that it was not successful in two key areas. First, the majority of students did not participate in the initiative – with participation rates varying between 21% and 68%. Second, the groups that did participate reported making little use of the feedback provided on others’ drafts. With this in mind, many of the interviews focussed on how participants thought it would be possible to motivate others to participate in the EMIKS initiative and/or increase their levels of participation. These discussions garnered two broad sets of responses, collated under two broad themes: motivators and barriers.

With respect to motivators, participants stated that they believed the EMIKS initiative to be novel and useful – and expressed uncertainty as to what could be done. The following is representative:

Bejan: “If we were to do this again, what would you do to get more people motivated and involved? It could be anything?”

Interview Participant 2: “I don’t know really. You’ve done something different and helped us as much as you could. If people don’t want to be helped, don’t want to learn – what can you do?”

With respect to barriers, one principal barrier was identified – a pervasive and endemic lack of interest and engagement in study amongst other students. The following is representative:

Bejan: “I have asked people who didn’t take part to do interviews with me but I’ve had no luck, so I was wondering - why do you think other people didn’t take part? Have you talked with anyone about it?”

Interview 11: “I think they’re just not that interested. There’s other things in their lives that excite them, they don’t want or think they need a good degree so you can’t motivate them with anything to do with that.”

Interview 13: “If your assumption is that everyone wants to learn, wants to do well, then you’re wrong. A lot of students are just here for something to do, they’ll coast along and get their degree and they’re okay with that. The minimum effort and no more”

The importance of an organisational culture that is conducive to knowledge sharing is well established in both the knowledge management (Lopez et al, 2004; Lam, 2005; Ardivichili et al., 2006; Suppiah and Sandhu, 2011) and pedagogic literatures (Yuen and Majid, 2007; Yaghi et al., 2011). Although based on second hand reports, it is arguable that if a culture conducive to knowledge sharing does exist within the Business School – it is not pervasive.

4.11.6. Objective 2

The second objective of the EMIKS initiative was to reduce my workload. The EMIKS initiative was largely unsuccessful in achieving this objective. As Table 4.19 (below) highlights, for each week of the 7 weeks of the project, I spent an average of 4-5 hours per week engaged in providing formative feedback and undertaking administrative tasks such as removing names from documents, creating forums on the VLE, up-loading work and e-mailing students. While this, *prima facie*, may seem minimal, participation was only around 30% with between a minimum of 4 and a maximum of 13 of the 19 groups partaking.

Table 4.19: Participation and tutor time data

<u>Week</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6 & 7</u>	<u>8</u>	<u>9</u>
Groups Participating	12	13	10	6	9	4
Tutor Time - Feedback (HH:MM)	04:01	05:29	04:33	01:57	06:01	02:13
Tutor Time – Administration (HH:MM)	02:58	02:18	02:33	00:15	00:37	00:07
Total Time - (HH:MM)	06:59	07:47	07:06	02:12	06:38	02:20
Total:	33:02					

If all groups had participated, it would likely have been impossible for me to cope with the additional workload in addition to my other teaching duties, and doctoral study. In addition, it is important to highlight that from a thematic analysis of the field notes; the experience was characterized by extremes of affect, and was not an experience that was wholly pleasant.

After the initial anxiety as to the success of the project, and euphoria at its non-immediate failure, I quickly became frustrated at the VLE and the difficulties in making it work. I sometimes expended hours wondering why, for example, the newly created forum would not allow for the upload of a student's work, and why, when deleting and recreating the forum, it would work without difficulty. This frustration then gave way to frustration at the work itself – and at the constant attention it required. While the time spent on the activity each week was fairly limited, the need, and sense of obligation, to continually provide feedback, anonymise work, and “tangle” with the VLE became something of a burden. It became a “weight around my neck” (Field Notes, 32) – it was boring and felt arduous, this is the recurring theme – I note that it's boring work, or that it was ‘quick and easy’ to assess something. That phrase was always a polite shorthand, a self-censuring substitute for a more emphatic and obscene exultation at the conclusion of the daily drudgery.

At times I also experienced a great deal of frustration and despondency. In some cases the feedback I provided to students, the extended explanations made during tutorials (and in corridors and over coffee) seemed not to have been understood. This caused me to be frustrated at myself (for my perceived inadequacy) and at the students:

"It is depressing. It seems like they tried, but, they just haven't got it right. It's heartbreaking and I don't want to see them on Monday, they always give me a wounded look. It's not my fault, I said it 20 times, I explained, over and over...I despair" (Field Notes, 27)

Another common difficulty was trying to find something positive to say about work that had little to recommend it:

"This one was really bad and this caused difficulties.... You have to say something... It can't be too "critical" because it is in the public domain, but all the same. Very tricky." (Field Notes, 26)

Within the final weeks I became entirely preoccupied with my work and felt a constant pressure to provide feedback on the drafts that I had received. Anxiety over my perceived inability to successfully complete the tasks became a constant physical (heart palpitations, dizziness, shakes and tremors, and an inability to sleep) and cognitive (racing thoughts, pre-occupation with negative predictions) companion.

However, these unpleasant affective states were counterbalanced by extremes of satisfaction and pride, both at the success of the initiative and the impact it was having on students. The work that

students produced improved rapidly and they were thankful and enthusiastic about the initiative. When questioning students during tutorials, they often said things such as “The feedback is fantastic, it’s the most attention anyone has ever paid to our work” and “It’s your enthusiasm that gets us to do this every week, you make it interesting, and take us seriously, [a member of the teaching staff] is the only other person here who has ever done the same.”

My field notes also demonstrate the positive affect generated by the performance of the students, and my pride at their accomplishments:

"Okay is boring and took a while but it was good to see the improvements" (Field Notes, 64)

"Wow, great work and much improved on last week. I enjoyed reading it!" (Field Notes, 70)

"Amazing progress - this makes me happy :)" (Field Notes, 73)

Similarly, the analysis of answers to the open questions on the EMIKS evaluation questionnaire and the interviews increased my sense of satisfaction. In addition, the reports of the positive impacts of the initiative that were related during interviews were satisfying. As a result of my efforts in the EMIKS initiative, I was also short listed for a teaching award "Postgraduate teacher of the year 2012" in the Student Led Teaching awards, an immense, and lasting source of pride.

Yet, despite the sense of achievement and pride I gained from this work, I am adamant that I will not do it again, at least not without financial remuneration for the time expended and not without finding a way to reduce the workload. This objective was most certainly not met, and, ultimately, would not be sustainable with higher levels of participation or larger class sizes.

Ultimately, it is contended that the EMIKS initiative was only partially successful; achieving some of what it was intended to do, but ultimately becoming something of a burden for the tutor. It is necessary then to determine a method by which the positive aspects of the EMIKS initiative could be retained, but in a manner that is less demanding on the time of tutor.

4.11.7. Research question 2: Has the initiative reduced my workload?

As noted, no measurement of the time spent working on the EMIKS initiative in 2011/12 was made, and so, the answer provided for the second research question is largely subjective. Given the time expended on the initiative, and the affective impact, I am certain that the EMIKS initiative did not serve to reduce my workload; on the contrary, I believe it increased.

In part, the additional time and the emotional burden are arguably due to the initiative being a substantial part of my doctoral thesis – increasing its importance to me. Indeed, the awareness that I would have to capture any failures – as well as any successes increased my desire to ensure that the initiative was a success. However, I contend that the EMIKS initiative largely failed to reduce my workload because Objective 1 was not fully met. The sharing of knowledge amongst students was never intended to reduce my workload, rather, the subsequent acquisition of shared knowledge by other students was. Since, this did not occur to any great extent, necessarily, there was no reduction in workload.

In the following section, the manner in which the EMIKS initiative could be modified to enhance its success with respect to both objectives is considered.

4.11.8. Participants' suggested improvements

Suggestions for improvements to the initiative were sought from students on the EMIKS evaluation questionnaire and during the semi-structured interviews. As noted with section 4.11.2 the majority of participants were complimentary of the initiative - and few suggestions were made. While a number of suggestions were made by participants few were directly concerned with improving participation within the initiative. Aside from the suggestions already discussed above, such as being more direct when providing feedback, improving reciprocity, use of a different medium for knowledge sharing, the suggestions made tended to surround the manner in which tutorials were implemented.

One suggestion was that I should spend more time explaining tutorial slides, and indeed to explain more in general. Another participant suggested that when spending time with individual groups it would be beneficial to alternate the order so that particular groups were not always last.

4.12. Modifying Practice

As highlighted in the previous section the revised EMIKS initiative was partially successful in achieving its stated objectives. The sum of knowledge made available to students was increased, however, not all students participated, the shared drafts were little used by other students, and the initiative failed to reduce my workload. Since discussions with participants revealed that they did not believe that any major changes should be made to the EMIKS initiative it is contended that the modifications to practice should focus on these three issues.

Participation rates in the 2011/12 EMIKS initiative varied between 21% and 68% - and thus the majority of students did not participate. The on-going informal evaluation revealed that the majority of students did not participate because they lacked the time to do so. While this is a common barrier to knowledge sharing (Riege, 2005; Hislop, 2009; Seba, Rowley and Lambert, 2012) and also evident in the 2011/12 cohort – it has been suggested by Professor Jenny Rowley (in conversation), that time is attributed to what is deemed valuable. Thus, an alternative interpretation is that students did not participate because they did not perceive there to be value in doing so. Those who did participate highlighted that they primarily did so to achieve higher attainment and to increase their learning. Potentially, these two outcomes were not sufficiently valuable, or the likelihood of their attainment sufficiently communicated to those who did not participate. Future modifications should adapt the design to ensure that it has value for all students. While a precise prescription of such modifications is beyond the scope of this work, and indeed is likely to vary based on the perceptions of individual students, it is clear that such modifications are necessary.

Modifications that aim at influencing students to make use of the drafts made available to them should also serve to reduce workload. The EMIKS initiative was intended to provide a greater sum of knowledge to students so that this could enhance their learning and be incorporated into their own work. However, most students did not view the work of others – and the principal reported reason for this was that they believed doing so was unnecessary. Indeed, it seems that in providing detailed feedback to all, I had managed to defeat my own aims. Based on the evaluation of the EMIKS initiative the following modifications are suggested to influence students to make use of the drafts that have been shared and to reduce my workload:

First, students could be encouraged to view the feedback on other students' work by only providing feedback for each individual instance of a common mistake. This would have the added benefit of reducing my workload. For example, instead of commenting on each misunderstanding of *vertical and horizontal integration* one explanation could be provided on one draft, and other students signposted to it. This would likely be successful, as Stewart (1997) notes, successful knowledge

management involves connecting those who have knowledge with those who need it – and knowledge acquisition is often driven by need (Hislop, 2009).

Second, tutorial tasks could be staggered – so that each week, different tutorial groups undertake a different task. Thus, individual groups would have a greater incentive to look at the feedback left on other groups' drafts before and during their own attempt of the same task. Such an approach would also mean that I would have more varied pieces of work to provide formative feedback for – potentially reducing some of the negative affective states, such as boredom.

Third, to reduce the impact on me, a lesser number of tasks could be submitted for formative feedback. This would require students to complete larger pieces of work, potentially allowing more time for students to complete the work and to organise their other affairs so that they would have more time to participate.

Further, additional tutors or teaching staff could assist in the provision of feedback. This might also have the additional benefit of providing different perspectives and insights when providing formative feedback (i.e. greater cognitive tacit knowledge) for students. Finally, since the recommended modifications are not mutually exclusive, any viable combination could be used in a revised EMIKS initiative.

4.13. Personal learning from the research process

While the entirety of this action research study is concerned with investigating and exploring my own practice, this section presents my reflections and learning from undertaking the research process. Through conducting the research I learned five key things:

First, I had expected that gaining participation in the research process from students (as opposed to the initiative) would be fairly easy. I was surprised to find that students had no recommendations on how the initiative could be modified. On reflection, it is possible that our respective roles may have made offering suggestions to me difficult. The tutor-tutee relationship is arguably one-sided with respect to power and some students may have felt uncomfortable offering suggestions that I may have interpreted as criticism since they relied on me for formative feedback and a fair summative assessment. Had I realised this earlier, I could have created a system for anonymous feedback that may have helped to encourage participation.

Second, on reflection the EMIKS evaluation questionnaire could have been better designed. While the design was considered, and was appropriate for the aims of the research some opportunities for collecting data were lost. The questionnaire was designed in a fairly short space of time while also managing and implementing the EMIKS initiative. In particular, it would have been advantageous if open questions pertaining to why students did not make use of the drafts produced by other groups had been added.

Third, the problems I encountered in undertaking interviews during the study presented in the previous chapter were again apparent. I found it hard to keep track of some of the conversations, while formulating new questions. Further, participants often seemed excited and enthusiastic to discuss topics that were not directly related to the research – but were nonetheless interesting, such as their perceptions of the amount of support available from other staff, and the general difficulties associated with group work. I could have ended these discussions and moved the discussion back to the interview schedule but found them interesting and entertaining and so let them continue – something that I later regretted (see below).

Fourth, the combination of data sources produced a wealth of qualitative data. While this is desirable I also found it daunting and it made the analysis of data difficult. I have learnt that in future I should be careful about the amount of data that I collect, and only collect as much as is necessary.

Finally, I have learnt that the lived experience of a research study can vary dramatically from that which is expected during the design stage. As highlighted the process of conducting this study had a largely negative impact on my well-being. In future, I will be more cognizant of the impact my

research activities might have – and, it is important to note, take the advice offered by trusted mentors. It had been repeatedly pointed out to me that I may have been ‘biting off more than I can chew’, but I refused to listen and pursued the research design anyway, and ultimately suffered for this initial exaggerated perception of my own abilities and my obstinate refusal to adapt my plans to meet my own needs. On reflection this was a severe error - I was myself a participant in my own research, and could have chosen to make my own adaptations to the EMIKS initiative, based on the recognition that the workload was becoming too great.

4.14. Limitations

There are a number of limitations to the present work.

First, the project was intended to be a form of PAR – and yet the participatory intent was not realised. While this is not an uncommon occurrence (Greenwood, Foote and Harkavy, 1993), it does mean that the EMIKS initiative underwent no transformation throughout the course of the project, and as such, has not been modified based on students' needs. If the participatory intent of the action research had been achieved, and had led to the generation of feedback from students and modifications to the design, this may have increased participation.

The second limitation of the work is the potential for bias within the sample. A biased sample is one whose views do not necessarily reflect those of the wider population (Bryman and Bell, 2013). Those who participated in the questionnaires, and in the interviews, were students who participated in the EMIKS initiative and so it is possible that they may have a positive-bias towards the initiative since it met their needs. Further, those who took part in the interviews were (with one exception) students who had been the members of groups who participated each, or most weeks – and while these participants' views were largely consistent with one another, it is not certain that they would have been consistent with the views of those who a) did not participate and b) who participated only occasionally.

Third, the case-based nature of the work means that it may not be applicable to all pedagogic settings (Hussey and Hussey, 1997). However, as with all detailed examinations of a single case, the work provides insights into individual experiences and constructions of reality which may assist those in who undertake similar endeavours in similar settings (Stake, 1995).

Fourth, Whitehead (2009) notes that the explanatory principles generated by those engaged in action research cannot always be properly communicated via the printed page, and suggests the use of different multimedia forms for the expressions of such explanatory principles. Had I have been aware of Whitehead's (2009) work prior to the undertaking of the study, other forms of media could have been used to capture more fully the 'I' in the research.

Fifth, had I been aware of Uhl-Bien's (2006) work on relational leadership, a greater focus could have been placed on examining the interrelationships between myself and my students. This may have proved to be illuminating and valuable, as Uhl-Bien (2006) notes, one of the least understood aspects of leadership is the "relational dynamics of leadership and organising" (2006:667).

4.15. Opportunities for future research

There are two principal opportunities for future research:

First, participation in the EMIKS initiative varied between 21% and 68% of students over the course of the initiative. Within the sample studied during the evaluation, the primary motivations for participation were increased attainment, and a willingness to learn. However, it is unclear whether these extrinsic and intrinsic rewards were not sufficiently desirable to motivate participation from those who did not participate, or if the attainment of these rewards were not sufficiently communicated. Future research may be conducted to determine what would motivate students to participate in the EMIKS or similar initiatives – with any necessary modifications being made and trialled. However, it has been argued repeatedly that knowledge sharing is something that may only occur willingly and not all will necessarily wish to take part (Davenport and Prusak, 1998; Ehin, 2008). Thus, a 100% participation rate is perhaps not to be expected. Nonetheless, determining how participation can be increased is an important task – and such research would likely be fruitful.

Second, future research may trial the EMIKS initiative with one or more of the modifications suggested in section 4.8. These modifications could also be trialled in a range of pedagogic settings such as in different national contexts, with students undertaking different courses of study, and in different year groups.

4.16. Implications for practitioners

A good and valuable action research project has implications beyond its current setting (Hussey and Hussey, 1997; Greenwood, 2012). While it is recognized that the uniqueness of the context may make broad generalizations impossible (Saunders, Lewis and Thornhill, 2007) I would contend that it is possible to draw the following tentative implications for practitioners:

First, practitioners who wish to encourage e-meditated intergroup knowledge sharing may make use of the pedagogic design outlined in this study – and where necessary adapt it to include any desired modifications. Indeed, it is clear that the design managed to overcome many common barriers to knowledge sharing and did increase the sum of knowledge available to students. Further, individual elements of the design could be used in other pedagogic endeavours. For example, the use of anonymity was found to be beneficial in overcoming a fear of losing face, or embarrassment and could be included in other knowledge sharing activities within higher education.

Second, it was found that the provision of detailed feedback prior to summative assessment was a powerful motivating factor for those students who were desirous of increasing their levels of attainment. Thus, when designing pedagogic interventions, practitioners may include the provision of detailed formative feedback as a reward for student' engagement.

Third, for some students the provision of regular and detailed formative feedback had a beneficial effect on their learning and attainment. Some reported that it was the first time issues had been 'properly explained' and that they believed it would have been beneficial if they had received this level of feedback earlier. Arguably, practitioners who wish to increase the learning and attainment of students could provide students with detailed formative feedback in the first or second term of their first undergraduate year.

Finally, practitioners should be wary of the potential affective impact that such undertaking such a project may have. Arguably, if similar initiatives are to be trialled they should be scaled back to reduce workload for tutors, or they should be more heavily resourced.

4.17. Implications for theory

While others have explored knowledge sharing within higher education (Chowdhury, 2005; Lin, 2007; Sackmann and Friesl, 2007; Yuen and Majid, 2007; Wangpipatwong, 2009; Hassandust and Perumal, 2011; Majid and Wey, 2011; Yaghi et al., 2011; Wei et al, 2012; Zaqout and Abbas, 2012; Chong, Teh and Tan, 2014; Rahman et al., 2014), only one other study has done so within the UK (Chikoore and Ragsdell, 2013).

The major contribution of this project is that it is, to my best knowledge, the first to provide an account of an action research project undertaken to enhance e-mediated intergroup knowledge sharing within the context of the higher education within the UK.

The results of this study confirm many previous findings and demonstrate that the adopted actions are useful for influencing knowledge sharing and to a lesser extent knowledge use. Given the dearth of studies in this area it is concluded that this project makes a small but significant contribution to the extant literature.

4.18. Summary conclusion

The action research project recounted within this work had two objectives: 1) to increase the sum of knowledge available to students and 2) reduce my workload. Drawing on the knowledge management literature as a focal lens, the identified barriers to participation in the initiative when it was first trialled in 2011/2012 have been presented, and the results of implementing a modified approach that emphasises the role of the tutor in influencing participation have been described.

In 2012/2013 the initiative was re-trialled and was partially successful, overcoming barriers to participation and increasing the sum of knowledge available to students. However, not all students participated, and of those that did, few made use of this increased sum of knowledge. Further, the initiative did not reduce my workload, and indeed, had the opposite effect.

The evaluation of the initiative revealed that while the design was much improved, further work needs to be done to understand the motivators and barriers to student participation. Once this has been achieved the initiative can be redesigned to encourage further participation. In addition, it was argued that a number of modifications could be made to the initiative to reduce the burden on myself – which was considerably greater than expected. Potential modifications might include providing feedback for each individual instance of a mistake, and signposting other students to that particular piece of work; reducing the number of opportunities for formative feedback, and having a number of teaching staff provide formative feedback.

Ultimately, it is recommended that practitioners wishing to trial a similar initiative could make use of the design presented in this project, but should be cognizant of the need to make modifications to reduce the burden on the teaching staff, and to further influence participation from students.

This chapter concludes the empirical portion of this doctoral thesis. The following two chapters present a discussion of the key findings of this doctoral research, and draw the implications of this work for stakeholders.

Chapter 5: Discussion

The overarching aim of this doctoral research was to investigate and explore knowledge sharing amongst students within the context of higher education. To that end, three studies were undertaken.. The purpose of this chapter is to explore the extent to which the overarching research aim has been achieved through a comparison and discussion of the three studies. This chapter is composed of the following sub-sections. In section 5.1 the three studies and their key findings are outlined. In section 5.2 a discussion of the common themes drawn from the findings is presented and these are compared and contrasted with the relevant literature. Section 5.3 presents the construction and explication of a model of knowledge sharing (see Figures 5.1 and 5.2). This model is the theoretical contribution of this doctoral work. Finally, section 5.4 presents a self-critical reflective discussion of what I have learnt during the undertaking of this doctoral research.

5.1. Summary of the studies

The three studies presented within this doctoral thesis differ with respect to their philosophical basis, methodological approach, and the type of knowledge sharing that they examine. The three studies and their key findings are summarised below.

5.1.1. Study 1

This study was informed by a positivist research philosophy, adopted a survey strategy, and made use of a quantitative questionnaire to collect data. The study examined the relationship between business and management students' interpersonal trust relationships and their willingness to share and use tacit knowledge during group work within Bangor Business School. McAllister's (1995) concepts of cognition- and affect-based trust were adopted as measures of interpersonal trust, and willingness to share and use knowledge were measured using Holste and Fields' (2010) questionnaire. Modifications were made to both questionnaires to account for the context of the study. For the purposes of Study 1, group work was understood broadly as occurring when at least two students work together on a task (Healey et al., 1996).

This study aimed to answer two primary research questions:

1. To what extent are students willing to share and use tacit knowledge during group work?
2. Is there a relationship between students' levels of interpersonal trust and their willingness to share and use tacit knowledge gained from peers during group work?

All business and management students within Bangor Business School were invited to participate, and questionnaires were distributed both face-face and hosted on the questionnaire hosting website Survey Monkey. Ultimately, a total of 298 questionnaires were received and following data screening procedures a final sample of 264 usable questionnaires was achieved giving a response rate of 20.49%.

The data collected was subjected to descriptive and statistical analysis. The key findings of the study were that:

- Regardless of grouping (year of study, gender and country of origin) participants were only moderately willing to share and use tacit knowledge during group work.
- Participants were more willing to use than share tacit knowledge during group work
- Two regression models were constructed to examine students' willingness to share and use knowledge. Affect-based and cognition-based trust relationships, year of study, country of origin, and gender were included as independent variables.
- The two regression models accounted for only 27.8% and 24.5% of the variance in participants' willingness to share and use tacit knowledge during group work respectively. Thus, the majority of the variance in the willingness to share and use tacit knowledge during group work was unaccounted for
- Cognition-based interpersonal trust relationships were a significant and positive predictor of students' willingness to share and use tacit knowledge during group work
- Affect-based interpersonal trust relationships were a positive but not significant predictor of students' willingness to share and use knowledge.

5.1.2. Study 2

This study was underpinned by a social constructionist position. The study made use of semi-structured qualitative focus group to examine students' experiences and perceptions of group work in Bangor Business School. The purpose of the study was to determine whether there is one best method of allocating students to groups when the purpose is to maximise tacit knowledge sharing. McAllister's (1995) concepts of cognition- and affect-based trust were adopted to understand and explore interpersonal trust relationships, and Nonaka and Konno's (1998) concepts of technical and cognitive tacit knowledge were adopted to explore and understanding tacit knowledge sharing. While Study 1 adopted a broad definition of group work this study considered assessed group work.

All business and management students within the Business School were invited to participate in the focus groups via email. Ultimately, 6 focus groups were conducted and 32 students participated. Participants were diverse with respect to year of study, gender, country of origin and age.

The focus group data was subjected to a thematic analysis, following the procedure outline by Saunders, Lewis and Thornhill (2007). The key findings of the study were that:

- Participants reported few positive perceptions of group work. Positive experiences included: sharing skills and ideas with the group, dividing work between the group, getting to know others, learning to work well with others and learning about different cultures
- Participants commonly reported having negative experiences of group work. The difficulties with group work were free-riding, difficulties in leading and managing groups, and working with other cultures. Participants reported that these negative experiences resulted in considerably negative emotional experiences
- Participants reported few experiences of sharing of technical tacit knowledge, however the sharing of cognitive tacit knowledge occurred more regularly
- Participants agreed that interpersonal trust relationships were important, but there was no consensus as to the relative importance of affect and cognition-based trust for knowledge sharing and use, and group allocation
- Preferences for group allocation method were found to be related to participants' motivations for engaging in group work. Those who prioritised learning from others favoured engineered or random allocations, those who prioritised attainment favoured self-allocation.
- While some participants reported wanting to learn from group work the principal motivation for most was increased academic attainment
- Participants reported that group work in the Business School could be improved through the provision of more support and guidance for students, management of non-contributors and training in group work skills

5.1.3. Study 3

While Study 1 and Study 2 were concerned with exploring and describing tacit knowledge sharing and use amongst students, this study was concerned with influencing explicit knowledge sharing and use amongst students. This study presented an action research project that aimed at influencing electronically mediated intergroup knowledge sharing (EMIKS) during a third year undergraduate HRM module in the first semester of the 2012/13 academic year. The study proposed and examined a pedagogic model designed to overcome barriers to knowledge sharing discovered amongst a previous cohort of the same module in the 2011/12 academic year.

In the 2011/12 academic year students undertaking the HRM module were encouraged to share drafts of their work and any questions they may have on a forum on the module's VLE page. Students were informed that if they did so, the module leader and I (the module tutor) would provide feedback and answer their questions. It was intended that two objectives would be achieved through this process:

1. Students would have access to a greater sum of knowledge: It was expected that students would be able to benefit from the insights and findings of their peers when they viewed their work and the comments left by Professor Sally Sambrook and I.
2. My workload would be reduced: It was expected that the number of questions asked by, and mistakes made by students could be reduced by answering questions and providing feedback in the public domain.

However, students within the 2011/12 cohort did not make use of this opportunity. To explore why this occurred students within that cohort were asked to complete a questionnaire reviewing their experiences on the module. The questionnaire contained one open question (n = 37, response rate of 32.45%) that simply asked students why they had not engaged in explicit knowledge sharing and use using the forum established on the modules VLE page. The following barriers were identified:

- Participants were concerned about the negative consequences of sharing explicit knowledge using the VLE, including fears of their work being plagiarised and of losing face amongst their peers
- Participants reported that they did not believe there was any value in sharing explicit knowledge - primarily because I, as module tutor, was willing to answer questions and provide feedback on drafts not shared through the forum, thus, rendering explicit knowledge sharing through the forum unnecessary

- Participants were unaware that the opportunity was available
- Participants reported having had technical difficulties in using the VLE
- Participants reported they did not have enough time to use the VLE to share explicit knowledge

Based on these findings a revised EMIKS initiative was designed that made use of a number of activities and components drawn from the pedagogic and knowledge management literature, and supported by the adoption of supportive tutor behaviours. The effectiveness of the revised EMIKS initiative with respect to the achievement of the two objectives listed above was measured using a variety of data sources including: field notes recording informal discussions with students (n = 14), field notes recording my own experiences (n=87), an evaluation questionnaire utilizing open and closed questions (n = 50, response rate = 48%), the Business School's module evaluation form (n = 5 to 10, response rate = 4.8% to 9.6%) and semi-structured interviews (n = 13, response rate = 12.5%). Overall, the revised initiative was judged to be partially successful in achieving the first objective, but did not achieve the second objective. It was found that:

- Participants were overwhelmingly positive about the initiative. They noted that they valued the level of support provided, that participating increased their confidence and motivation for their studies, kept groups focussed on their tasks, and help students feel valued.
- Negative perceptions and impacts of the initiative were reported less often. Some participants noted that the initiative was time consuming, could cause conflict within groups, and one participant reported dissatisfaction in participating in the research process.
- Overall, the revised EMIKS initiative was more successful in achieving the first objective. Weekly participation rates varied between 21% and 68%. The sharing of knowledge was found to be moderate, while participants reported using knowledge that had been shared to a lesser extent.
- The revised EMIKS initiative was not successful in achieving the second objective. My own workload was not reduced but was increased. Managing and undertaking the EMIKS initiative had a predominantly negative affective impact. Although I enjoyed a sense of pride at witnessing the improvements and achievements of my students, the time required to provide feedback and manage the initiative led to a great deal of anxiety resulting in both physical and affective complaints.
- Participation in the initiative helped students to both learn about their subject matter, and learn about writing and structuring a report.

- The components of the EMIKS initiative were more appropriate for influencing the sharing of explicit knowledge.
- It was reported that receiving feedback was the primary factor in influencing participation. Feedback was found to be important because participants' primary motivation was attainment, although learning was a secondary motivation for some
- A number of barriers were identified to explain the lack of knowledge use:
 - Participants did not have enough time to use the explicit knowledge provided by others
 - Participants perceived the knowledge shared by others to be of little value, and
 - Participants felt that they received enough feedback on their own work.
- Participants reported that there may be a pervasive lack of interest in learning and academic attainment amongst students within the Business School, and this may account for a lack of engagement in the EMIKS initiative.

5.2. Comparison of the studies

The overarching research aim of this doctoral thesis is to investigate and explore knowledge sharing amongst students during group work within the context of higher education. Within this sub-section the common themes that have emerged from the three studies are considered, and the findings are compared and contrasted with the wider body of literature.

5.2.1. The extent of sharing and use of knowledge during group work

All three studies examined students' willingness to share and use knowledge during group work. Within Study 1 it was found that participants across all year groups, of all genders, and from both Home/EU and Overseas countries were more willing to use tacit knowledge during group work than share it. Within Study 2, participants reported that they rarely shared technical tacit knowledge during group work but often shared cognitive tacit knowledge. Within Study 3, the majority of students within the 2012/13 cohort did not participate in the EMIKS initiative, and participation ranged between 21% and 68%. The participants in Study 3 also reported only frequently making use of the drafts produced by other students.

While apathetic attitudes to knowledge sharing are commonly reported within the knowledge management literature (Wang 2006; Ehin, 2008; Alwis and Hartmann 2008), these findings are somewhat at odds with the findings in the pedagogic literature. Chikoore and Ragsdell (2013) studied knowledge sharing amongst undergraduates within the UK and found that students typically had positive perceptions of knowledge sharing. Similarly, Yuen and Majid (2007) examined knowledge sharing patterns amongst undergraduates in Singapore, and found that students had generally positive perceptions of knowledge sharing. Similar findings were reported in Wei et al.'s (2012) study of knowledge sharing amongst students within Public and Private Malaysian universities. The study revealed that students typically held positive perceptions towards knowledge sharing activities, and view these as important for enhancing learning. Within Saudi Arabia, Yaghi et al. (2011) found that the majority of students have positive perceptions of knowledge sharing.

Thus, it is arguable that participants within the three studies in this work are less positively disposed towards knowledge sharing and use than their counterparts within the UK and overseas. However, this contention only holds if one accepts the (natural) assumption that positive perceptions of knowledge sharing and use are broadly consistent with a willingness to engage in such activities. One explanation for this limited willingness may be the pervasive lack of interest in academic attainment and learning attributed to students in the Business School by some participants in Study 3. Alternative explanations include the lack of value attributed to knowledge sharing and use activities reported by participants in both Study 2 and Study 3.

5.2.2. Students' motivation

Findings within both Study 2 and Study 3 explored students' motivations when engaged in group work. Within Study 2 it was found the majority of participants engaged in group work for the purposes of academic attainment - that is they were largely motivated by a desire to improve their academic performance. Similarly, within Study 3, the majority of participants reported that they took part in the EMIKS initiative for the purposes of receiving feedback from the tutor, to improve their academic performance. That students are motivated by attainment is consistent with the pedagogic literature (Dweck, 1986; Pintrich and Schunk, 1996; Busato et al, 2000; Pitt, 2005). Participants in both Study 2 and Study 3 also noted that they took part in group work with the intention of learning about the subject matter, and within Study 2 this was reported as one of the positive experiences of group work. However, learning was reported as a secondary motivation for the majority of participants in both studies.

Further, it is noted that in both Study 2 and Study 3 no participants reported engaging in knowledge sharing activity for altruistic reasons. This is somewhat surprising given that altruism and furthering the public good have been ascertained as drivers for knowledge sharing within organisations (Ardivichili, Page and Wentling, 2003; Seonghee and Boryung, 2008; He, Qiao and Wei, 2009; Minbaeva, Mäkelä and Rabbiosi, 2012). Further, a study by Wei et al. (2012) found that students in private universities in Malaysia perceived that it was important to engage in knowledge sharing to help others. This finding might be explained by participants' reports in both Study 2 and Study 3 that they do not always believe that they have anything of value to offer each other, an oft reported barrier in the literature (Sampson and Cohen, 2001a). It is contended that this highlights the importance of providing sufficient motivation to influence students to engage in knowledge sharing and use activity – a notion that has considerable support within the literature (Hansen, Nohria and Tierney, 1999; Yuen and Majid, 2007; Chen et al., 2012; Minbaeva, Mäkelä and Rabbiosi, 2012; Chikoore and Ragsdell, 2013). Importantly, this rationale must include the message that the tacit and explicit knowledge that students possess is of value to others.

However, it is important to remark that the prospect of enhanced attainment and learning was either not sufficient to engender participation from the majority of students within Study 3, or alternatively, that these students were not sufficiently convinced that participation would achieve these outcomes. Indeed, weekly participation varied between 21% and 68% and so it is clear that further work is needed to identify potential motivators and barriers for similar initiatives. It is also worth remarking that there are a number of scholars who argue that knowledge sharing will only take place voluntarily (Davenport and Prusak, 1998; Ehin, 2008) and so while the conditions for

knowledge sharing might be created, there is no guarantee that knowledge sharing will occur. Since knowledge sharing and use is often driven by need (Stewart, 1997) efforts must be made to emphasise the value of knowledge sharing and use activities.

5.2.3. The role of interpersonal trust

The importance of interpersonal trust as an antecedent of knowledge sharing and use was highlighted in all three studies. In particular there is considerable coherence between all three studies with respect to the importance of cognition-based trust as an antecedent for knowledge sharing and use. As noted, cognition-based trust holds between two individuals when there is a perception of competence, dependability and reliability (McAllister, 1995).

Within Study 1 cognition-based trust was found to be the only positive and significant predictor of willingness to share and use tacit knowledge during group work. Within Study 2 a number of participants highlighted a willingness to share tacit knowledge with, and use tacit knowledge gained from, those with whom they had strong cognition-based trust relationships. Similarly, within Study 3, some participants noted that they did not believe the exchange of explicit knowledge during the EMIKS initiative was reciprocal given that they perceived the standard of the work produced by their peers to sub-par, relative to their own. Similarly, some participants reported not making use of the feedback on others' work as they judged that work to not be as good as theirs. Further, it is also noted that participants judged the feedback that I provided to be valuable and insightful – and that the opportunity to receive this feedback was the primary motivation for participating. These findings suggest the importance of cognition-based trust relationships between both students, and between students and their tutor. These findings are consistent with the knowledge management and pedagogic literature that highlights the important role of cognition-based trust (Holste and Fields, 2010; Chowdhury, 2005; Lucas, 2005; Lin, 2007).

However, in contrast to the main findings of the three studies, and the literature, some participants within Study 2 reported that they may be intimidated by those whom they perceived as more competent, dependent and reliable than themselves - noting that this would inhibit their willingness to share tacit knowledge during group work. Such findings arguably suggest that strong cognition-based trust relationships may act as a barrier to knowledge sharing for some.

By contrast affect-based trust, which is based on warm and friendly mutual relationships between individuals (McAllister, 1995) was found to be a less common antecedent of tacit and explicit knowledge sharing within the three studies. Within Study 1 affect-based trust was found to be a positive but not significant predictor of tacit knowledge sharing and use. Within Study 2 no

consensus was revealed as to the importance of affect-based trust. Some participants expressed a desire to share and use knowledge from those with whom they enjoyed affect-based trust relationships – as they believed such relationships made the sharing of knowledge easier. However, for others, the existence of these pre-existing relationships produced discomfort and interfered with the ‘working’ relationship. Within Study 3, no participants expressed a desire to partake in the EMIKS initiative due to the warm friendly relationships they held with others within the cohort. However, students did judge that the friendly and approachable behaviours adopted by the tutor did influence their participation. Although these were not direct measures of affect-based trust, the notions are somewhat consistent with McAllister's (1995) concept.

Thus, it is contended that with respect to cognition-based trust, the three studies confirm previous the findings within the knowledge management and pedagogic literature (Chowdhury, 2005; Lucas, 2005; Lin, 2007; Holste and Fields, 2010) that have noted the importance of trust within group work for the purposes of knowledge sharing. However, the findings of the three studies suggest that affect-based trust is either not an antecedent, or is a less important antecedent of knowledge sharing and use within the context group work within higher education. This is in contrast to the knowledge management (Holste and Fields, 2010; Chowdhury, 2005; Lucas, 2005) and pedagogic literature (DeVita, 2000; Sampson and Cohen, 2001a; Remedios, Clarke and Hawthorne, 2008). It could be argued that the lack of importance attributed to affect-based trust is unsurprising when one considers that participants within Study 2 and Study 3 were primarily motivated by academic attainment when undertaking group work.

5.2.4. The need to manage group work

It was demonstrated in Study 2 and Study 3 that group work can be a significantly negative experience for some students. Thus, it is contended that educators need to actively manage group work if they are desirous of providing a group work experience that is as positive as possible.

That group work needs to be managed is evidenced in the findings of Study 2. It was found that participants typically had negative experiences of group work - and that this could often have a significant affective impact. Issues that arose included free-riding, difficulties in leading and managing groups, and working with other cultures. Such issues are well documented within the literature (see for example, Boud, 2001; Davies, 2007; Hwang and Kim, 2007; Hillyard, Gillespie and Littig, 2010; Maiden and Perry, 2011; Popov et al, 2012). Participants within the same study suggested that tutors and lecturers could take a more active role in managing group work - by providing more support and guidance and for students.

Within Study 3, a pedagogic design for group work was implemented that involved the provision of a greater degree of structure and guidance, and support from the tutor. As reported in that study, the group work assignment was divided into smaller tasks, explanations for each task were provided for students during tutorials, regular formative feedback was available, and as module tutor, I adopted supportive behaviours. Within that study, the overall perception of group work was largely positive - with only a few negative experiences being reported. This demonstrates that group work can be better managed to improve outcomes for students. However, negative experiences of intra-group conflict were reported in both Study 2 and Study 3. Although conflict is a common aspect of group development - it is detrimental to performance if groups become stuck at this developmental stage (Tuckman, 1965; Ito and Brotheridge, 2008). Thus, it is contended that more needs to be done to help students mitigate these issues. Potentially, as suggested by participants in Study 2, training in group working skills could be provided for students prior to their undertaking group work.

5.2.5. Relevance of the knowledge management field for investigating knowledge sharing within higher education

Within Chapter 1 it was argued that the knowledge management field provided a viable and valuable lens for investigating knowledge sharing within the context of higher education. Based on the findings presented within this doctoral thesis, it is argued that this contention has been substantiated. Two lines of argument are offered in support of this view:

First, as noted above and throughout, many of the findings within the three studies are consistent with those that examine knowledge sharing within organisations. This is arguably unsurprising given that the knowledge management activities within group work are broadly similar to those undertaken in organisations - broadly the creation, sharing, acquisition, codifying and use of knowledge (Hislop, 2009).

Second, the barriers to knowledge sharing identified amongst the 2011/12 cohort in Study 3 were consistent with those found within the knowledge management literature that examines individuals within organisations. Furthermore, Study 3 adopted the knowledge management lens not just to explore, examine and describe knowledge sharing but to actively influence explicit knowledge sharing and use. Drawing on the knowledge management and pedagogic literature, a pedagogic design was advanced that proved to be partially successful in influencing intergroup explicit knowledge sharing over the virtual medium. While the design could have been improved, the sharing and use of explicit knowledge did occur and this had a number of beneficial outcomes for students. Thus, the adoption of the knowledge management lens can be valuable as an aid to *improving* knowledge sharing and use within higher education.

5.2.6. The role of students and educators

Some scholars have argued that there is reason to consider students not just as consumers of higher education, but as co-constructors of the experience and the process of knowledge creation (Barr and Tagg, 1995). Such views are consistent with the ontological and epistemological frames adopted within the latter two thirds of this thesis and supported by the findings of Study 3. This study demonstrated that when students willingly and successfully engage in the sharing of explicit knowledge - a number of positive outcomes can be achieved including increased attainment, learning and an increase in confidence and motivation. However, I would argue that a consideration of the close relationship between the findings of all three studies and those within the knowledge management literature points to a somewhat different role for students: students can be considered as knowledge *workers*.

As has been noted, students are often engaged in knowledge work, that is, work that is intellectual in nature (Alvesson, 2001), often make use of intangible resources (Drucker, 1959) and operate within a knowledge intensive workplace, that is, one in which the majority of work undertaken is of an intellectual nature (Alvesson, 2001). I would argue that characterizing the role of students in this way has two important implications:

First, it puts the onus on students to actively engage in the management of their own and others' knowledge during group work activities. Second, it reminds educators of the importance of managing the knowledge that students possess. Indeed, the findings of Study 3 suggest that educators can take an active role in influencing knowledge sharing activity amongst their students. Arguably, characterizing the educator as a leader, with their students as followers, places a responsibility on educators to influence students towards (hopefully) shared objectives of learning and academic attainment.

5.3. Theoretical contribution

Frankfort-Nachmias and Nachmias (1997) state that social scientists are in agreement that an important and valuable function of empirical social science research is to contribute to the creation and refinement of theory. However, there is little agreement as to what is meant by the term theory (Frankfort-Nachmias and Nachmias, 1997; Bryman and Bell, 2011). The term theory is used in different ways but is commonly meant as “...an explanation of observed regularities” (Bryman and Bell, 2011 p.7). For (Frankfort-Nachmias and Nachmias, 1997, p.37): “...scientific theories are abstractions representing certain aspects of the empirical world; they are concerned with the *how* and *why* of empirical phenomena, not with what should be”.

In their discussion on theory, Frankfort-Nachmias and Nachmias, 1997 draw on Parson and Shils (1962) distinction of four different levels of theory (see Table 5.1):

Table 5.1: Parson’s and Shils’ levels of theory

Level of Theory	Description
Ad hoc classificatory systems	This is the lowest level of theorizing. Ad hoc classificatory systems organise and summarise empirical data.
Taxonomies	Taxonomies are the second level of theorizing. They provide systems of categories constructed to fit empirical observations. Taxonomies are useful in that they enable researchers to describe relationships among categories. Further, they are valuable for summarizing and inspiring descriptive studies.
Conceptual frameworks	Descriptive categories are systematically placed in a structure of explicit assumed propositions. The propositions included within the framework summarise and provide explanations and predictions for empirical observations. The dependence on empirical observation in earlier stages of research reduces the explanatory and predictive power. The conceptual framework provides statements of relationships which may be accepted or rejected in further research.
Theoretical models	Combine taxonomies and conceptual frameworks by relating descriptions, explanations and predictions systematically. The propositions of a theoretical system are interrelated in a way that permits some to be derived from others.

Source: Parson and Shils (1962) and Frankfort-Nachmias and Nachmias (1997:36-41)

Based on the above (Table 5.1), it is evident that there is a choice to be made about the type of conceptual contribution to be made. Within this section the researcher presents a conceptual framework, as not all the propositions that make up the model (see Figure 5.1 and Figure 5.2) can be said to have been established deductively. As Frankfort-Nachmias and Nachmias (1997:39) note “Much of what is considered theory in the social sciences consists of conceptual frameworks” and this is of value as conceptual frameworks “...can be used to predict and direct systematic empirical research”. Thus, the conceptual model (see Figures 5.1 and 5.2) is offered to that end.

Prior to presenting the construction and explication of the model, it is necessary to explain what is meant by the terms *concept* and *model*. Following Frankfort-Nachmias and Nachmias (1997:26) a concept is defined as “...an abstraction – a symbol – representation of an object or one of its properties, or of a behavioural phenomenon”. Frankfort-Nachmias and Nachmias (1997) argue that concepts are useful for four reasons. First, they provide a common way for scientists to communicate with one another. Second, they provide a perspective with which one can consider a phenomenon. Third, concepts are useful for organising and classifying experiences, and finally, they are useful for defining the content and attributes of a theory.

A model is understood as providing a representation of a likeness of something else, it shows “...the characteristics of some empirical phenomenon, including its components and the relationships between the components, are represented as logical arrangements among concepts” Frankfort-Nachmias and Nachmias (1997:44).

5.3.1. Construction and explication of the model

The model constructed is restricted to the description of the findings related to knowledge sharing. As evident from the preceding discussion, the majority of findings are concerned with knowledge sharing as opposed to knowledge use, and so the model can be presented with a greater degree of certainty. Indeed, particularly within Study 2 and Study 3, the findings related to knowledge use are particularly limited.

The model (see Figures 5.1 and 5.2) presents the extent of an individual student’s knowledge sharing at a given point, or period of time. That is, the extent to which they will share knowledge in a single instance. The model has been constructed on the basis of the key findings within this doctoral research. The model is based on a number of assumed propositions, rests on a number of assumptions and concepts, and contains a number of relationships between concepts. These are explained below.

5.3.2. Assumed propositions

The two assumed propositions within which other descriptive categories are placed are that:

- 1) A student's knowledge sharing is the result of their willingness and ability to share knowledge, and
- 2) A range of factors can influence a student's willingness and ability to share knowledge

Within the respect to (1), it is contended that when a student is both able and willing to share knowledge – they will do so. Within the model, *willingness* is understood as the desire or wish to share knowledge with another student. Within the model, *ability* is understood broadly, and

encompasses all factors and circumstances that enable a student to share knowledge. Thus, it includes such factors as students' skills, the existence of requisite opportunities for knowledge sharing, and having the resources to exploit those opportunities. It is contended that the findings of all three studies can be subsumed under these two categories, that is, each study revealed factors that can be said to impact either a student's willingness or ability to share knowledge.

With respect to (2), it is contended that a range of factors can influence students' willingness and ability to share knowledge. Within the model (see Figures 5.1 and 5.2), these are termed "Tutor behaviours and other contributory factors", and these are the factors identified in the three studies that were found to contribute to a student's willingness and ability to share knowledge. These factors are categorised using the classification of *tutor behaviours*, *individual* and *group* factors. These classifications and the reasons for their adoption are explained in 5.3.5.1. It is recognised that there are likely to be relationships between these factors, this discussed in 5.3.5.1 and depicted diagrammatically in Figure 5.2. Within Figure 5.1 tutor behaviours are explicitly mentioned to emphasise the important role that educators can have in impacting both willingness and ability to share knowledge.

5.3.3. Assumptions of the model

The model also rest on the following assumptions:

1. It is assumed that a student will share knowledge when they have the ability to do so, and are willing to do so.
2. All three studies were concerned with knowledge sharing that takes place within the context of group work. Following Healey et al., (1996) group work was understood as occurring when two or more students are working together on a task. It is assumed that factors that impact students' ability or willingness to participate in group work will also impact their ability or willingness to share knowledge during group work.
3. Based on assumption two, issues which were found to impact the processes and interaction within group work are assumed to have an impact on the extent of knowledge sharing that takes place. To make this clear, where, for example, groups suffer from issues such as free-riding, or difficulty communicating across cultures, it is assumed that this will impact the ability of an individual student to share knowledge by reducing their opportunity do so.

5.3.4. Explanatory notes

The following explanatory notes are offered:

1. The model depicts an individual's position with respect to the extent of their knowledge sharing at any given point in, or period of time. Thus, it is assumed that willingness to share knowledge and the ability to share knowledge are distinct concepts that do not have a relationship with each other. That is, that the willingness to share knowledge, and the ability to do so, do not interact with each other. However, it is recognised that for an individual, their having a willingness to share knowledge at time T1, but lacking the ability to do so, may lead to the acquisition of that ability at time T2, resulting in movement of their position on the matrix, at time T3.

2. Study 1 and 2 were concerned with intra-group knowledge sharing, while Study 3 was concerned with inter-group knowledge sharing. Within the model, these are, for purposes of simplification combined. Moreover, while the knowledge sharing examined in Study 3 is concerned with intra-group knowledge sharing it was still individuals who undertook the act of sharing knowledge during the EMIKS initiative.

3. Study 1 and Study 2 were concerned with tacit knowledge sharing, while Study 3 was concerned with the sharing of explicit documents in the form of drafts of pieces of work. While *prima facie* it may seem unusual to combine these, it is evident that way in which tacit knowledge was measured (in the case of Study 1) or described as being shared (in the case of Study 2), was through the externalisation of tacit knowledge, into, primarily, the spoken word. Indeed, it is noted that there were very few reports of technical tacit knowledge being shared in Study 2. Thus, it seems reasonable to combine these different methods of knowledge sharing. The argument could be made that the explicit knowledge shared in Study 3, rests on tacit knowledge (see Chapter 1 for discussion). Thus, in what follows the term 'knowledge sharing' is used to denote knowledge sharing of this kind.

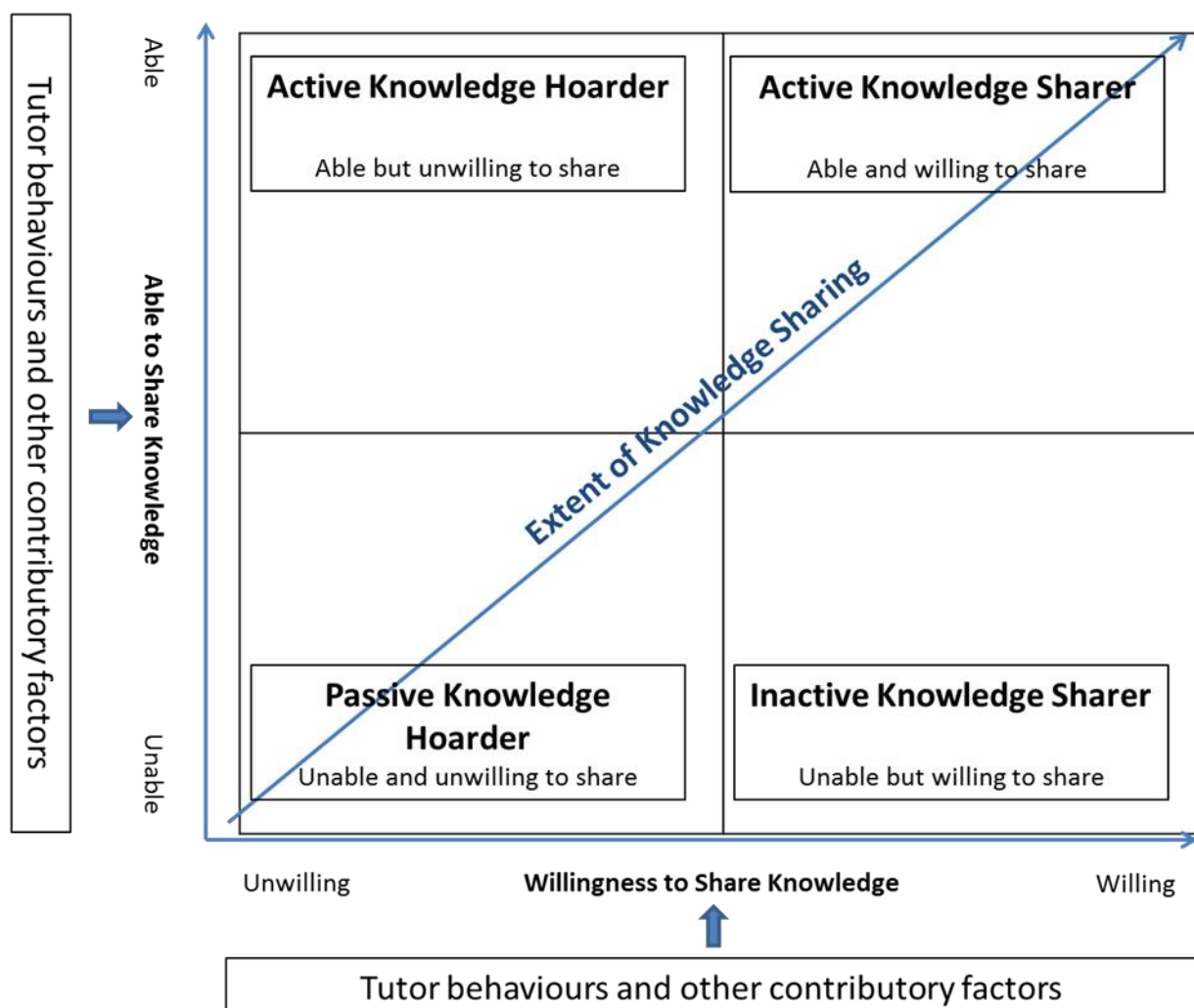
4. While the model (see Figure 5.1) describes four discrete and extreme positions it is noted that an individual's position may vary overtime, and with each instance of knowledge sharing may take place. For example, an individual may be willing but unable to share knowledge with someone that they cannot communicate with due to language difficulties, but may able but unwilling to share knowledge with someone they can communicate with if they believe the likely consequences of doing so would be negative. Further, an individual may be placed along any point of the axes.

5.3.5. Presentation of the model

Based on assumed proposition (1), the model (see Figure 5.1) depicts four extreme positions along two axes: a student's low and high willingness to share knowledge, and a student's low and high ability to share knowledge. The x-axis depicts the former, and the y-axis depicts the latter. Taken

together, four discrete and extreme positions are identified within the quadrants – describing the extent of a student’s knowledge sharing based on their ability and willingness to share knowledge, these are: Quadrant 1 - *Passive knowledge hoarder*, Quadrant 2 – *Inactive Knowledge Sharer*, Quadrant 3 – *Active Knowledge Hoarder*, and Quadrant 4 – *Knowledge Sharer*.

Figure 5.1: Matrix model of the extent of a student’s knowledge sharing during group work



Within the model, the terminology of the share-hoard dilemma that is often used within the knowledge management literature (Hislop, 2009) has been adopted. The share-hoard dilemma highlights that when faced with the option to share or not-share their knowledge, individuals often weigh the potential negative and positive consequences before deciding how to act (Hislop, 2009).

The discussion below describes the extreme positions of the four quadrants - and it is implied that those who fall within the non-extreme positions will be able and willing to share knowledge to different extents.

Quadrant 1: Passive Knowledge Hoarder

This quadrant describes individuals who are neither able nor willing to share knowledge. The term 'Passive Knowledge Hoarder' is used as it captures the situation in which an individual does not actively choose to withhold their knowledge, since they cannot share it even if they wished to. It is proposed that if an individual is placed within this quadrant then educators should attempt to determine reasons for their unwillingness, and their lack of ability, and then attempt to remedy the situation.

Quadrant 2: Inactive Knowledge Sharer

This quadrant describes individuals who are willing but unable to share their knowledge. The term 'Inactive Knowledge Sharer' is used as it captures the situation in which an individual wishes to share their knowledge but lacks, for whatever reason, the ability to do so. It is proposed that if an individual falls within this quadrant then educators should attempt to determine reasons for their lack of ability, and remedy the situation, thus actualising the latent potential for knowledge sharing.

Quadrant 3: Active Knowledge Hoarder

This quadrant describes individuals who are able to share knowledge but are unwilling. The term 'Active Knowledge Hoarder' is used as it captures the situation in which an individual actively choose to withhold their knowledge, in contrast to the 'Passive Knowledge Hoarder' who has no choice in the matter. It is proposed that if an individual falls within this quadrant then educators should attempt to determine reasons for their unwillingness, and attempt to remedy the situation, thus actualising the latent potential for knowledge sharing.

Quadrant 4: Knowledge Sharer

This quadrant describes individuals who are both able and willing to share their knowledge. The term 'Knowledge Sharer' is used as it captures this situation. The top right hand side of this quadrant depicts the ideal situation, in which an individual is entirely able and willing to share knowledge.

5.3.5.1. Tutor behaviours and contributing factors

This sub-section describes the tutor behaviours and other contributing factors that have been found to influence a student's ability or willingness to share knowledge within this doctoral research. These factors are grouped into three categories – tutor, individual, and group. This approach to the classification of factors is drawn from Riege (2005) and Wangpipatwong (2009). In his quantitative research on knowledge sharing amongst Thai students, Wangpipatwong (2009), drawing on Riege (2005), suggests that three classes of factors should be considered when examining factors that

influence knowledge sharing: individual factors, group and classroom factors, and technological factors. While technological factors have not been a mainstay of the present work (with the exception of Study 3), this categorisation is suitable with amendments. In the diagram (see Figure 5.2), technological skills have been subsumed within the category *individual*. The category of tutor behaviours has been added, based on the findings of Study 3, in which the importance of tutor behaviours was argued for.

The following factors are not intended as an exhaustive list, and it is recognised that their salience may vary based on the context in which an educator is working. The factors are drawn solely from the findings of the three studies. Following from the discussion above, three categories of factors are considered: tutor behaviours, individual factors, and group factors.

Tutor behaviours

It is contended that a range of tutor behaviours can influence a student's ability and willingness to share knowledge. The term 'tutor behaviours' is applied broadly to cover the pedagogic decisions tutors make, and the behaviours they employ when interacting with students.

With respect to ability, Study 2 found that a range of negative experiences of group work were reported by students, including free-riding, a lack of leadership within groups, difficulty working with other cultures, and a lack of support and guidance from tutors. Thus, it was contended that educators could improve this situation by providing training in group work skills, better supporting students during group work, and managing non-contributors. Within Study 3, it was found that one of the barriers to participation within the initial attempt at inter-group knowledge sharing was a lack of ability to use the VLE. Within Study 3, evidence of the importance of addressing some of these issues was demonstrated. In addition, it was found that the splitting of the coursework assignment into discrete tasks and explaining those tasks in tutorials helped students better manage their group work. Thus, the management of non-contributors (free-riders), provision of relevant skills training, and the provision of support and guidance are advanced as behaviours that educators can undertake to increase a student's ability to engage in group work, and thus, following assumption 3 (above) knowledge sharing.

With respect to willingness to share knowledge, Study 3 found that a number of factors may influence students' willingness to share knowledge. First, providing a vision and rationale for engaging in the EMIKS initiative was found to be important for influencing students' participation. Second, the provision of feedback on drafts submitted to the EMIKS initiative was found to influence students' willingness to participate, this was found to influence students because they were desirous

of improving their attainment and learning. Third, a range of tutor behaviours were adopted. These aimed at creating a comfortable and trusting atmosphere for students in which they felt safe sharing their knowledge. To that end I attempted to behave in such a manner that I would be perceived as friendly, supportive and approachable. However, it is important to note that in the first attempt at the influencing knowledge sharing via the VLE - the supportive behaviours inhibited participation within the initiative as they reduced students' perceptions of the value of sharing knowledge with their peers.

Individual factors

A number of individual factors were found to contribute to a student's ability and willingness to share knowledge. Individual factors, as the term is used here, relates to all factors that may impact a student's ability and willingness to share knowledge. A number of such factors were found.

With regard a student's ability to share knowledge a number of salient factors were determined in the findings of Study 2 and 3. First, within Study 2, a student's ability to work with others in the group was reported as influencing the undertaking of group work. Common difficulties included not being able to take on a leadership role within the group, managing the work of groups (including free-riding), and working with those from other cultures. When a student has the requisite group working skills such that these issues are apparent, it is contended that this will provide the ability to engage in group work, positively impacting the ability to engage in group work, and following assumption 3 (above), have a greater ability to share knowledge.

Second, within Study 3, it was found that one of the barriers to sharing knowledge in the initial attempt at influencing knowledge sharing via the VLE was a lack of technical skills. Thus, it is contended that having such skills will positively impact the ability to share knowledge via such mediums.

Third, within Study 3, it was also found that lack of awareness of opportunities for knowledge sharing was a reason for non-use of the VLE during the initial attempt influencing knowledge sharing. Thus, it is contended that an awareness of the opportunities for knowledge sharing is necessary to be able to share knowledge.

Fourth, within Study 2 and Study 3, participants highlighted a lack of time as a difficulty and reason for non-participation. Thus, it is contended that students require sufficient time to be able to share knowledge.

Fifth, if students are given the opportunity to choose their group allocation method (as recommended in Study 2), it is contended that their preferences for group allocation will impact the composition of their group (discussed below 5.3.5.3) and, depending on their extant skills, impact their ability to engage in group work, and thus knowledge sharing. Further, it is important to note that within Study 2, preferences for group allocation were found to depend on whether students were desirous of increased learning or attainment.

Sixth, within Study 2 and 3, participants reported both positive and negative experiences of group work. Where group work is perceived negatively it is proposed that engagement with group work will be reduced, and therefore, following assumption 3 (above), the ability to engage in knowledge sharing activity will also be reduced. The converse (where group work is perceived positively) is also proposed.

With regards to a student's willingness to share knowledge a number of factors were found within Study 2 and Study 3.

First, within Study 2 and Study 3, participants reported that their principle desired outcome of engaging in group work and the EMIKS initiative respectively, was to enhance their academic attainment, while some were also motivated by a desire for learning. The different desires of students within a group are likely to impact the manner in which the group interacts - this is evidenced by the comments students made about those who engage in free-riding in Study 2. It is contended that a student's willingness to share knowledge will be positively influenced when a student both desires to enhance their attainment and/or learning, and believes that sharing knowledge during group work is conducive to this aim. Evidently, such a belief is also likely to influence a student's perceptions of knowledge sharing.

Second, within Study 2 and 3, both positive and negative perceptions of knowledge sharing were identified. For example, within Study 3 some participants noted that they did not believe that there was sufficient value in acquiring the knowledge shared by their peers, whereas others noted that they perceived this to be beneficial. It is contended that positive and negative perceptions of knowledge sharing will influence willingness to share knowledge.

Group factors

The term *group factors* is used to refer to issues that occur within the interactions of the group.

With regards to a student's ability to share knowledge, the composition of the group, in conjunction with the skills and abilities of students' within the group is likely to impact a student's ability to

engage in group work, and share knowledge. Within Study 2, it was found that some of the negative experiences of group work were due to difficulties working with those of other cultures, free-riding, management of the group and leading the group. Where the individual skills of group members (and the interactions of group members) create such issues, it is probable that the ability for a student to engage in group work, and by extension knowledge sharing, will be hindered. Under such circumstances, the group composition may be labelled as unfavourable. Where the group composition is favourable due to the composition of the group, and the skills of the individuals of which it is comprised, it is likely that this will have a positive influence on the ability to engage in group work, and by extension knowledge sharing.

It is also contended that the interactions of the group are likely to have an impact on the interpersonal trust relationships that hold between students. As noted, cognition-based trust holds between two individuals when there is a perception of competence, dependability and reliability, whereas affect-based trust holds when there are warm and friendly mutual relationships between individuals (McAllister, 1995). Thus, for example, in the case where the interaction(s) of one student with another results in a perception of reduced competence, reliability, and dependability then this will by definition, reduce the level of cognition based trust.

With regards to willingness to share knowledge, interpersonal trust relationships, examined using McAllister's (1995) concepts of affect- and cognition-based trust were found to be of importance. Within Study 1, cognition-based trust relationships were found to be a positive and significant predictor of willingness to share knowledge during group work. However, there was no significant relationship found between affect-based trust and a willingness to share knowledge. Within study 2, participants reports can be interpreted as highlighting that affect and cognition based trust relationships are important for knowledge sharing; however, there was no consensus as to the relative importance of each. Thus, it is contended that interpersonal trust relationships are likely to influence a student's willingness to share knowledge.

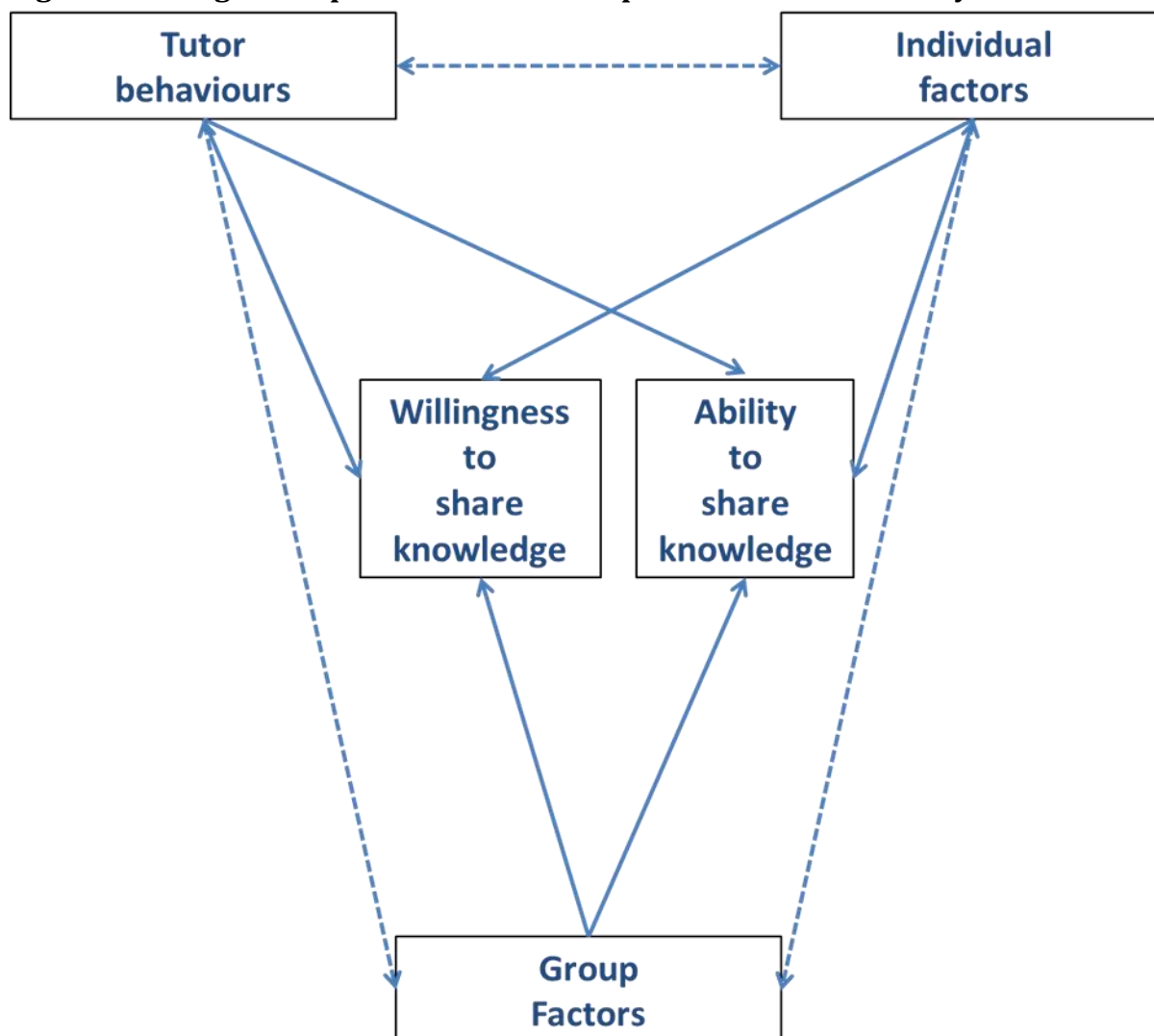
Relationships between contributing factors

It is evident from the preceding discussion that when considering the factors that contribute to a student's ability and willingness to share knowledge, that there are relationships between factors within the same categories. For example, it was argued above that a student's desired outcome of group work is likely to impact their perception of knowledge sharing within group work.

Further, it is argued that there are likely to be circumstances in which there are relationships between factors in each category. That is, that tutor behaviours may impact individual factors, and

this in turn may influence group factors. For example, a tutor making the decision to reward students for knowledge sharing (tutor behaviour), may impact a student's perception of knowledge sharing (individual factor), which may in turn influence their decision about how to select their groups, impacting group composition (group factor). Thus, the following expanded diagram of 'Tutor behaviours and contributory factors' is offered as a tool for examining the relationships between factors, and their impact on a student's willingness and ability to share knowledge.

Figure 5.2: Diagram of potential relationships between contributory factors



Key: Dotted lines represent potential relationships between factors. Solid lines present influence of contributory factors on willingness and ability to share knowledge

5.3.6. Contribution of the model

To the researcher's best knowledge the model presented (see Figures 5.1 and 5.2) provides a unique contribution to the literature, being the first model to depict and explain the extent of a student's knowledge sharing during group work within the UK. The model presents the extent of an

individual's knowledge sharing at a given point, or period of time. That is, the extent to which they will share knowledge in a single instance. The model is based on the observed key observed findings within this work, and offers explanations of them.

It is contended that the model provides a practical way for educators and theorists to examine a student's knowledge sharing within the context of group work - and place individuals within one of the four boxes, and examine the various contributing factors. The implications of the model for educators and researchers are discussed in Chapter 6.

5.4. Reflections on the journey

It is often stated that the undertaking of a doctoral thesis is a process of learning about oneself and one's abilities, as much as it is about the subject matter. Summarised below are some of the key things I have learned about myself as a researcher and as an academic:

During the course of doctoral study I underwent a number of 'philosophical turns'. Study 1 represents what I expect to be my final foray into purely quantitative research. I no longer ascribe to the positivistic ontology and epistemology that forms the basis of quantitative research. The notion that the ever-changing socially constructed world, with its myriad of complexities can be reduced to causal laws expressed *meaningfully* in numeric fashion is now entirely alien to me. As a result there is no longer any desire to pursue the creation of new knowledge in this manner – it no longer feels like a worthy use of my time. Personally, I find qualitative research *fun*. While undertaking focus groups for Study 2 and interviews for Study 3, I found that I enjoyed the data collection process. Learning about participants' experiences and understandings of group work, and my own teaching practice was revelatory, and I was excited to continue and engage in those conversations. Moreover, it always felt like it mattered – discovery of the emergent findings with respect to 'what was wrong' with group work during Study 2 *felt* important. The opportunity to present those findings to a wider audience of academics at conferences and through publication, who could (if they wished) act to change negative experiences for students became something of a moral imperative. Further, the opportunity to put into practice some of the things I had learned about knowledge sharing in group work during Study 3 was a welcome (albeit difficult) experience – and one that, at least for me, cannot compare to the construction and analysis of the most intriguing and significant of quantitative research models. Ultimately, I have found that the lived experience of doing qualitative research is preferable to that of quantitative research.

Study 3 also provided a valuable opportunity to learn about my personal limits and the need for an appropriate work-life balance. The design of the study placed me as a key actor – designing, managing and actively participating in electronically mediated inter-group explicit knowledge Sharing. My failure to fully achieve the objectives of that project meant that I became overloaded with work – and my stubbornness and unwillingness to rescind on my promises to students meant that I persisted with a higher workload than was probably healthy. While I am proud of my willingness to keep my promises and having achieved, to the best of my ability, the best possible outcomes for students I have learnt that I should not promise, or take on too much work. When every hour of the day is spent in reading, preparing and evaluating student work, the passion for teaching can fade, and it can fade quickly.

Finally, and most importantly, through the undertaking of this doctoral research I have developed a passion for teaching. When I started the doctoral process, it was with somewhat uncertain intentions. I had some hopes of producing pioneering doctoral research - so original and valuable that I would become a world-famous and highly paid management consultant. I had other hopes of achieving such success with my research endeavours that I could embark on a (fast-tracked) career as a world renowned researcher and touring Professor. As it turned out, I found that I was interested in studying knowledge sharing within higher education, and that the studying of knowledge sharing within higher education created a passion for teaching. I have found that I derive a great deal of personal satisfaction from teaching others, and seeing their achievements. As a result, I have embarked on an academic career in which the majority of my time is spent on teaching activity and my research is directed towards the broad field of pedagogy and the investigation of my own practice.

Personal learning aside, I also made a number of mistakes in the undertaking of this thesis and those that I judge to be most critical are described below:

Although I do not intend to undertake quantitative research again, the failure to properly construct two items on the questionnaire used in Study 2 that asked respondents about their work experience and course of study (discussed in Chapter 2) still troubles me. Had I properly specified the questions I would have received a greater understanding of the demographic profiles of students. The lesson learnt is that pilot studies are probably best conducted with a sample that is similar to that which will be studied, the use of friends within the pilot study (who were also students) perhaps skewed the results. A second lesson learnt during this process was that I should check my collected data early - had I examined the questionnaire after the first stage of data collection proper, it could have been modified for the latter stages, resulting in useable data on these measures.

A concern I have about the manner in which I have conducted interviews and focus group is that I may have unintentionally led participants. I often found myself laughing and joking with participants mid-way through an interview when I would rather have stayed composed, or found that I was smiling in what I considered to be an eager manner when I heard something that confirmed my suspicions, or that I thought would make a good vignette. Having discussed the matter with colleagues, and read the warnings in research methods books, I know I am not the only one who may be 'guilty' of this transgression, and it is something I have continued to work on. Following Stake's (1995) advice, I have, where it seemed appropriate, tried to include the questions I asked verbatim – and any noted facial expressions or reactions so that those reading the work can form their own views. Yet, I remain somewhat unsure that such friendly and informal interactions with

participants are necessarily detrimental. It could be argued that engaging with participants in such a manner puts them at their ease and increases their comfort, and thereby increases their willingness to be open and honest about (potentially) uncomfortable and difficult subjects.

A central difficulty when conducting focus groups for Study 2 and interviews for Study 3 was the balance of keeping notes, listening to the participant(s), keeping the conversation flowing and ensuring that the key questions in the interview schedule were followed. In the earlier interviews for Study 3 I have often found myself getting lost in the conversation and allowing the participant to digress – largely because I was interested in what they were saying. Towards the conclusion of Study 3 I improved, by providing more structure for the interviews, verbally marking the move from one set of questions to another to elicit understanding of a different facet of the participants' experiences, and asking participants to return to potentially non-salient topics at a later juncture. Although this helped me keep track of my thoughts, I also felt that I lost some of the spontaneity and insight that emerged in the earlier interviews.

A final concern is with the overall choice of the studies that were included within this thesis. As described, each study has its merits and faults, and has implications for a range of different stakeholders. However, I believe that the overarching research aim may have been better addressed if the three studies had been specifically designed and chosen to follow one after another, with the design of each new study building on the findings of the last. Such an approach was not adopted, simply because it was never considered. I was allowed the freedom to approach my doctoral studies in an 'organic' manner, and this is something I am very grateful for. As I developed new interests, ideas, passions and ways of looking at the world I formulated proposals for many research projects, and ultimately chose that seemed most likely to be successful, and that would provide most value for a diverse range of stakeholders.

Similarly, had I made use of one method of data collection and analysis for each study then I expect I would have become better practiced, and more competent at the use of the chosen method. However, the use of different methods throughout the work has enabled me to develop a broader set of skills, and to trial different ways of approaching research.

The over-arching aim of the research was to explore and understand the antecedents, motivators and barriers to student knowledge sharing and use within higher education. When I think back to the Business Information Systems tutorial in which my interest in the topic was ignited (see 1.1) I am confident that I could now supply a number of explanations for the behaviour observed. Thus, it is contended that the overarching research aim has been achieved, and that the studies undertaken

have produced a variety of findings that are of value for educators, the wider business and management community, and scholars.

The following (and final) chapter presents the implications of these findings for these stakeholders.

Chapter 6: Conclusions

This chapter draws on the findings of each study, and the discussion in the previous chapter to present the implications of the work for a range of stakeholders. First, the implications of the work for educators are offered. Second, the implications of the work for the wider business and management community are presented. Third, the implications of the work for scholars are considered, and opportunities for future research are highlighted.

6.1. Implications for educators

This work has a number of implications for educators who make use of group work within their teaching practice, and who are desirous of increasing knowledge sharing and use amongst their students. For such educators the following are recommended:

1. Although the extant literature highlights that students have generally positive perceptions of knowledge sharing activities - educators should be aware that this may not necessarily hold for all students. Thus, it is recommended that educators provide a sufficient rationale and vision for knowledge sharing that will motivate students. However, educators should also be aware that there may be a pervasive lack of interest in either attainment or learning amongst some students.
2. Students can be influenced by demonstrating the link between knowledge sharing activity and an outcome that they desire. While students within this work were found to be motivated primarily by increased academic attainment, this may not be the case for all students. Thus, it is recommended that educators determine students desired outcomes and ensure that these are achieved through knowledge sharing activity - either as a direct consequence of the activity, or indirectly as a reward for participation.
3. Educators who are desirous of influencing knowledge sharing and use amongst their students should seek to enhance cognition-based trust relationships. This may be achieved through the use of activities that provide opportunities for students to demonstrate to each other that they are reliable, competent and dependable. Since the development of interpersonal trust relationships take time, it is recommended that such activities should be implemented at an early juncture of a student's education, and should take place regularly thereafter. Further, it suggested that that educators should be less concerned with enhancing affect-based trust relationships between students - as these are less likely to have an impact on knowledge sharing and use.

4. Those who wish to influence knowledge sharing should also be conscious that there may be a number of barriers to students' knowledge sharing, including, but arguably not limited to, a fear of plagiarism, a fear of losing face, a lack of time, limited perception of the value of knowledge sharing activity, and intra-group conflict. Barriers to knowledge sharing will need to be established and overcome. Further, the relevant barriers are likely to vary amongst students.
5. Educators should be aware that students may have had negative experiences of group work in the past, and that this may impact their willingness to engage in group work and knowledge sharing activity in the future. Further, educators should be cognizant of the impact that negative experiences of group work can have on students, issues of conflict, lack of leadership, and free-riding can have a significant affective impact on students. Educators should ensure that they provide sufficient support and guidance for students to mitigate this impact. Further, where possible it may be advantageous to ensure that students have the proper skill sets to undertake group working, and engage effectively in the processes.
6. When determining group allocation methods it is recommended that students are first allowed to self-allocate, and where this is not successful (or desired), are then randomly allocated. Such an approach allows students to choose who they wish to work with - and thus gives them the opportunity to choose to work with like-minded individuals to pursue their own aims.
7. Further, educators should be aware that the needs and motivations of all students are not necessarily the same. Group work activities that meet a diverse range of needs are likely to be more favourably received by students. Such needs include, but may not be limited to, a need for academic attainment, learning about the subject matter, learning about new cultures, and developing relationships with others.
8. Educators should recognize that group work can be managed effectively to influence knowledge sharing. This may require the adoption of pedagogic practices that overcome barriers to, and that motivate participation in knowledge sharing activity. Educators should also be aware that they can have considerable influence on the knowledge sharing activities of students through the modification of their own behaviour. Providing a vision and rationale for knowledge sharing and use, and being friendly, approachable and supportive to students are likely to be beneficial.
9. Educators should be aware that students may not perceive themselves to be properly supported or guided, and may feel as though they are not valued within their institution. One way in which this can be rectified is through the provision of individual formative

feedback on students' work at regular intervals. The provision of feedback in this manner is also likely to increase students' confidence and motivation for their studies, and improve learning.

10. Finally, educators should be wary of the potentially negative affective impact that the implementation of knowledge sharing activity may have on their wellbeing. Thus, educators should ensure that they have sufficient resources to successfully undertake and manage knowledge sharing initiatives without detriment to their wellbeing.
11. Finally, educators may make use of the model of knowledge sharing (see Figure 5.1) and the diagram of relationships between contributory factors (see Figure 5.2) that were offered as the conceptual contribution of this work. Educators may make use of these models as frameworks for examining the extent to which students are able and willing to share knowledge, and the reasons for which they do so.

6.2. Implications for the wider business and management community

It has been argued that graduates are the knowledge workers of the future (Hawawini, 2005). If the samples of students within this study share commonalities with others, then the findings of this work have implications for those who recruit and manage graduates within their businesses. The following are recommended:

1. Graduates tend to be motivated by extrinsic rewards, and so efforts to influence participation in knowledge sharing activities may be more successful if they include the provision of extrinsic rewards. Given the importance attached to academic attainment and learning by students in this study, it is recommended that the provision of opportunities for gaining formal qualifications might provide a suitable reward.
2. Graduates may only be moderately willing to engage in knowledge sharing and use activity - and may have had negative experiences of group working in the past. Thus, it may be necessary to provide a sufficiently convincing rationale for graduates to engage in knowledge sharing activity.
3. Efforts should be made to enhance cognition-based trust relationships amongst graduates, and between graduates and other employees. One method by which this could be achieved is to provide opportunities for graduates and other employees to demonstrate their competence, reliability and dependability to each other through work activities. This may be especially important where graduate training schemes include such activities as coaching and mentoring that rely on the sharing and use of knowledge between individuals.
4. It was found that students may have difficulties in successfully participating in group work, and particular difficulties may include leading others, working with those from other cultures and managing conflict. Thus graduates may require training in group working skills before they can work effectively as part of a team.

6.3. Contribution of the work and opportunities for future research

The contribution of each study was highlighted in each respective chapter. However, it is argued that that as a composite, this doctoral thesis makes a small but significant contribution to a nascent field of enquiry - the examination of knowledge sharing amongst students within higher education.

While a number of studies have investigated the knowledge sharing behaviour and attitudes of students within higher education (see for example, Chowdhury, 2005; Lin, 2007; Sackmann and Friesl, 2007; Yuen and Majid, 2007; Wangpipatwong, 2009; Hassandoust and Perumal, 2011; Majid and Wey, 2011; Yaghi et al, 2011; Wei et al, 2012; Zaqout and Abbas, 2012; Chong, Teh and Tan, 2014; Rahman et al, 2014), only one has investigated student knowledge sharing during group work within the UK (Chikoore and Ragsdell, 2013).

Thus, it is evident that there is a paucity of studies that examine knowledge sharing amongst students during group work within the context of higher education within the UK. Thus, it is contended that this work makes a small but significant contribution to the field in a number of ways. To my best knowledge this work is among the first to examine student knowledge sharing amongst business and management students within the context of the UK, and to present:

- A detailed statistical analysis of the relationship between students' interpersonal trust relationships and their willingness to share and use tacit knowledge during group work amongst business and management students.
- An in-depth qualitative examination of the issues surrounding student knowledge sharing during group work within a Business School
- An action research project designed to influence electronically mediated inter-group explicit knowledge sharing amongst undergraduate students

Further, the key conceptual contribution of this work is the model of knowledge sharing (see Figure 5.1) presented in the previous chapter. This model has been developed based on the findings of the three studies within this doctoral research, and are, to the researcher's best knowledge, the first conceptual model of student knowledge sharing during group work within the context of the UK. Thus, it is contended that the development and presentation of this model forms a unique contribution to the latent body of knowledge that is concerned with examining student knowledge sharing within the context of the UK.

As the model is based on the findings of the three studies that were conducted within the same context, the degree to which it can be generalised to other settings is arguably low. It is contended that further research may be undertaken to substantiate and demonstrate the veracity of the model, or alternatively, develop it further, or reject it. The following opportunities for future research are recommended:

1. Researchers may wish to further examine the two assumed propositions of the model, namely that 1) A student's knowledge sharing is the result of their willingness and ability to share knowledge 2) That a range of factors can influence a student's willingness and ability to share knowledge.
2. If the veracity of the assumed propositions is established then researchers may also wish to further explore the three assumptions which underpin the model.
3. Researchers may wish to examine the veracity of the model in a range of contexts, for example, by varying educational setting, student level (undergraduate, postgraduate, professional), course of study, and differences in pedagogic design.
4. Researcher's may wish to further examine the contributory factors identified, and determine their relevance in different settings and contexts. Further, researchers may wish to extend the model through the identification of other contributory factors. It is hoped that examination of further contributory factors and the relationships between them (see Figure 5.2) will help to enhance understanding of factors that influence students' willingness to share tacit knowledge.
5. Researchers may also choose to examine the usefulness of the model for first determining, and then influencing knowledge sharing amongst students. Techniques such as interview schedules or questionnaires could be developed, and then used to plot a student's ability and willingness to share knowledge, and the attending contributing factors.

In addition, to the above, the work has also revealed a number of opportunities for future research. These are outlined below:

1. The finding in this work that affect-based trust has a limited role as an antecedent of knowledge sharing is at odds with the majority of the literature. Thus, future research may further investigate the relationship between affect- and cognition-based trust relationships and knowledge sharing activities. A finer understanding of the relationship between interpersonal trust and knowledge sharing activities would have implications for a number

of pedagogic activities such as assessed group work, and the manner in which in class activities which involve knowledge sharing between students are implemented.

2. Future research may further examine the general motivations and barriers to student knowledge sharing as such an understanding would enhance educators in designing pedagogic activities to influence knowledge sharing. It would be advantageous if such research focused particularly on students within higher education within the UK as at present there is a dearth of studies that investigate that context. Further, the findings within this work with respect to students' willingness to share and use knowledge during group work partially contradict those that have been undertaken in other countries. Indeed, researchers in other contexts have demonstrated that students have a generally positive disposition towards knowledge sharing, and work that explores and explains this discrepancy would be valuable.
3. Along similar lines, future work may also examine students' perceptions of their education and educational institutions. The findings of this doctoral work suggest that some students may not feel valued by their institution and that amongst other students there may be a pervasive lack of interest in either academic attainment or learning. If these indications are correct, then an exposition and exploration of these issues may provide insights into how the situation can be remedied.
4. Future research may also examine different pedagogic designs for influencing knowledge sharing and use amongst students. The design presented within Study 3 of this work has demonstrated that students can be influenced to share, and to a lesser extent use explicit knowledge. However, more work needs to be done to determine the best designs to influence both explicit and tacit knowledge sharing and use. If successful, such designs might increase the sum of knowledge available to students and thus potentially enhance learning, and may reduce the workload for educators.
5. Similarly, future research may also examine the role of educators in influencing the knowledge sharing activity of students. As within this work, the educator could be characterized as a leader, and the impact of different leadership functions, or styles on the knowledge sharing activity of students could be explored. The findings of such research could provide guidance for educators who wish to enhance knowledge sharing amongst their students.
6. Given the paucity of the current literature the suggestions for research presented above could be examined in a variety of contexts. For example, by comparing national contexts, different types of higher education institutions, comparing students undertaking different

courses of study, and different year groups, and finally, comparisons could also be made between assessed and non-assessed group work.

Finally, I would argue that the production of more detailed qualitative examinations of knowledge sharing amongst students within higher education would make a novel contribution to the literature. As highlighted, the majority of the current research is quantitative. New research that provides a qualitative examination would help to develop an understanding of how the lived-experience of knowledge sharing activity is interpreted by both students and educators. This may assist other educators in the design and implementation of pedagogic activities that enhance knowledge sharing during group work while circumventing or mitigating the potentially negative consequences of participation for both students and educators.

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Appendix

Appendix A: Questionnaire (Study 1)

Part 1: Demographic Questions

Instructions: Please complete the following questions

Age	Gender <input type="checkbox"/> Male <input type="checkbox"/> Female	Degree Course
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Year of Study	Nationality	Years of Work Experience
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Part 2: Knowledge Sharing

Instructions: Please review each of the following statement and circle the response that is most appropriate.

Provide an answer in each of the two columns, considering how the statement relates to someone you work well with and someone you do not work well with during group projects at university. Please use the scale: 1 “Strongly Disagree” to 7 “Strongly Agree”

Statements: Willingness to share tacit knowledge	Someone I work well with	Someone I do not work well with
If requested to do so, I would allow this individual to spend significant time observing and collaborating with me in order for him/her to better understand and learn from my work.	1 2 3 4 5 6 7	1 2 3 4 5 6 7
I would willingly share with this person rules of thumb, tricks of the trade and other insights into academic work and that of the University that I have learned.	1 2 3 4 5 6 7	1 2 3 4 5 6 7
I would willingly share new ideas with this individual.	1 2 3 4 5 6 7	1 2 3 4 5 6 7
I would willingly share my personal experiences and subjective insights with this individual, if relevant	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Statements: Willingness to use tacit knowledge	Someone I work well with	Someone I do not work well with
If relevant to my work, I would welcome the opportunity to spend a significant time observing and collaborating with this individual in order for me to better understand and learn from his/her work.	1 2 3 4 5 6 7	1 2 3 4 5 6 7
If relevant to my work, I would welcome and use any rules of thumb, tricks of the trade, and other insights he/she has learned.	1 2 3 4 5 6 7	1 2 3 4 5 6 7
I would eagerly receive and consider and new ideas this individual might have.	1 2 3 4 5 6 7	1 2 3 4 5 6 7
I would eagerly receive and consider any personal experiences and subjective insights this individual might have	1 2 3 4 5 6 7	1 2 3 4 5 6 7

PLEASE TURN OVER

Part 3: Interpersonal Trust

Instructions: Please review each of the following statements and circle the response that is most appropriate. Provide an answer in each of the two columns, considering how the statement relates to someone you work well with and someone you do not work well with during group projects at university. Please use the scale: 1 “Strongly Disagree” to 7 “Strongly Agree”

Statements: Interpersonal Trust	Someone I work well with	Someone I do not work well with
We have a sharing relationship. We can both freely share our ideas, feelings and hopes.	1 2 3 4 5 6 7	1 2 3 4 5 6 7
I can talk freely to this individual about difficulties I am having at university and know that (s)he will want to listen.	1 2 3 4 5 6 7	1 2 3 4 5 6 7
We would both feel a sense of loss if one us was assigned to a different group and we could no longer work together.	1 2 3 4 5 6 7	1 2 3 4 5 6 7
If I shared my problems with the person, I know s(he) would respond constructively and caringly.	1 2 3 4 5 6 7	1 2 3 4 5 6 7
I would have to say we have both made considerable emotional investments in our working relationship.	1 2 3 4 5 6 7	1 2 3 4 5 6 7
This person approaches his/her task(s) with professionalism and dedication.	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Given this person’s track record, I see no reason to doubt his/her competence and preparation for their task(s).	1 2 3 4 5 6 7	1 2 3 4 5 6 7
I can rely on this person not to make my task(s) more difficult by careless work.	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Most people, even those who aren’t close friends of this individual, trust and respect him/her as a group-member.	1 2 3 4 5 6 7	1 2 3 4 5 6 7
Other individuals I am associated with at University who must interact with this individual consider him/her to be trustworthy.	1 2 3 4 5 6 7	1 2 3 4 5 6 7
If people knew more about this individual and his/her background, they would be more concerned and monitor his/her performance more closely.	1 2 3 4 5 6 7	1 2 3 4 5 6 7

Appendix B: Participant information sheet and consent form (Study 2)
Knowledge Sharing During Group Work

Doctoral Research
Participant Information Sheet

You have been invited to take part in Doctoral Research, before you decide whether to participate please take the time to read the information on this sheet carefully.

What is the purpose of the study?

The purpose of the study is to gain an understanding of your experiences and perceptions of group work at university. In particular the study will focus on your perceptions and experiences of knowledge sharing and your relationships with your group mates. The study is being undertaken as principal component of my Doctoral Research and is conducted in accordance with the guidelines of the College Ethics Committee. The research has been funded by Bangor Business School and a grant from the Higher Education Academy Wales Enhancement Fund Project (grant number DCE 615).

Who are the researchers?

The research is being conducted by myself (Bejan Analoui) under the supervision of Dr. Clair Doloriert and Professor Sally Sambrook based at Bangor Business School, Bangor University.

What will the interview involve?

I would like you to take part in focus groups lasting no more than one hour. I will be asking you to discuss your experiences and perceptions of group work at university. The interview will be digitally recorded so that I have a record of what was said for subsequent analysis.

What will happen to the information that I give?

The transcript of the interview and the audio file will be kept in accordance with the data protection act and only be accessible to myself. An analysis of the information collected will be used in the production of my Doctoral thesis and at the end of the study may also be used in the production of academic articles to published in academic journals, and may be presented at research seminars and conferences.

Will my taking part be confidential?

Yes. Your participation will be confidential and we ask that everyone taking part in the research does not to divulge anything that has been said during the

session. Audio files will not be made available to anyone other than myself and will be immediately and permanently destroyed following transcription. Further, all transcripts will be made anonymous prior to their being shared (if necessary) with my supervisors.

You are also welcome to withdraw from the research at any time, without giving a reason.

Consent Form

I confirm that I have read and understood the information given overleaf. I confirm that I have had the opportunity to consider the information given, ask questions and that these have been answered satisfactorily.

I confirm that my participation is voluntarily and that I may withdraw any time without giving a reason.

Participant's
Name:

Signature..... Date

Researcher's Name:
(Bejan Analoui)

Signature..... Date

Appendix C: EMIKS evaluation questionnaire (Study 3)

Group Organisation
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This anonymous questionnaire has been designed to gather feedback on your experiences of the draft sharing initiative.

The draft sharing initiative: What impact did it have?

I created the draft sharing initiative in the hope that it would provide a valuable learning experience for everyone. Did I achieve this? Circle one column for each statement, using the scale: 1 = “Strongly Disagree” 5 = “Strongly Agree”

Statement	<u>Strongly Disagree</u>				<u>Strongly Agree</u>
I often looked at other groups' drafts	1	2	3	4	5
Looking at other groups' drafts was an incentive for me to participate	1	2	3	4	5
The feedback I viewed on other groups' drafts helped me to learn about HRM	1	2	3	4	5
The feedback I viewed on other groups' drafts helped me to learn about writing and structuring a report	1	2	3	4	5
The group work assignment helped me to increase my understanding of HRM	1	2	3	4	5
Overall the group work experience was positive	1	2	3	4	5
Overall the group work experience was better than the experiences of group work I have had in other modules	1	2	3	4	5
Receiving feedback on my draft(s) was an incentive for me to participate	1	2	3	4	5
If Bejan had not provided feedback I still would have participated	1	2	3	4	5
The feedback I received helped me to learn about HRM	1	2	3	4	5
The feedback I received helped me to learn about writing and structuring a report	1	2	3	4	5

The draft sharing initiative: Influencing you

I tried to influence you to take part in the draft sharing initiative in a number of ways. How well did I do at this? Circle one column for each statement, using the scale: 1 = “Strongly Disagree”, 5= “Strongly Agree”

Statement	<u>Strongly Disagree</u>				<u>Strongly Agree</u>
Through his interactions with me, Bejan convinced me that the draft sharing innovation was an important and valuable activity that would benefit myself and others	1	2	3	4	5
This influenced me to share my draft(s)	1	2	3	4	5
This influenced me to look at other groups' drafts	1	2	3	4	5
Bejan made the reasons for trialling the innovation clear	1	2	3	4	5
This influenced me to share my draft(s)	1	2	3	4	5
This influenced me to look at other groups' drafts	1	2	3	4	5
Bejan identified what was good about the drafts, and what needed improving	1	2	3	4	5
This influenced me to share my draft(s)	1	2	3	4	5
This influenced me to look at other groups' drafts	1	2	3	4	5
The anonymity of the draft sharing initiative influenced me to share my drafts	1	2	3	4	5
The anonymity of the draft sharing initiative influenced me to look at other groups' drafts	1	2	3	4	5
The anonymity of the draft sharing initiative influenced me to share my drafts	1	2	3	4	5
It was easy to send my drafts and view feedback	1	2	3	4	5
This influenced me to share my draft(s)	1	2	3	4	5
This influenced me to look at other groups' drafts	1	2	3	4	5
Only those groups who sent drafts each week could view the work of others for that week. This influenced me to share my draft(s)	1	2	3	4	5
Bejan created an atmosphere in which I felt comfortable sharing my drafts	1	2	3	4	5
This influenced me to share my draft(s)	1	2	3	4	5
Bejan was friendly	1	2	3	4	5
This influenced me to share my draft(s)	1	2	3	4	5
This influenced me to look at other groups' drafts	1	2	3	4	5
Bejan was supportive	1	2	3	4	5
This influenced me to share my draft(s)	1	2	3	4	5
This influenced me to look at other groups' drafts	1	2	3	4	5

Bejan was approachable	1	2	3	4	5
This influenced me to share my draft(s)	1	2	3	4	5
This influenced me to look at other groups' drafts	1	2	3	4	5

Taking Part (Open Questions) – Page 1

Why did you participate?

On those weeks that you participated, for what reason(s) did you do so? Please answer as fully as you can:

What did you gain from participating?

When you participated, what do you think you gained from doing so? Please answer as fully as you can:

Taking Part (Open Questions) – Page 2Why didn't you participate?

If you didn't participate every week, for what reason(s) did you not do so? Please answer as fully as you can:

How could I have encouraged you to participate further?

If you didn't participate every week, what, if anything could I have done to encourage you to do so? Please answer as fully as you can:

Taking Part (Open Questions) – Page 3What was done well?

Considering the draft sharing initiative, what (if anything) was done well?

Please answer as fully as you can:

What could be improved?

How (if at all) could I improve the initiative next year?

Please answer as fully as you can:

Do you have any other thoughts or comments?

**Appendix D: Participant information sheet and consent form (Study 3)
Electronically Mediated Intergroup Knowledge Sharing**

**Doctoral Research
Participant Information Sheet**

You have been invited to take part in Doctoral Research, before you decide whether to participate please take the time to read the information on this sheet carefully.

What is the purpose of the study?

The purpose of the study is to gain an understanding of your experiences and perceptions of the recent electronically mediated intergroup knowledge sharing (draft sharing) initiative trialled in the ASB 3101 module. In particular the study will focus on your perceptions and experiences of the activity. The study is being undertaken as principal component of my Doctoral Research and is conducted in accordance with the guidelines of the College Ethics Committee.

Who are the researchers?

The research is being conducted by myself (Bejan Analoui) under the supervision of Dr. Clair Doloriert and Professor Sally Sambrook based at Bangor Business School, Bangor University.

What will the interview involve?

I would like you to take part in a semi-structured interview lasting no more than one hour (it may be as short as fifteen minutes). I will be asking you to discuss your experiences and perceptions of the draft-sharing initiative. The interview will be digitally recorded so that I have a record of what was said for subsequent analysis.

What will happen to the information that I give?

The transcript of the interview and the audio file will be kept in accordance with the data protection act and only be accessible to myself. An analysis of the information collected will be used in the production of my Doctoral thesis and at the end of the study may also be used in the production of academic articles to published in academic journals, and may be presented at research seminars and conferences.

Will my taking part be confidential?

Yes. Your participation will be confidential and we ask that everyone taking part in the research does not to divulge anything that has been said during the session. Audio files will not be made available to anyone other than myself and

will be immediately and permanently destroyed following transcription. Further, all transcripts will be made anonymous prior to their being shared (if necessary) with my supervisors.

You are also welcome to withdraw from the research at any time, without giving a reason.

Consent Form

I confirm that I have read and understood the information given overleaf. I confirm that I have had the opportunity to consider the information given, ask questions and that these have been answered satisfactorily.

I confirm that my participation is voluntarily and that I may withdraw any time without giving a reason.

Participant's
Name:

Signature..... Date

Researcher's Name:
(Bejan Analoui)

Signature..... Date

Appendix E: Sample of formative feedback provided on drafts (Study 3)

This appendix contains three samples of feedback provided to groups during the EMIKS initiative.

Sample 1: Feedback on methods and data collection

Sample 2: Feedback on general approaches to Human Resource Management (HRM) and integration of HRM practices

Sample 3: Feedback on an analysis of Employee Relations practices

Note: Comments were often made using the "Comment" function in Microsoft Word. These have been replaced with footnotes. My comments in the main text of the samples are provided in dark blue text in bold type face. Original formatting of the samples has been retained.

Sample 1.

Overall, a good start and some interesting points are made. I have made a few comments that should help you improve the work, I have also highlighted where you might add further explanations (with citations).

Don't forget page numbers for direct quotes.

Data Collection

Perhaps note that the work is a case study

Perhaps distinguish between primary and secondary data

The data was collected as a majority via the internet, although data was also collected from text books and through contact with customer relations staff at Audi. Qualitative data would benefit the report, due to the nature of the report, quantitative data would not be necessary, The methodology behind the data collection relies upon both qualitative data, qualitative data having a interpretivist approach to knowledge. Saunders, Lewis and Thornhill (2006) suggests that "the epistemological position that advocates the necessity to understand differences between humans in their roles as social actors".

To be sure of an in-depth data collection process a range of sources will be used in the process, including books, journals, online journals, e-books, websites and some contact with staff at Audi will be used in the research process, in order to compile a wide spread result of data.

Public and internal documents will be key in this project and will be used to collect qualitative data. Foster (1994) states they can be used to "tell researchers about the kind of image and culture a company is trying to present to its own employees and externally to customers or potential competitors", which would be vital in compiling this report.

Data Analysis

All data found was analysed largely on a computer by the researcher, as the data was qualitative, the data was not sufficient to put in a software package such as NVIVO due to the nature of the data collected and the nature of the project. The researchers obtained

many different sources to gain the data from and would then analyse this data in order to find the sufficient and reliable data needed⁹.

An inductive approach will be used to analyse the qualities data collected, this is describes by Saunders, Lewis and Thornhill (2006) as “related initially to an exploratory purpose... will need to analyse the data as you collect them and design a conceptual framework to guide your subsequent framework.”

Ethical Considerations

The main ethical issues needed to be considered when gaining research would be the effect the research may have on the source, the reliability of the sources and data and also the¹⁰

Gaining access into the business, such as gaining private information from managers or staff, would most likely prove a hard task, due to the company not being willing to divulge any data or information that could potentially harm the business or feed the competition. If the researcher can gain some access to the business, the researcher must be willing to agree with the company any confidentiality agreements required and that all research will be necessary and comply with the project. [Citation for this](#)

Gaining access to a computer as part of the research process is vital, as this project relies largely upon desktop research. The use of a computer with internet access allows the researcher to conduct the research over a large spectrum of sources, including email, websites, online journals and online books.

Ethics is described by Blumberg et al (2005:92) as ‘moral principles, norms or standards of behaviour that guide moral choices about our behaviour and our relationships with others’. In order to comply with ethical guideline any information or data found on the company and used in the project must have gained informed consent by the business, which is the best method of consent due to the subject type being fully aware of the data that will be published about them. Serious repercussions could occur if the researcher does not adhere to ethical issues raised when gaining information, such as the privacy rights of any participants involved, the right to withdraw from the process at any point as the research is a voluntary process and the behaviour and the objectivity of the researcher.¹¹

Limitations

⁹ The use of different data sources to increase reliability is known as “data triangulation” – you could add a citation from any research methods book for this

¹⁰ I would add that the main ethical consideration in social science research is the avoidance of harm – again any book on social science/business research methods will highlight this

¹¹ I’m not sure that this bit is correct – after all the information was placed willingly in the public domain by the company

The limitations of desktop data collection and research are mainly that the data can be ill informed and or bias, due to the majority of information found on the internet. Although information was found on the official Audi website, from journals and authors, this data can be bias as Audi will try and express the positivity of the brand and the journals and authors can be biased toward or against Audi. Other limitations include not being able to gain a mass of first hand contact or information from the company, as this could influence some theories and comments made about the company.

As a whole most data wanted about the company was available via different sources, however some data was sought through Audi specifically but Audi were not at liberty to share the data, leaving some aspects of the report slightly uninformed.

Add some citations here on bias, and also consider issues of reliability and validity:

“Reliability is concerned with the findings of the research... if the research finding can be repeated it is reliable, in other words if you or anyone else would repeat the research, you or they would be able to obtain the same results” (Hussey and Hussey, 1997, p.57)

“Validity is the extent to which the research findings accurately represent what is really happening in the situation” (Hussey and Hussey, 1997, p.57)

Sample 2

Overall this is a good start. I have made some suggestions and comments throughout. Don't forget the Vertical Integration Section!

General Approaches to HRM: Define hard/soft approaches

Is there any such thing as hard/soft approach?

What evidence is there that your company lends towards one or the other?

There is said to be two ways in which Human Resource Management (HRM) can be approached in a business, through the hard or soft approach. The hard approach emphasis the word "resource" and focuses on the quantitative, planned and tactical aspects of managing the human capital in as "rational" way as any other economic factor would be. (Legge, 2005, p. 105) In contrast the soft approach focuses on the "human aspect, employees are seen as the most important asset and investment in training and development is made to ensure their commitment to the business. (Bratton & Gold, 2003, p. 6)

In an ideal world, each organisation would adopt the approach that fitted with its business strategy best. For example, the "hard" approach would suit tall organisations with an autocratic culture where communication is top down **Citation/Evidence for this?**. Little attention is paid to the needs of the employees and they are paid minimum wage. Organisations best suiting the "soft" approach are flat in structure with a democratic leadership style and communication is a two way system. Employees are proactive and are encouraged to take extra responsibility; their pay is competitive and is usually accompanied with a performance related bonus. (Guest, 1987) **If all of the above is taken from Guest (1987) then it may be best just to begin the paragraph with "As Guest (1987) highlights...."**

The reality of this is that

McDonald's focus on the "soft" approach, they have place a large emphasis on employee training and development, so that every employee can grow and develop within the company. They have also spent a time improving the working conditions and environments of their employees as well as a good benefits package that can be tailored to each employee's individual needs.

A really good start to this section, but a perhaps develop it further and add a table/figure that highlights all of the soft practices (and hard ones too if they exist)

Do the practises in the 4 key areas fit? If so how? If not, why not?

Horizontal integration is described as an internal fit between all aspects of HR. (Li-Qun, 2006)

Okay, not sure whether you are really demonstrating the internal fit below. Perhaps a good way forward is to consider what all the practices aim at, and then, if they all make sense in light of this. For example, you highlight that McDonald's undertake a soft approach to HR. Such an approach aims to increase employee commitment and performance, so you add a table such as this (with an appropriate Title and Source):

Objective	R&S Practices	HRD Practices	RPM Practices	ER Practices
Employee Commitment		Development Opportunities 360 Appraisal	Increased reward for length of service?	
High Performance	Only employ grads of certain calibre (2.1 maybe?)	Management by Objectives PDP's	Performance related pay	

The policies and practises that McDonald's have in place do fit with each other, there is evidence of horizontal integration.

The HR practises that McDonald's have in place feeds into and supports each other across the four key areas of HRM.

Resourcing, reward, training and development and relations

For the graduate schemes, not only do you need the correct qualifications but the right attitude. They believe that challenging people is key and so at every stage of the McDonald's career ladder there are lots of opportunities for growth and development. In order to cater to all of the employees' needs, McDonald's offers a tailored rewards package that can be changed to suit each individual employee. Throughout their time at McDonald's employees are nurtured and encouraged to take on extra responsibilities and challenged on a regular basis.

At every stage, employees are supported and their concerns listened to, however, although they may be listened to it does not mean that something is done about them. (McDonald's, 2012)

Sample 3

This is a good section. You have demonstrated an understanding of Employee relations and why it is important. You also manage to draw on some evidence from John Lewis Partnership. Good work. I have made some comments – they are fairly uncomplicated and relate to referencing and the like.

Introduction

In this section employee relations will be discussed, in particular what benefits to the company for having strong employee relations could bring. Then we will relate these to John Lewis and evaluate their policies on employee relations and discuss if they have the desired effect to create relationships between the company and its employees that are advantageous to the business.

This is a nice succinct introduction. However, it is a little informal – and it may be better to write it in the third person. For example, use “the author’s” instead of “we”

Description

It is contended that to have a successful and motivated workforce it is of optimum importance to have strong employee relations (**Armstrong?**). As cited by Armstrong (2010¹²¹³) “employee relations are generally concerned with managing the employment relationship and developing psychological contract” as it covers a wider spectrum than industrial relations, which usual just involve trade unions and other representatives (Armstrong, 2010)¹⁴. The purpose of having employee relations is to provide benefits for both the company and their employees (Armstrong, 2010). These can include enhanced skills, greater motivation shown by their increased levels of effort, a safer work place as well as more confidence and trust between the employees and management (Armstrong, 2010). As discussed by Marsden (2007) stronger employee relations within a company allows managers to have more control and direction over their employees labour as there is a greater level of trust as they are willing to undertake managements direction, an example of this would be employees being more flexible with working hours (Armstrong, 2010).

Analysis

Employee relations for John Lewis are particularly important as they aim to provide high quality service by recruiting and retaining people of talent and integrity. They do this by engaging with their Partners and listening to them. This maximises their contribution, skills, talents, performance and experience of John Lewis partners (John Lewis 2012) these are attributes that good employee relations provide as discussed previously by Armstrong (2010). The way John Lewis build their employee relations is by maintaining mutual respect and courtesy to one another (John Lewis 2012)

As Quoted by Charlie Mayfield, Chairman, John Lewis Partnership *“Partners are instrumental in all that we do. Our Partners own our business so have a vested interest in its success. They are at the*

¹² Perhaps “noted by” would be better. It is unclear whether Armstrong wrote it, or is citing another author.

¹³ Direct quotes need page numbers.

¹⁴ Don’t need this citation here as you have Armstrong in the same sentence

heart of our service offering, embodying our values of trust, respect and fairness and they are the energy and passion that drives our work to be an ever more responsible and sustainable business.”¹⁵

All employees are partners in the business therefore they all own the business have an share in the success, in the form of benefits and bonuses, this motivates employees to perform to the best of their ability as there is a strong relationship with them and the firm. ¹⁶

Conclusion

From the research conducted about John Lewis’ employee relations it is evident that a keen priority to the company a keystone in the success and providing high quality service. The John Lewis culture supports strong employee relations as the partnership makes employees more equal as well as having a large amount of respect which encourages loyalty.

¹⁵ Need to add a citation for this

¹⁶ And for this too!

Appendix F: Process of thematically analysing the data

This appendix presents examples of the coding process used to thematically analyse the qualitative data generated in this thesis.

Within the thesis different types of qualitative data were generated. Within Study 2 and Study 3 audio data was generated by focus groups and semi-structured interviews respectively. The audio files were then transcribed. Study 3 also made use of textual data, including responses to open questions within questionnaires, and researcher's field notes. Within this appendix, examples of how the coding process was performed for different types of qualitative data are offered.

Within Appendix F.1 examples of the coding process used in the analysis of focus groups are presented. Within Appendix F.2 examples of the coding process used in the analysis of open questions on the 2011/12 module evaluation form is presented.

Appendix F.1.: Examples of the coding process used in the analysis of focus group data

As highlighted within Chapter 3, a number of key questions were asked during each focus group according to the interview schedule; owing to semi-structured nature of the focus groups additional questions were also asked when it was deemed to be appropriate. The key questions were as follows:

1. Have you had any positive experiences during group work?
2. Have you had any negative experiences during group work?
3. Have you found group work to be a good way to share your skills with others?
4. Have you found group work to be a good way to share your beliefs, ideas and opinions with others?
5. Is it easier to share your skills, beliefs, ideas and opinions with group-members you are close to or who are friends, or who are competent, reliable and good at the work?
6. Which of the following allocation methods do you prefer: self-selection, random and engineered¹⁷
7. How can we improve group work?

As noted in the participant information sheet (Appendix B), participants were informed that full transcripts would not be available to anyone other than the researcher. Thus, in the following examples partial extracts from a number of the focus groups transcripts are presented.

¹⁷ Explanations were given

Table F.1 (below) demonstrates the manner in which the open coding process was conducted for a portion for second year focus group. The extract in the Table F.1 contains the following information:

Speaker - This features either the researcher, or the Participant number (the unique identifier of the participant) - demographic details (where available) are provided in Table 3.6)

Text - The transcribed text of the focus group

Other – Observations made during the focus groups of participants' behaviour. Such as body language, utterances of agreement/disagreement, and other impressions gathered by the researcher

Codes - This lists the codes applied to the text by the researcher.

Table F.1: Sample of open coding process within the second year focus group

<u>Speaker</u>	<u>Text</u>	<u>Other</u>	<u>Codes</u>
Researcher	Why don't we start with a general discussion of your positive experiences of group work	Participant 5 laughs - looks amused	Amusement
Participant 5	Positive?	Smiling	Positive experiences uncommon
Researcher	Okay, we can skip positive and go straight to negative	All laugh I don't think this is what they came here to discuss :(Positive experiences uncommon Amusement
Participant 5	All though there is a task given, you don't have to do every single thing, you can divide it in to little groups of people, so... I can do the introductions, so at the end you know you just do each part and put them all together... so I think that's a nice thing		Splitting work is beneficial Saves time
Researcher	Does it work like that in practice?		
Participant 3	Not necessarily, it can sort of end up with one person doing a large majority of it and either this person resents the rest of the group Or then takes all the credit even though they shouldn't have done	Participant 5 agrees	Workload is uneven Others take undue credit
Participant 4	A positive thing is group work you come up with lots of ideas from individuals		Lots of ideas are generated
Researcher	Any negative experiences you have had?		

Table F.1: Continued

Participant 4	I was in group with like two Chinese and one British, I didn't know them I emailed them they didn't reply about where to meet, what to do up until the deadline there was still no reply so I had to do my own – it's my own fault because I was late choosing group	Participant 5 encourages Participant 4 to speak	Difficulty interacting/working with others Have to work alone
Researcher	How did you feel about that?		
Participant 4	I was quite annoyed - group work is always bad		Annoyed by group work Negative experiences common
Researcher	And yourself	To Participant 5	
Participant 5	They chose me as a leader, and so I had to arrange the meeting and I had to like email them and everything and then I had like my other work on top of that and I was still doing it and then we arranged a meeting and they said "Oooh yes" so I was at the library waiting for them and no one turned up.		Leadership foisted Too much work

As described in section 3.6 - the initial phase of the analysis process was to code 'chunks' of data within the transcripts according to the meaning that emerged. A number of codes were used - some of which became the name for later themes. In many cases, multiple codes were added to the same 'chunks' of data when the data appeared to have multiple meaning to the researcher.

Following the open coding phase, categories emerged to the researcher, and data with similar meanings were subsumed under these categories. The following table (F.2) depicts samples of the collated data (and codes) under the category *negative experiences*.

Table F.2: Samples of data under the category *negative experiences*

<u>Speaker</u>	<u>Text</u>	<u>Other</u>	<u>Coded for</u>
Participant 3	Not necessarily, it can sort of end up with one person doing a large majority of it and either this person resents the rest of the group Or then takes all the credit even though they shouldn't have done	Participant 5 agrees	Workload is uneven Others take undue credit
Participant 4	I was in group with like two Chinese and one British, I didn't know them I emailed them they didn't reply about where to meet, what to do up until the deadline there was still no reply so I had to do my own – it's my own fault because I was late choosing group	Participant 5 encourages Participant 4 to speak	Difficulty interacting/working with others Have to work alone
Participant 4	I was quite annoyed - group work is always bad		Annoyed by group work Negative experiences common
Participant 5	They chose me as a leader, and so I had to arrange the meeting and I had to like email them and everything and then I had like my other work on top of that and I was still doing it and then we arranged a meeting and they said "Oooh yes" so I was at the library waiting for them and no one turned up.		Leadership foisted Too much work

Table F.2: Continued

Participant 13	I am a victim of negative experiences	Other participants laugh and smile Sympathetic looks?	Negative experiences Victim
Participant 28	Group work is more time consuming, especially contacting each other and arranging meetings... there can be personality clashes and it is difficult to motivate people if they don't want to take part		Difficulties organising Leadership Others don't want to take part
Participant 25	Yes it's very difficult to involve people who don't want to contribute		Others don't want to take part
Participant 17	Some do their work for the sake of doing it while thinking that the other person will do very well, and that they will take care of the assignment - that person is really good at it and will take care of that assignment, so it is really a dependency and we face all these problems in group work		Depend on motivated people to do the work
Participant 13	Most of the members were free-riders, we were given a deadline but we do the work and they don't, in the end the grade was much lower than it should be	Looks angry Others agree	Negative experiences common Emotional Free-riding Attainment
Participant 3	It can sort of end up with one person doing a large majority of it and either this person resents the rest of the group or then takes all the credit even though they shouldn't have done	Participant 6 agrees	One person does all the work
Participant 9	My only experience of group work is that it is terrible, in the end I did all the work		Negative experience Free riding
Participant 8	I'm not in favour of group work, it was not a good experience for me I had to stay up all night to complete other members work		Doing other peoples work Negative experience

Table F.2: Continued

Participant 22	Some people just come here to get the degree and the certificate because it's good to study in the UK university without the expectation to have an A or whatever, and other people come here, pay much money and maybe have a loan or whatever and really struggling to get the best out of it. And then it's hard if you see that somebody really doesn't care and you are caring a lot and you are all in the same boat. I get the feeling it's just really... What do they want from this, just passing or doing a really good job?"		Inequitable
Participant 18	I think the purpose of group work is not just to finish the work, it's like you face some difficulty like free rider situation, how can you solve this problem. Or how can you... move on? That's one of the skills you need to face when doing your group work, so if you want to do his or her job that's your choice you can do it but you can find another way to solve this problem... yeah		Free riding Learning skills
Participant 23	Like sometimes you got couple people in a group [inaudible] they will be lazy they don't come for any meetings something like that, they can cause problems for others also		Lazy people
Participant 22	Should be some kind of control to avoid people doing nothing		Tutor support Other's don't do anything
Participant 22	Think everyone finds it stressful	Others nod	Stressful Negative common
Participant 20	Yeah it's stressful if people don't turn up and contribute		Stressful Non contributors
Participant 21	Yes because you have to deal with other problems like communications and schedules		Stressful Communication Organising

Following this phase, the data within the categories were re-examined. In the case of the category *negative experience* four themes emerged - under which the data could be subsumed. As noted in Chapter 3, these were that 1) negative experiences were common - and often impacted students emotionally 2) Students faced difficulties with free riding (non-contribution) 3) That leadership and decision making in groups posed a problem, and 4) That there were difficulties working with those of

other cultural backgrounds. Data within category *negative experiences* that were later subsumed under the emergent theme *free riding* are as follows:

- Non contributors
- Other's don't do anything
- Lazy people
- Doing other peoples work
- One person does all the work
- Free-riding
- Depend on motivated people to do the work
- Others don't want to take part
- Workload is uneven

Table F.3 (below) provides a sample of the data subsumed under the emergent theme *free riding*, within the category *negative experiences*

F.3: Sample of the emergence of the *free riding* theme within the category negative experiences

<u>Speaker</u>	<u>Text</u>	<u>Other</u>	<u>Coded for</u>	<u>Theme</u>
Participant 3	Not necessarily, it can sort of end up with one person doing a large majority of it and either this person resents the rest of the group Or then takes all the credit even though they shouldn't have done	Participant 5 agrees	Workload is uneven Others take undue credit	Free riding
Participant 28	Group work is more time consuming, especially contacting each other and arranging meetings... there can be personality clashes and it is difficult to motivate people if they don't want to take part		Difficulties organising Leadership Others don't want to take part	Free riding
Participant 25	Yes it's very difficult to involve people who don't want to contribute		Others don't want to take part	Free riding
Participant 17	Some do their work for the sake of doing it while thinking that the other person will do very well, and that they will take care of the assignment - that person is really good at it and will take care of that assignment, so it is really a dependency and we face all these problems in group work		Depend on motivated people to do the work	Free riding
Participant 13	Most of the members were free-riders, we were given a deadline but we do the work and they don't, in the end the grade was much lower than it should be	Looks angry Others agree	Negative experiences common Emotional Free-riding Attainment	Free riding
Participant 3	It can sort of end up with one person doing a large majority of it and either this person resents the rest of the group or then takes all the credit even though they shouldn't have done	Participant 6 agrees	One person does all the work	Free riding

Table F.3: Continued

Participant 8	I'm not in favour of group work, it was not a good experience for me I had to stay up all night to complete other members work		Doing other peoples work Negative experience	Free riding
Participant 18	I think the purpose of group work is not just to finish the work, it's like you face some difficulty like free rider situation, how can you solve this problem. Or how can you... move on? That's one of the skills you need to face when doing your group work, so if you want to do his or her job that's your choice you can do it but you can find another way to solve this problem... yeah		Free riding Learning skills	Free riding
Participant 23	Like sometimes you got couple people in a group [inaudible] they will be lazy they don't come for any meetings something like that, they can cause problems for others also		Lazy people	Free riding
Participant 22	Should be some kind of control to avoid people doing nothing		Tutor support Other's don't do anything	Free riding
Participant 20	Yeah it's stressful if people don't turn up and contribute		Stressful Non contributors	Free riding

Appendix F.2.: Examples of the coding process used in the analysis of text responses

As described within Chapter 4, students undertaking the 2011/12 ASB 3101 Human Resource Management module were asked to complete an end of module evaluation questionnaire. That questionnaire contained the open question:

"Why did you not make use of the online forum?"

Ultimately, 37 responses were gathered. These responses were subjected to thematic analysis, and patterns within the data emerged. Table F.4 (below) demonstrates the manner in which the open coding process was conducted for the responses gathered. The responses are reproduced in their entirety without alteration. Table F.4 contains the following information:

ID - This is the unique identification number attached to each response

Text - The response provided by the participant

Codes - This lists the codes applied to the text by the researcher.

As described in section 3.6 - the initial phase of the analysis process was to code 'chunks' of data within the responses according to the meaning(s) that emerged. A number of codes were used - some of which became the name for later categories and themes. In some cases, multiple codes were added to the same 'chunks' of data when the data appeared to have multiple meaning to the researcher.

Table F.4: Open coding of responses

ID	Text	Codes
1	Never felt the need to use it, didn't want others reading our work. Happy with the feedback that we received from Bejan	Not needed Happy with feedback
2	Because it is a little bit complicated. Also, I am not very used to it	Complicated to do
3	Too busy trying to get in contact with members of the group	Don't have time
4	Felt it wasn't needed	Didn't need it
5	We just used other way to talk about work	Other solution
6	Cannot tell how it works	Can't use it
7	I never used it because I'm not familiar with it	Not familiar
8	I wasn't aware that there was a forum for sending drafts. I thought it was for groups who wanted to share wat they had done but I was confident that my group was doing everything correctly and didnt need any additional information other than tutorials.	Didn't grasp purpose
9	We were doing this within our group through facebook however this was not used to full advantage by all members of group	Shared within group
10	I did not quite understand how it works and it seemed easier to send emails. Also we established our own system via facebook and google docs	Didn't know how to work it

Table F.4: Continued

11	I REALLY HAS NO TIME TO GO FOR THIS OPPORTUNITY AND ME AND MY GROUP HAD ALREADY ANOTHER ONLINE FORUM TO FOCUS ON GROUP ASSIGNMENTS: FACEBOOK, GOOGLE ACCOUNTS	No time
12	*I didn't know there was an online forum set up!!*	Didn't know
13	I wasn't aware there was one. I wouldn't want just anybody to read my work.	Not aware Don't want others to see
14	I never felt I had anything to say in the public domain, however could it have been possible to set up online fora that could have been used by groups members to communicate with one another which were restricted to group & tutor/lecturer access as I have used elsewhere	Nothing to say
15	I'm a new student in Bangor. I'm sorry about that I don't know the style very much	Didn't know how to use it?
16	People may be reluctant to share their question/views openly	Reluctant to share publicly
17	Receiving feedback from peers you don't know and have never spoken to doesn't seem very appealing. Also, by publicly submitting a draft it means people may directly or indirectly copy some parts of the work, leading to issues about plagiarism and proving who was in the wrong	Copying and plagiarism
18	Private emails are better & more appropriate. Why broadcast questions? Some may make fun	Privacy Losing face
19	I have never used one, therefore don't know how to. Maybe in first tutorial, be shown how to use it	Don't know how Need to be shown
20	Never had any questions that couldn't wait for tutorials. Prefer to email drafts - our work not their to help rest of module - not sure how to put docs on forum.	Didn't need it Don't want to help others Don't know how to use it
21	I think it is better to have feedback from the teacher directly. I don't think it is an opportunity but more of a way for other groups to see what they've done wrong and copy a good work	Prefer tutor Plagiarism
22	There wasn't any time to do this! We already had our own facebook group where discussions were carried on! It would have just been double the work	No time Extra work
23	Drafts submitted were not private over the forum. Worried about other groups maybe using parts of our work. Embarrassing to submit as everyone could read it	Plagiarism Embarrassing
24	I found it a bit embarrassing to submit work as I was unsure whether others could read it. Not wanting to share our work with others in case it was used by them.	Embarrassed Plagiarism
25	Preferred to email drafts privately rather than sharing our work with others (especially if our work was not correct or very weak)	Losing face
26	Didn't got time for this	Time
27	You were easily accessible by email and readily met up with us in person so I didn't really see the need of uploading our work	Unnecessary No point

Table F.4: Continued

28	I forgot about it	Forgot
29	Didn't know about it	Unaware
30	prefer to send drafts to Bejan so that we could get personal feedback - as we were a strong group we wouldnt have used it	Prefer tutor directly Unnecessary
31	We did not feel confident enough in our own work to use a public forum and we much rather just email you directly for suggestions etc.	Not confident in work
32	Contacting Bejan by e-mail or face to face was much easier and I wouldn't to make others aware of our group problems.	Other methods easier Don't want others to know of problems
33	As a group we didn't want to submit our drafts for everyone to read. We e-mailed our drafts to Bejan and he was very good at giving us feedback. This worked well, so we didn't find the need to use the forum	Didn't want others to read Happy with feedback
34	I used emailinh instead.	Alternative
35	Because we had our own facebook group which is a much more familiar resource, that will be checked more regularly as facebook is used by most young individuals much more frequently.	Facebooks easier
36	Not really necessary	Unnecessary
37	We really meant to but my group kept missing our self-set deadlines and work never got done it time to upload it before a chance came to see you in person	Couldn't complete in time

Following the open coding phase, categories emerged to the researcher, and data with similar meanings were subsumed under these categories. The following tables (F.5, F.6, F.7, F.8 and F.9) depict the categorisation of codes (and data) under the five categories that emerged.

Table F.5: Category - Negative consequences

ID	Response	Code	Category
16	People may be reluctant to share their question/views openly	Reluctant to share publicly	Negative consequences
17	Receiving feedback from peers you don't know and have never spoken to doesn't seem very appealing. Also, by publicly submitting a draft it means people may directly or indirectly copy some parts of the work, leading to issues about plagiarism and proving who was in the wrong	Copying and plagiarism	Negative consequences
18	Private emails are better & more appropriate. Why broadcast questions? Some may make fun	Privacy Losing face	Negative consequences
20	our work not their to help rest of module	Don't want to help others	Negative consequences
21	I dont think it is an opportunity but more of a way for other groups to see what theyve done wrong and copy a good work	Plaijarism	Negative consequences
23	Drafts submitted were not private over the forum. Worried about other groups maybe using parts of our work. Embarassing to submit as everyone could read it	Plagiarism Embarassing	Negative consequences
24	I found it a bit embarassing to submit work as I was unsure whether others could read it. Not wanting to share our work with others in case it was used by them.	Embarassed Plagiarism	Negative consequences
25	Preffered to email drafts privately rather than sharing our work with others (especially if our work was not correct or very weak)	Losing face	Negative consequences
31	We did not feel confident enough in our own work to use a public forum and we much rather just email you directly for suggestions etc.	Not confident in work	Negative consequences
13	I wouldnt want just anybody to read my work.	Don't want others to see	Negative consequences
32	I wouldn't to make others aware of our group problems.	Don't want others to know of problems	Negative consequences

Table F.6: Category - Perceived lack of value

ID	Response	Code	Category
20	Never had any questions that couldnt wait for tutorials.	Didn't need it	Perceived lack of value
1	Never felt the need to use it, didn't want others reading our work. Happy with the feedback that we received from Bejan	Not needed Happy with feedback	Perceived lack of value
4	Felt it wasn't needed	Didn't need it	Perceived lack of value
5	We just used other way to talk about work	Other solution	Perceived lack of value
9	We were doing this within our group through facebook however this was not used to full advantage by all members of group	Shared within group	Perceived lack of value
14	I never felt I had anything to say in the public domain, however could it have been possible to set up online fora that could have been used by groups members to communicate with one another which were restricted to group & tutor/lecturer access as I have used elsewhere	Nothing to say	Perceived lack of value
27	You were easily accessible by email and readily met up with us in person so I didn't really see the need of uploading our work	Unnecessary No point	Perceived lack of value
30	prefer to send drafts to Bejan so that we could get personal feedback - as we were a strong group we wouldnt have used it	Prefer tutor directly Unnecessary	Perceived lack of value
33	As a group we didn't want to submit our drafts for everyone to read. We e-mailed our drafts to Bejan and he was very good at giving us feedback. This worked well, so we didn't find the need to use the forum	Didn't want others to read Happy with feedback	Perceived lack of value
34	I used emailinh instead.	Alternative	Perceived lack of value
36	Not really necessary	Unnecessary	Perceived lack of value

Table F.7: Category – Technical difficulties

ID	Response	Code	Category
2	Because it is a little bit complicated. Also, I am not very used to it	Complicated to do	Technical difficulties
6	Cannot tell how it works	Can't use it	Technical difficulties
7	I never used it because I'm not familiar with it	Not familiar	Technical difficulties
10	I did not quite understand how it works and it seemed easier to send emails. Also we established our own system via facebook and google docs	Didn't know how to work it	Technical difficulties
19	I have never used one, therefore don't know how to. Maybe in first tutorial, be shown how to use it	Don't know how Need to be shown	Technical difficulties
35	Because we had our own facebook group which is a much more familiar resource, that will be checked more regularly as facebook is used by most young individuals much more frequently.	Facebooks easier	Technical difficulties

Table F.8: Category – Time

<u>ID</u>	<u>Response</u>	<u>Code</u>	<u>Category</u>
3	Too busy trying to get in contact with members of the group	Don't have time	Time
11	I REALLY HAS NO TIME TO GO FOR THIS OPPORTUNITY AND ME AND MY GROUP HAD ALREADY ANOTHER ONLINE FORUM TO FOCUS ON GROUP ASSIGNMENTS: FACEBOOK, GOOGLE ACCOUNTS	No time	Time
22	There wasn't any time to do this! We already had our own facebook group where discussions were carried on! It would have just been double the work	No time Extra work	Time
26	Didn't got time for this	Time	Time
37	We really meant to but my group kept missing our self-set deadlines and work never got done it time to upload it before a chance came to see you in person	Couldn't complete in time	Time

Table F.9 Category – Unaware

ID	Response	Code	Category
8	I wasn't aware that there was a forum for sending drafts. I thought it was for groups who wanted to share wat they had done but I was confident that my group was doing everything correctly and didnt need any additional information other than tutorials.	Didn't grasp purpose	Unaware
12	*I didn't know there was an online forum set up!!*	Didn't know	Unaware
13	I wasnt aware there was one.	Not aware	Unaware
15	I'm a new student in Bangor. I'm sorry about that I don't know the style very much	Didn't know how to use it?	Unaware
28	I forgot about it	Forgot	Unaware
29	Didn't know about it	Unaware	Unaware

Following this phase, the data within the categories were re-examined. In the case of the category *negative consequences*, two themes emerged to the researcher under which the data could be further subsumed. As noted in Chapter 4, these were that 1) participants feared losing face, and 2) participants were concerned about plagiarism. Not all of the responses categorised under negative experiences could be meaningfully subsumed under these two themes. This is depicted in Table F.10 (below):

Table F.10: Emergence of themes within the category negative consequences

ID	Response	Code	Category	Theme
17	Receiving feedback from peers you don't know and have never spoken to doesn't seem very appealing. Also, by publicly submitting a draft it means people may directly or indirectly copy some parts of the work, leading to issues about plagiarism and proving who was in the wrong	Copying and plagiarism	Negative consequences	Plagiarism
21	I dont think it is an opportunity but more of a way for other groups to see what theyve done wrong and copy a good work	Plaiagarism	Negative consequences	Plagiarism
23	Drafts submitted were not private over the forum. Worried about other groups maybe using parts of our work.	Plagiarism	Negative consequences	Plagiarism
24	Not wanting to share our work with others in case it was used by them.	Plagiarism	Negative consequences	Plagiarism
16	People may be reluctant to share their question/views openly	Reluctant to share publicly	Negative consequences	Losing face
18	Private emails are better & more appropriate. Why broadcast questions? Some may make fun	Privacy Losing face	Negative consequences	Losing face
23	Embarassing to submit as everyone could read it	Embarassing	Negative consequences	Losing face
24	I found it a bit embarassing to submit work as I was unsure whether others could read it.	Embarassed	Negative consequences	Losing face
25	Preffered to email drafts privately rather than sharing our work with others (especially if our work was not correct or very weak)	Losing face	Negative consequences	Losing face
13	I wouldnt want just anybody to read my work.	Don't want others to see	Negative consequences	Losing face
32	I wouldn't to make others aware of our group problems.	Don't want others to know of problems	Negative consequences	Losing face
20	our work not their to help rest of module	Don't want to help others	Negative consequences	
31	We did not feel confident enough in our own work to use a public forum and we much rather just email you directly for suggestions etc.	Not confident in work	Negative consequences	