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**Factors Shaping the Network Dynamics of International Students in UK
Higher Education**

**A Thesis Submitted in Partial Fulfilment of the Requirement for the Degree of
Doctor of Philosophy**

**Information School
The University of Sheffield**

**By
Nashrawan Naser Taha**

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Abstract

There has been an increase in the number of international students in UK Higher Education and as a result a growing number of studies have explored intercultural interaction and international students' adjustment. Most studies have focused on the issue of integration of home with international students, in contexts where the former are a majority. These studies show a persistent lack of interaction among home and international students, which indicates a need to undertake more studies to investigate the issue of multicultural interaction. This study contributes to the debate by attempting to provide a clearer picture of how international students build their social networks; particularly, what factors shape the formation of international students' networks (work and friendship). The main question this research investigates is: what are the factors shaping the network dynamics of international students in a UK HE context. In order to answer this question, the types, characteristics and evolution patterns of these networks need also to be explored.

Methodologically, this research developed a set of methods for collecting social network data appropriate to the research context, one characterised by rapid change. Social Network Analysis (SNA) was combined with qualitative methods; namely interviews, observation and photographs. The research participants were international, postgraduate taught students on a module entitled "Information Systems and the Information Society" in the Information School, University of Sheffield. Being a diverse group they were an appropriate choice to explore social network formation. Data was collected in two stages, where the first stage of study aimed to build a model of the factors that shape the formation of international students' networks. Based on the first stage findings, the second study aimed to test the model at work in another cycle, and to study the impact of some intervention in students' networks, and also to test the package of methods developed in the first stage of research. The research applied community of practice and network analysis theories as frameworks for the study.

The findings of the study were that in a UK higher education context, the main networks international students' have were work, friendship, advice and support (instrumental and personal) networks. Both work and friendship networks were established based on classroom relations, whereas advice and support networks showed continuity with previous networks. Findings also showed that the network visible in the classroom was not the same as that reported by students. International students' networks were found to be shaped by a number of factors. The first stage findings showed that language, same programme and time were the main factors shaping

the formation of international students' networks. The second stage of the study tested and confirmed the factors at work, however, these factors were found to operate in a different way over time. Understanding the forces shaping international students' networks, is beneficial for informing actions for improving network cohesiveness and improving classroom dynamics. The findings of this research could be beneficial for people involved in internationalisation to help them better understand students network, hence encourage the multicultural interaction. Triangulation of methods in studying social networks proved to be effective in overcoming the limitations of each individual method and enabled the understanding of the different aspects of students' social network evolution. It is suggested as a model for other social network research in education or similarly dynamic fields.

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Glossary

CoP	Community of Practice
IoC	Internationalisation of the Curriculum
HEIs	Higher Education Institutions
LPP	Legitimate Peripheral Participation
SN	Social Network
SNA	Social Network Analysis

List of Presentations and Publications Arising from this Thesis

1. Taha, N. & Cox, A.M. (2009). "Developing Mixed Method Social Network Data Collection Tools for Formal Learning Communities". *5th UK Social Networks Conference, University of Greenwich, London, 3rd – 5th July.*
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1. Introduction

1.1. Research Background and Significance

Theories of learning have increasingly recognised its social nature, though this is understood differently by different writers (Vygotsky, 1978; Lave and Wenger, 1991; Haythornthwaite et al., 2000). For example, social constructivism (Vygotsky, 1978) describes the social context as a crucial aspect of learning, where learning occurs through interaction with others in a particular social context. For writers of the social network tradition, interaction and social network connections are important aspects of the learning process (Haythornthwaite, 2005; Haythornthwaite, 2008). Learning in communities is another view of social learning, which advocates learning in a community as a better way of learning, whether in formal (face to face and online) or in informal learning settings (Tinto, 1997b; Tinto, 2000). Writers in the communities of practice (CoP) tradition, such as Lave and Wenger (1991) suggest that learning is social because learners gain knowledge through participation in a community, moving to more central positions in the community.

From a social network perspective, learning networks are important for personal and professional development (Haythornthwaite and De Laat, 2010). In social networks, the relations between actors are considered to be the main elements of analysis, and learning, is considered to be “a social network relation” (Haythornthwaite, 2005; Haythornthwaite, 2008). Having more relations means stronger ties among individuals, which is important for forming the learning network. Weak ties are another type of tie, which is created among acquaintance and based on few relations. Weak ties are also important for a learning network, because of the various types of information and resources they bring (Granovetter, 1983; Haythornthwaite, 2001; Haythornthwaite, 2002b). Having both strong and weak ties increases the sustainability of the learning network.

Community of Practice (COP) theory is another body of work that supports the social view of learning, where participation in a social context considered to be an important aspect of learning. Lave and Wenger (1991), in their situated learning theory, legitimate peripheral participation (LPP) is a concept that describes how learning happens in a social context, however, in a different way from Haythornthwaite’s (2005) view. Through their concept of LPP, Lave and Wenger (1991) suggest that participation in the community is a key for learning, where newcomers gain experience through a continuous interaction with other newcomers and the old timers in the community.

According to Lave and Wenger (1991), the more knowledge and experience an individual has the more central the position they have in the community, hence, the old-timers, who are more knowledgeable, occupy the central position in the learning community. Whereas, the newcomers, who are less experienced, occupy the peripheral position of the community. The social practice of the community is what newcomers need in order to gain the experience and knowledge to move to the centre of the learning community overtime.

Adopting such a social perspective on learning is particularly relevant to the multicultural contexts that have increasingly appeared in higher education as the result of internationalisation. Learning in communities could be useful in encouraging multicultural interaction and improving students' adjustment. This would be important for UK Higher Education institutions, for example, because there has been a dramatic increase in the number of international students in recent years. The influx of students has meant that internationalisation has emerged as an important agenda in universities; with a debate about how exactly universities should respond to the challenge and opportunity posed by the arrival of so many foreign students. Some in this debate have focussed on the problem that international students have of adjusting to unfamiliar modes of learning (Brown, 2009a), where a support network was taken to be important in minimising students problems related to adjustment into new country. Others have argued that there is an opportunity to utilise the cultural diversity in classes to help students to acquire multicultural skills that help them to work and live in a global world. These internationalisation aims encourage a focus on the social aspects of learning, where creating a vibrant learning community expands students' knowledge through the diversity of cultures among its members.

However studies of the integration of international students have revealed many barriers and problems. These studies have shown a lack of interaction among international and home students (Volet and Ang, 1998; Harrison and Peacock, 2007; Ippolito, 2007; Brown, 2009a; Dunne, 2009; Harrison and Peacock, 2009; Peacock and Harrison, 2009), which suggests a need to investigate this issue further. Understanding the factors that create a learning community would be beneficial to achieve the different motives of internationalisation.

There are still many gaps in what we know about international students' social networks. Social networks studies, in general, have found that students build different kinds of networks in their learning (Haythornthwaite, 2008). These are work, information, advice and social support networks. In a multicultural context, there is little known about which networks international

students have, and whether all the networks identified by Haythornthwaite (2008) are created or not in a multicultural context. Previous research on international students' networks has typically either investigated the friendship or work network. Those who have studied friendship networks believe that such a network is crucial in helping international students in their adjustment into a new country (Bochner et al., 1977; Bochner et al., 1985; Furnham and Alibhai, 1985; Brown and Holloway, 2008; Brown, 2009b; Montgomery and McDowell, 2009; Brown, 2010). These studies showed a tendency towards forming co-national friendship networks as students' first option. Work networks, on the other hand, have been mostly indirectly studied, through investigations of the factors shaped the formation of multicultural group work.

From such previous studies several factors have been found to be impacting on the formation of students' friendship and work networks into co-national groups, however, none of these studies showed how these factors operate overtime. Furthermore, previous studies have tended to focus only on the home-international students' integration issue, where the former are a majority. Most of these studies were of undergraduates. There have been some studies in the UK, but we rely for our understanding also on studies conducted in Ireland, Australia and America, where many aspects of the cultural and educational context are likely to be different. Often in the studies the majority of international students were Chinese, whereas the international student body has become increasingly diverse. Sometimes the focus is on studying networks, sometimes friendship. From this previous work, while the factors shaping networks may be the same, some effort has to be made to extrapolate how they would operate in different contexts, such as in post graduate classes or contexts where international students are the majority. It is also important to differentiate work/study related and friendship networks. Thus there are many gaps in our knowledge of international students' networks.

The persistent lack of interaction among home and international students shows that there is still a need to conduct studies to investigate the issue of multicultural interaction. This study contributes to the understanding of this problem providing a clearer picture of how international students build their social networks, particularly, what factors shape the dynamics of international students' networks (work and social). The findings of this study contribute to the knowledge and practice of internationalisation. Furthermore, the study will be of benefit to stakeholders in internationalisation, such as policy makers, institutions and tutors to design more effective programmes that better utilise such cultural diversity hence increase the level of interaction among home and international students that fulfil the internationalisation aims.

1.2. Research Aim

The aim of this research was to study the network dynamics of a multicultural classroom and the factors shaping these networks in a UK Higher Education context.

1.3. Research Questions

Q1. What types of networks do international students form in a UK Higher education context?

Q2. What are the characteristics of these networks?

Q3. How do these networks evolve over time?

Q4. What are the factors shaping international students' networks in a UK HE context?

From a methodological perspective, the research also tried to answer the following question:

Q5. What is a suitable package of data collection and analysis methods to use in order to study the factors shaping the social network formation of international students in a UK higher education context?

1.4. Personal Motive

Being an international student myself was one of the motives that encouraged me to undertake this research. Living the experience of coming to study in a very different educational system and create my own social networks made me part of the context. This carried the risk of creating bias, however, a number of methods were available to overcome the possibility of interpreting the data too much through my individual experiences, such as rigorous methods of data analysis and data triangulation. Systematic coding methods helped identify factors that were outside my more personal experience. Impressions gained through observation were checked by data from interviews. On the positive side, being part of the context has helped me to more easily create rapport and trust with the students being studied, which encouraged them to share their ideas with me and also helped me to understand the experience of learning from a student's perspective.

1.5. Organisation of the Thesis

After this introductory chapter, where the research, background, significance, aims, and objectives and research questions are drawn out, the thesis is organised as follows.

Chapter 2: Literature Review. This chapter consists of two sections that provide a review of the relevant literature. The first section discusses the theoretical background of the study, through two theoretical perspectives: communities of practice and social network theory. This section introduces the main concepts of learning, communities and learning communities, and then compares the different views of communities of practice and social networks theories to learning.

The second section provides a review of internationalisation as a concept used in HEIs. Internationalisation of the curriculum is also introduced in this section. The section also examines the social networks of international students and ends with a comprehensive review of the factors shaping the dynamics of a multicultural classroom.

Chapter 3: Research Methodology. This chapter presents a discussion of the research design and methods that have been adopted to answer the research questions. This begins with a general description of the philosophical assumptions, including the ontological and epistemological assumptions that informed the research design. The following section discusses and justifies the choice of research approach adopted. Applying mixed methods was the approach chosen for this research; namely: social network analysis (SNA) and qualitative methods, which will be then demonstrated. This will be followed by a discussion of the research methods that have been employed in this research; namely: interviews, observation, photographs and SNA. Then the ethics of conducting the research will be explained. The chapter ends by describing the quality criteria implemented in this research.

Chapter 4, Chapter 5 and Chapter 6 are the **findings chapters**. Chapter 4 describes the findings of the first stage of the research, aiming to answer the research questions and to develop a package of methods to be used in similar dynamic contexts. In Chapter 5, the second stage of study will be presented, aiming at examining the findings of the first stage related to the factors shaping international students' networks. It will also test the package of methods developed in the first stage of findings. Chapter 6 summarises the research findings across the two stages of research.

Chapter 7: The discussion chapter. This chapter discusses the significance of the research findings in the light of previous studies. The chapter firstly discusses the types of networks international students develop in a UK HE context. This is then followed by examining the applicability of LPP theory in a multicultural context. The factors shaping international students' networks, and how these operate over time, will be then highlighted.

Chapter 8: Conclusion chapter: This chapter concludes the thesis by summarising the research, discussing the main findings, explaining the main contribution to knowledge and practice, and presenting the main research limitations and suggestions for future research.

2. Literature Review

This chapter provides a comprehensive review of the relevant literature on two topics; learning communities and social networks, and internationalisation of higher education. The chapter provides the theoretical framework the study is built upon; first on social learning, namely communities of practice theory, with a focus on Lave and Wenger's (1991) LPP theory and Haythornthwaite's (2005) use of social network theory. Secondly, internationalisation theories, from two perspectives; intercultural interaction and adjustment are discussed as the relevant context of the research. The chapter first reviews the main concepts of learning, community and learning communities, and also compares the different views of communities of practice and social networks theories to learning. In the second part, internationalisation as a concept used in HEIs and the notion of the internationalisation of the curriculum are discussed. In addition, previous studies of the dynamics of international students' networks and the factors shaping these networks are examined in detail, to build the case for conducting research in these areas.

2.1. Learning Communities and Social Networks

2.1.1. Introduction

Within the social perspective of learning, interaction and social network connections are important aspects of the learning process. In the following sections, different views of social learning from two particular perspectives are explored; namely: community of practice (Lave and Wenger 1991, Wenger, 1999), and Social network theory (Haythornthwaite, 2005; Haythornthwaite, 2008). An overview of the main concepts: learning, communities, and learning communities, are first presented.

2.1.2. Learning

Learning is a concept that has been defined by many people from different perspectives. Early theories of learning, such as behaviourism, which was founded by John Watson (Jarvis et al., 2003; Pritchard, 2009), considers learning to be a process of acquiring desired responses (behaviours); these responses are reinforced by the instructor, who provides conditions that aim to elicit specific behaviours, through punishment/ reward mechanisms. In behaviourism, the learner has a passive

role in the learning process only responding to external stimuli; the learner's mind thus has no role in deciding how or why to learn such behaviour (Ertmer and Newby, 1993; Pritchard, 2009). Unlike behaviourism theory, cognitivism believes learning is a process that is a purely individual mental process, where "learning results when information is stored in memory in an organised, meaningful manner" (Ertmer and Newby, 1993: 59). Cognitivism considers a learner to be an active agent in the process of learning through stressing the importance of the learner's mental ability in the acquisition of knowledge (Barab and Duffy, 2000). However, neither of these theories pays any attention to the value of interaction in the social context to learning. Learning is perceived to be a one-way process and regards individuals as knowledge consumers, who have no role in creating their own knowledge (Rogoff et al., 1996).

There have been an increasing number of theories that stress the importance of the social context in learning, such as social constructivism (Vygotsky, 1978), situated learning theory (Lave and Wenger, 1991) and Social Network Theory (Haythornthwaite, 2005; Haythornthwaite, 2008). These theories place great emphasis on the social context, where learning is considered to be a social activity that enables learners to collaboratively construct their own knowledge (Pritchard, 2009). However, each of these perspectives has a different lens in interpreting the social view of learning.

Within Vygotsky's theory, a key concept is that of the zone of proximal development, which proposes that children can achieve learning goals beyond their "mental development" by interacting with other adults or with the assistance of other "capable peers" (Vygotsky, 1978). This view highlights the importance of interaction to learning, where the "zone" of the actual learning ability can be exceeded with the assistance of people who are more experienced (Vygotsky, 1978). This is illuminated in Lave and Wenger's situated learning theory (1991), who adopt Vygotsky's perspective by viewing learning as "a situated activity" and as "an aspect of all activities" (Lave and Wenger, 1991:38). They stress that learning is an "integral and inseparable aspect of social practice" (Lave and Wenger, 1991: 31), where newcomers gain experience through a continuous interaction with other newcomers and with old timers in the community. Furthermore, Wenger (1999:3) stresses that learning is a fundamentally "social phenomenon, which reflects our social nature to be able to learn". He describes learning, from an ethnographic point of view, as an "integral part of our everyday activities" and as "a changing experience of participation" (Wenger,

2006: 2). From a social network perspective, Haythornthwaite views learning as “a social network¹ relationship” (2005: 1; 2008: 140), where interaction is the key for individuals’ learning and building communities that share “common knowledge and practice” (Haythornthwaite, 2008: 140). Moreover, Brown and Duguid assert the connection between learning through practice in a community by considering the concept of “learning-in-working” to express the true representation of learning through participation in communities. They also view learning as “the bridge between working and innovation” (Brown and Duguid, 1991: 41), by stressing that people can be more innovative when learning together. In a classroom setting, Nieto (1999) also stresses the importance of interactions among students and teachers for learning to develop, where she suggests viewing learning from broadly socio-cultural and socio-political perspectives (Nieto, 1999: 142). All of these perspectives emphasise the importance of social interaction to students’ learning. This social view of learning is relevant to this research, which examines the factors shaping the social network formation of a multicultural classroom, where international students are the majority. The theoretical framework of this study will be interpreted through the lenses of the communities of practice and social networks theories.

2.1.3. Communities

Community is a concept in use since the middle of the 15th century and originates from the Latin words *commune* and *communis* to give the meaning ‘together, in common, and a group of people who have common and shared duties’ (cited in Illera, 2007: 113). A community could be a virtual or a collocated one (Wellman, 1998: 37). However, there is no consensus on a single definition of the community. Some believe that being together “through time and space” (Wenger et al., 2005: 2) and having free access to a community’s different resources and support (Haythornthwaite, 2002a) are important aspects of creating communities. Both of the previous perspectives represent a community by shared relationships. Sharing common goals can be another factor to bring people together, hence creating a community (Brower and Dettinger, 1998). The physical place that enables its members to collaboratively work to create knowledge and share resources is stressed

¹ A social Network is a “set of people (or organisations or other social entities) connected by a set of socially meaningful relationships” Garton, L., Haythornthwaite, C. & Wellman, B. (1997). "Studying online social networks". *Journal of Computer Mediated Communication*, **3** (1), Wellman, B. (1997). "An electronic group is virtually a social network". In: Kiesler, S. (ed.), *The Culture of the Internet*, pp. 179-205. Hillsdale, NJ: Lawrence Erlbaum.

by Fischer et al. (2007: 12) as one of the basic element in building a community. On the other hand, others do not agree with these views; for example Piselli (2007) does not agree on linking community to a place, rather he sees community as “a network of meaningful social relationships with friends, neighbors, relatives and work colleagues who do not necessarily belong to the same residential unit” (Piselli, 2007: 867), which supports Wellman’s (1998) view of community. In network terms, however, communities could be seen as “multiplex dense social network[s]” (Cox, 2008).

Based on the previous views of community, it seems that a group of people could form a community when they have common interests or purpose, whether they are in the same physical place or in a virtual one. They interact among each other in order to learn and achieve the community purpose. This *shared practice* can help them to learn from their participation in their community.

2.1.4. Learning Communities

Although there is no consensus on the meaning of learning, there has been a shift from individual to social learning, where the community’s role is stressed. A community *model* has been widely adopted in various learning settings in order to enhance learning experiences (Tinto, 1997b; Tinto, 1997a; Cross, 1998; Tinto, 1998; Bielaczyc and Collins, 1999; Tinto, 2000; Brook and Oliver, 2002; Wilson and et al., 2004; Brower et al., 2007; Parker, 2009). However, there is no universal agreement on what a learning community implies, or whether to refer to a group of learners as a community or as a network. Some argue that learning communities are a special case of communities of practice² (Lave and Wenger, 1991; Wilson and et al., 2004), whereas others say they are not (Stacey et al., 2005). However, most researchers agree that a learning community should have a “central theme” (Tinto, 1997b: 54) that supports constructing knowledge, hence supporting the constructivism view of learning (Bielaczyc and Collins, 1999).

Brower et al. (2007: 1) define a learning community as a “group of people intentionally brought together to jointly pursue and accomplish specific learning goals”. This definition has some common themes from communities of practice in terms of the common purposes that bind

² “A group of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis” (p.2) Wenger, E. (1999). *Communities of practice: Learning, meaning, and identity*. New York: Cambridge University Press.

community members and their shared practice together towards achieving these goals. However, communities of practice do not come intentionally together; rather, sharing the same interests brings its members together in an unintentional way. Another view of a learning community is taken by Wilson et al. (2004: 1), who differentiate between an informal learning community, which is formed based on common learning goals, whose members work to accomplish these goals; and a bounded (formal) learning community, which is a group that is constrained by a structured teaching setting. More specifically, Brower and Dettinger (1998) proposed a pyramid model for designing a learning community, where they argue that learning communities must integrate three components in order to be called learning communities. These components are academic (curriculum content), social (interpersonal relationships among students, faculty and staff) and physical components (the place where the community meets and resides) (Brower and Dettinger, 1998: 17). Tinto's (2000) view of a learning community seems to implicitly follow Brower and Dettinger's (1998) model. He defines a learning community, from a pedagogical perspective, as a "block scheduling that enables students to take courses together", where collaborative work is the base that learning communities are built on. Working collaboratively to achieve a community's common goals is one of the main components for the sustainability of learning communities (McKegg, 2005; Brower et al., 2007). Wilmer (2009) also stresses the role of collaborative learning as a key element in learning communities. Moreover, Cross (1998) agrees on the importance of collaborative learning as the main theme in learning communities. He justifies people's interests in a learning community by three reasons: "philosophical (because learning communities fit into a changing philosophy of knowledge), research based (because learning communities fit with what research tells us about learning) and pragmatic reasons (because learning communities work)" (1998: 4). He broadly defines a learning community as "a group of people engaged in intellectual interaction for the purpose of learning" (Cross, 1998: 5). Cross's view of a learning community has two main components: the learning purpose, and the interaction between learners to achieve this purpose; however, Cross's (1998) view did not reveal anything about the boundaries of the learning community. Cross's view supports Kowch and Schwier (1997: 1) who define a learning community as "a collection of individuals who are bound together by natural will and a set of *shared ideas* and *ideals*, and who engaged by influencing each other within a learning process". This point of view is related to the above points of view, where it assumes the need for any group to have a common goal, and the need to collaborate in order to learn and build their community. Kowch and Schwier

(1997) suggest that a learning community should be “open” for all learners to join the learning community and have the choice to interact with other learners. This extends learning relationships beyond the traditional boundaries of the learning community, and provides learners with a diverse range of resources to engage in more productive learning (Kowch and Schwier, 1997: 4). The production of “collective knowledge”, produced by being in communities, is the motive for Bielaczyc to call for adopting learning communities. She supports Kowch and Schwier’s (1997) opinion, by encouraging learning beyond the classroom boundaries to include anyone in the students’ communities in order to “bring [a] wide range of knowledge and expertise”, and in addition to help isolated students (those in a marginal position in the community) to be more involved with others and to “integrate their learning with that of the wider society” (2001: 10).

Learning in communities can be online or offline. More research has been conducted on online learning communities, assuming that a face-to-face group can naturally form a community, whereas for a virtual learning group, one has to actively construct a community (Hiltz, 1998; Haythornthwaite, 2002a). Online learning communities refers to “social activity that involves groups of people interacting online, such communities may be of long or short terms, large or small, national or international, and completely or only partially virtual” (Preece and Maloney-Krichmar, 2003). This definition highlights the main difference between online learning communities and offline ones, which is the need for a communication tool to facilitate communication between learners. Nevertheless, learners in online or offline communities have a common purpose of creating shared knowledge by working collaboratively towards achieving this goal.

Even if there is no agreement about a definition of the learning community, researchers agree on adopting a learning community model in different settings because of the considerable benefits they offer in improving learning experiences. For example, Tinto (1998) adopted the learning community model to encourage students to succeed in their “remedial” programme. He has shown that being part of the learning community proved to be effective for students’ success (Tinto, 1998). Learning as a community enabled students to develop “a supportive peer network” that helped them to “bridge the academic-social divide”; also students who were learning in a community performed better than others who did not participate in a learning community (Tinto, 1998: 7). In a different study, Tinto (2000) investigated the effect of a learning community on the academic and social behaviour and persistence of new students in three different institutional settings. He found

that learning communities help students to form a support group, be more involved in the classroom, and improve their learning persistence (Tinto, 2000).

Bielaczyc and Collins (1999) suggest adopting learning communities to help students to be independent learners while at the same time helping them work with other people with different skills and experiences, and to share their learning outcomes. Brower et al. (2007) have also found that creating a learning community among doctoral students had a positive impact on minimising the gap between their teaching and research practice. In their study Brower et al. (2007: 1) propose a learning community model by focusing on identifying four core elements of learning communities. They found that participation is the key point for the learning community members to achieve their goals and build their learning community. Adopting a learning community model also helped doctoral students to improve their writing skills (Parker, 2009).

Another study on the impact of a learning community in a multi-*tertiary* classroom by McKegg (2005), applied an action research methodology. He placed people from similar cultures into the same group, which was facilitated by a same culture tutor. Grouping people according to a shared identity (same culture) proved to be successful in creating a learning community, which in turn improved students' learning experiences, and relationships with each other and with their tutor (McKegg, 2005).

The previous studies have shown the significance and the impact of applying the community model to different learning settings, which calls for adopting, and encouraging the building of, learning communities in various learning settings. In a classroom setting, for example, Tinto (1997b; 1997a; 1998; 2000) suggests building learning communities through the course content. Haythornthwaite et al. (2000), on the other hand, suggest offering multiple means of communication to foster leaning communities among distance learning students. And in a multi-*tertiary* classroom, McKegg (2005) suggests building a learning community through grouping people into similar-culture groups, which were facilitated by a same culture tutor. However, there is a little research based on how students build their own learning communities in a face-to-face multicultural classroom. This research fills this gap in the literature by investigating the factors that shape classroom dynamics in a formal learning context.

2.1.5. Communities of Practice and Learning

Community of Practice (CoP) is one of the theories that advocate the social view of learning, where learning happens through interacting and participation in the community. CoP was first coined by Lave and Wenger (1991) in the context of their *situated learning theory*, where they argue that learning implies participation in communities of practice. Wenger has defined communities of practice as “groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis” (2002: 4). He argues that communities of practice can be found everywhere, and individuals participate in more than one community of practice at the same time (Wenger et al., 2002). However, their role is different from one community to another; be it as core members in one community and marginal members in another one (Wenger, 1998: 2; Wenger et al., 2002). According to Wenger (1999), there are three dimensions that distinguish a community of practice from other social structures. Firstly, it is a *joint enterprise*, which is the main goal or purpose the community has and in which members participate in order to achieve. Secondly, the *mutual engagement* which is the relationship that communities of practice work by and connect its members through; and finally, the *shared repertoire* which are the resources that community members use and produce over time through their participation in their community. Communities of practice were originally formed in informal learning in an organisation; however, if applied to an educational setting, then learning can be seen as the main purpose (*enterprise*) for communities of practice, which is sustained by the participation and the interaction (*mutual engagement*) of its members to produce a set of recourses (*shared repertoire*) that help these communities to achieve their goals. But this could be any kind of learning which aims at acquiring different types of knowledge by interacting with the community’s members and not necessarily in an educational setting. This definition of communities of practice can make us think that we are already members of communities of practice, and that we are members of many groups; we participate, learn, and engage in social relationships in order to build our communities of practice.

In an organisational setting, Brown and Duguid (1991), for example, study the relationship between learning and communities of practice. They support Lave and Wenger’s theory of learning by participating in communities of practice. They consider “learning in working’ is the best way to represent the fluid evolution of learning through practice” (Brown and Duguid, 1991: 41). They

argue that organisations need to encourage the learning that occurs naturally in these emergent communities. This could help organisations to understand how learning and work are managed or done. Because these communities are hidden in organisations, they need to be supported as a real source of getting the learning and work done. Ignoring these communities can “blind the management to the practice and communities that actually make things happen, it can lead to the isolation of learners, who will be unable to acquire the implicit practices required for work” (Brown and Duguid, 1991: 50).

2.1.6. Social Networks and Learning

A social network (SN) is a “set of people (or organisations or other social entities) connected by a set of socially meaningful relationships” (Garton et al., 1997: 1; Wellman, 1997: 1). Social network analysis reveals the patterns of interaction by focusing on the relationships formed among people in the community (Wasserman and Faust, 1994; Knoke and Yang, 2008).

In social networks, actors, relationships, and ties constitute the whole network. Actors differ from one community to another; they are teachers and students in the learning network; they are the researchers or colleagues in the knowledge building community; or they could be co-workers or collaborators in communities of practice (Haythornthwaite, 2008). Relationships also are recognised by their content, direction and strength; they could be a work relationship, a friendship relationship or a social relationship. Delivery and receipt of information are two identified relationships in learning communities; also “pooling of knowledge, construction of common meanings and generation of new meaning and practices are other aspect[s] of learning relation” (Haythornthwaite, 2008: 144).

The primary concern in the social network approach is the relationships that bind individuals, which determine their position in the network. Understanding the different relationships involved in learning can help to support the cohesion of the learning community (Haythornthwaite, 2008: 143). Mapping the individuals’ relationships can delineate the structure of the whole network, and show the role of each individual in the network. The more relationships an individual has with others, the better the position he/she has in the network. For example, being in the centre of the network means that an individual is having the majority of relationships with others in the network, whereas being a gatekeeper means being in a position that brings information from

outside the network to people inside the network; finally, being a bridge is to be in a position that connects two different networks (Haythornthwaite, 2008: 142).

Both communities of practice and social network theory stress the social aspect to learning. However, there are differences about how each theory interprets the dynamic of the learning process. In the following section, the similarities and differences between these two perspectives are discussed.

2.1.7. Learning from the Community of Practice and Social Network Perspectives

Interaction among individuals in the learning community is the key element for study from both communities of practice (CoP) and social network (SN) perspectives. Both Wenger (1999) and Haythornthwaite (2005; 2008) agree on the social view of learning. Wenger's perspective focuses on the learning in communities of practice, defining learning to be "a fundamentally social phenomenon, which reflects our social nature to be able to learn" (Wenger, 1999: 3). Haythornthwaite discusses learning from a social network perspective describing learning as "a social network relationship", in which learners exchange, share, deliver, and receive different experiences (2005: 1; 2008: 140).

Wenger's main interest is in the naturally occurring learning embedded in organisations as learning networks, and the importance of an individuals' position in these learning networks. Lave and Wenger's (1991) Legitimate Peripheral Participation (LPP) theory, for example, is a social theory of learning that stresses the need to be an active participant in communities of practice (CoP) in order to acquire knowledge and move to a central position of the network. From this analytical view of social learning, Lave and Wenger classify people in the network according to the knowledge and experience they have. The old-timers, who are more knowledgeable, occupy the central position in the learning network, and the newcomers, who are less experienced, occupy the peripheral position. The social practice in the community is what newcomers need in order to gain the experience and knowledge to move in time to the centre of the learning network. At the same time, interaction between peripheral participants is recognised as a significant learning process. Wenger (1999) also recognises the importance of boundary spanners when learning is between communities. Thus the community of practice literature recognises a number of learning processes,

linked to network configurations and dynamics. Dynamics between masters at the core of the practice; between such core participants and peripheral participants; among peripheral participants themselves; and by boundary spanners across community borders, are all recognised as having some role in learning. Nevertheless, the very term 'community of practice' perhaps emphasises the importance of strong and sustained interaction in a cohesive community.

Haythornthwaite argues that "learning is predicated on the interaction between individuals" (Haythornthwaite, 2008: 140). She argues that the more interaction there is in a network, the more people learn from each other and from being in a learning network. Hence, in order to understand learning, the different patterns of interaction in the learning network need to be delineated. For Haythornthwaite, the main components of the learning network are the different relationships that learners create by collaboratively interacting with each other. These relationships could, in addition to learning, be friendship, advice and support relationships (2002a). Sharing more than one relationship creates strong ties and sharing one direct or indirect relationship maintains weak ties which may evolve to become strong ties in time (2002b). She argues that a learning community needs both of these ties because of the different resources they bring to the community, which entails both the sustainability and the connectedness of this community. Strong ties are important for personal support and weak ties are important for the diversity of resources they have. The interaction patterns of individuals in the network shape the learning network. For example, a learning network will be a more cohesive network (the network is connected as everyone in the network can reach any other member of the network) if everyone in the network is interacting with each other creating different kinds of relationships. On the other hand, if some individuals are not communicating with others in the network, this might result in their being an isolate in the network (not connected to anyone in the network).

Both Haythornthwaite and Wenger stress the importance of the social practice and interaction among people in the network as key in order to build and sustain these learning networks. On the other hand, for Haythornthwaite the individuals who are in the centre of the social network are not central because they are more knowledgeable, but simply because they have more relationships with others in the network. Also, those who are at the boundaries (weak ties) are considered to have an important position that strengthens the network by the different learning resources they can bring from other networks they are connected to. This is given less emphasis by Wenger, who

does seem to favour strongly cohesive networks. Haythornthwaite is less clear about the importance of the range of positions people might have in their learning network.

2.1.8. Summary

In this section, the theoretical background of the study was discussed through two perspectives: communities of practice and social network theory. As the focus of this research is on the dynamic of a learning group, learning as concept was discussed first, followed by a review of how learning communities are defined and applied in different contexts. Then a comparison of the different views of communities of practice and social networks theories to learning was presented.

2.2. Internationalisation of Higher Education

2.2.1. Introduction

In recent years, Higher Education (HE) has witnessed an increase in the number of international students in its institutions. In the UK specifically, the percentage of taught postgraduate students from outside the EU had risen to 43% by the year 2008/2009 (UKCISA 2011). The influx of international students led to the creation of internationalisation in HEI. The debate about the meaning of internationalisation has been shaped by a number of motives and goals. Early thinking on internationalisation was aimed at helping international students integrate into the UK educational system, which implies their need to build a network with home students, where the later were assumed to be the knowledge provider. However, this view of internationalisation has gradually changed, to viewing international students as adding value to the host educational system, based on the cultural differences they bring. The variation in these perspectives has made internationalisation an ambiguous concept that has many interpretations.

Previous studies of internationalisation have tended to focus on the mixing of home and international students, where the former are the majority. The studies are also often of undergraduates. Sometimes the focus is on work networks, sometimes friendship ones. There have been many studies in the UK, but also in Ireland, Australia and America, where many aspects of the cultural and educational context are likely to be different. Often in the studies the majority of international students were Chinese, whereas nowadays the international student body has become increasingly diverse. While the factors at work in shaping networks may be the same, some work has to still be done to extrapolate how they would operate in different contexts, such as in postgraduate classes or in contexts where international students are the majority. It is also important to differentiate work/study-related and friendship networks. The research reported in this thesis provides another dimension to the internationalisation process through a study of the social network dynamics of international students. Understanding how international students build and use their social networks will provide a better and more holistic picture to help design new strategies for internationalisation, hence helping it to achieve its goals.

2.2.2. Internationalisation Rationale

Internationalisation has been perceived differently, where each institution has its own motives for implementing internationalisation strategies. Some institutions considered economic motives as the main motive for adopting internationalisation strategies (De Vita and Case, 2003). Others thought of internationalisation from an adjustment point of view, believing that international students need support in order to adjust to new social and educational culture (Kinnell, 1990; Ying, 2002; Brown and Holloway, 2008; Brown, 2010). According to Knight (1999), and Knight and De Wit (1995), internationalisation was driven by four motives; these are: political, economic, academic and cultural/ social (Knight and De Wit, 1995: 9; Knight, 1999: 17). Economic motives were agreed to be the main driver for internationalisation and for some of its consequences, such as internationalisation of the curriculum (Leask, 2001; De Vita and Case, 2003; Qiang, 2003; Altbach and Knight, 2007; Harrison and Peacock, 2007; Luxon and Peelo, 2009). This, in some cases, can be the only driver for the “profit sector” and for “some traditional non-profit universities with financial problems” (Altbach and Knight, 2007: 292). However, the debate on internationalisation motives has recently changed to focus on the cultural diversity and the value it brings to the quality of the host educational and social systems. In addition, it helps host students to gain multicultural competences that enable them to work in a global world. This is stressed by different researchers who believe that teaching and learning experiences are key elements of internationalisation (Luxon and Peelo, 2009). Leask (2005) also stresses other motives for internationalisation; these include: “preparing students for an internationally recognised and accredited examination; the development of graduates who can be active citizens; catering for the needs of an increased number of international students in classes; and compliance with university policy” (Leask, 2005: 119)

Internationalisation of the curriculum was one of the internationalisation consequences that aimed at improving international students’ engagement in the course, hence encouraging intercultural learning. However, previous studies show the low level of interaction among home and international students. This means that the internationalisation aims were not being fully achieved; hence, the calls for more research to investigate this issue. In the light of the above issues, internationalisation and internationalisation of the curriculum are discussed in the following sections.

2.2.3. Internationalisation Definition

There is much debate on what internationalisation means. This is reflected through the use of the internationalisation concept to refer to different meanings. “Internationalisation is not a new phenomenon”, which has been used in different contexts for different purposes (Abdullahi et al., 2007: 8). Universities in countries such as the UK, USA, Canada and Australia have been participating in internationalisation activities for decades, some even for a century (Altbach and Knight, 2007). Many researchers agree that internationalisation is an ambiguous and dynamic concept that has different interpretations (Knight and De Wit, 1995; Knight, 1999; Schoorman, 1999; Schoorman, 2000; Knight, 2004; Leask, 2004; Abdullahi et al., 2007; Elkin et al., 2008).

The term internationalisation has been widely used as an indication of the growing interest in exploring the *international dimension*³ in higher education (Knight, 1999). Knight (1999: 14) suggests that internationalisation of higher education is “the way a country responds to the impact of globalisation”, where globalisation is “the flow of technology, economy, knowledge, people, values, ideas ... across borders” (Knight, 1999: 14). This is emphasised by Altbach and Knight (2007: 290) who believe that internationalisation involves “the policies and practices undertaken by academic systems and institutions to cope with [the] global academic environment”. This perspective is explained further in Knight’s “working” definition, in which she proposes internationalisation as “the process of integrating an international, intercultural or global dimension into the purpose, function or delivery of post secondary education” (Knight, 2004: 11).

Knight’s (2004) definition is an extension to the previous definition (Knight, 1999: 16), where she describes it as a not “country-oriented” definition, but rather involves all cultures within a country; also, it is a “rationale neutral” definition, where each institution has its own motives for implementing internationalisation strategies (Knight, 1999). However, this definition has only one perspective on internationalisation that is limited to the strategies and policies applied by institutions, and does not include the different perspectives of all *stakeholders* involved in the internationalisation process, such as the staff and students. Reflecting on Knight’s (1999) definition, Qiang (2003: 250) summarises internationalisation as not being “an aim in itself, but an important resource in the development of higher education towards a system in line with international

³ International dimension is defined as the “perspective, activity or programme which introduces or integrates an international/ intercultural/ global outlook into the major functions of a university or college” (cited in (Knight, 1999: 16)).

standards...open and responsive to its goals". Elkin and et al. (2008) have expanded Knight's (1999) definition, which focuses on policies adopted at institutional levels. They suggest that internationalisation's aims should be designed to equally benefit both international and domestic students. They also suggest that internationalisation should aim to create "global perspectives, international, and cultural and ethical sensitivity along with useful knowledge, skills and attitudes for the globalised market place" (Elkin et al., 2008: 241). Elkin et al. (2008) went further in their definition and suggest a visual representation of the current and desired internationalisation process. However, many researchers are critical of Knight's definitions (1999; 2004) for their focus on the institution level only, and for representing only one aspect of internationalisation, the traditional form of internationalisation. It can also be seen that Knight's definition has only focused on the strategies and policies of institutions, regardless of their use or applicability to the people involved in internationalisation, such as staff and students.

Leask (2004: 336), on the other hand, believes internationalisation refers to "the mobility of students". She stresses that students can now be seen as international students in terms of their "virtual mobility" (Leask, 2004: 337). She also describes the international perspective (*dimension*) by the skills and knowledge that students acquire that enable them to create an international perspective, where they understand the cultural differences and their role in creating knowledge and practice within a discipline (Leask, 2005). This stresses Knight and De Wit's (1995: 13) definition of internationalisation, where they also focus on the knowledge and skills needed to prepare all members involved in the internationalisation process, such as faculty members, staff and students, to be able to work in an "international and intercultural context". Leask adds that Information and Communication Technology (ICT) use could give internationalisation a new dimension through "opening up new opportunities for higher education institutions to internationalise the learning experience of all students, rather than only those who are able to be mobile" (Leask, 2004: 337).

Shoorman (1999; 2000) proposes a different definition of internationalisation from the previous ones. He defines internationalisation based on "pedagogical concerns", unlike other researchers who view internationalisation from an institutional perspective (Knight and De Wit, 1995; Knight, 1999; Knight, 2004). He suggests viewing "internationalisation as an educational process", which is reflected in his definition of internationalisation:

“An ongoing, counter-hegemonic educational process that occurs in an international context of knowledge and practice where societies are viewed [as] subsystems of a larger, inclusive world. The process of internationalisation as an educational institution entails a comprehensive, multi-faceted program of action that is integrated into all aspects of education” (Schoorman, 1999: 21; Schoorman, 2000: 1).

Schoorman (1999: 20; 2000: 1) builds his definition on a theoretical framework; the “critical pedagogical theory” and the “general system theory”, to provide what he calls an “idealised conceptualisation” of internationalisation. His definitions imply viewing universities as organisations, in terms of their involvement in the process of internationalisation, and their continuous interaction with the environment (global) (Schoorman, 1999; Schoorman, 2000). This suggests the integration of an “international aspect” into all aspects of education, and engaging all members at the university (faculty members and international students) in the internationalisation process (Schoorman, 1999; Schoorman, 2000). His perspective also suggests viewing the diversity of international students as an important element for the internationalisation process, which provides students with multicultural perspectives that enable them to live as global citizens (Schoorman, 1999: 24). Luxon and Peelo (2009) support Schoorman (2000) by suggesting that the teaching and learning experience must be central in any explicitly mentioned definition of internationalisation.

From the above discussion, internationalisation seems to bear more than one interpretation, which is summarised by Knight and De Wit (1995: 16): “there is no simple, unique or all encompassing definition [which] may summarise the current sentiment and situation in several countries regarding the meaning of internationalisation”. More interpretations of internationalisations are discussed in (Knight and De Wit, 1995) and a comprehensive description of the evolution of internationalisation concept can be found in (Knight and De Wit, 1995) and (Knight, 2004).

2.2.4. Internationalisation Strategies and Approaches

In order to internationalise institutions, different strategies need to be implemented, both at programme and organisational levels. Both organisational and programme strategies are needed to “complement and reinforce each other” (Knight, 1999: 23). According to Knight and De Wit (1995), and Knight (1999), internationalisation includes four approaches that complement one another (Table 2.1). The common approach is the *activity* approach, which corresponds to a specific activity

or programme that the international dimension is described by. The *competency* approach considers developing knowledge, skills, interests, values and attitudes of the students as main measures of quality in education. Creating a supporting environment for international/intercultural initiatives is represented by the *ethos* approach. And finally, the *process* approach, which is the practical approach, is where the international activities are applied to the teaching and learning processes.

Approach	Description
Activity	Categories or types of activities used to describe internationalisation: such as curriculum, students/faculty exchanges, technical assistance and international students.
Competency	Development of new skills, knowledge, attitudes and values in students, faculty and staff.
Ethos	Emphasis is on creating a culture or climate on campus which promotes and supports international/intercultural initiatives.
Process	Integration or infusion of an international or intercultural dimension into teaching, research and service through a combination of a wide range of activities, policies, and procedures.

Table 2. 1: Approaches to internationalisation (Knight, 1999: 15) (Knight and De Wit, 1995: 16)

2.2.5. Internationalisation of the Curriculum

Internationalisation of the Curriculum (IoC) has emerged as a response to the internationalisation of higher education, which was an impact of the significant growth in the number of international students on local campuses (Skelton, 2005; Webb, 2005). Much as with internationalisation, there is no consensus on what internationalisation of the curriculum means. Leask (1999) asserts that IoC is a dynamic process that is challenging to put into practice and requires careful planning. Some researchers did not even distinguish between internationalisation and internationalisation of the curriculum by simply viewing both of them as either a “logical response for globalisation” or as “introducing an element of multiculturalism” (Jackson, 2003: 325). Others consider including an international aspect in the curriculum as a motive for internationalisation (Altbach and Knight, 2007).

According to Clifford and Joseph (2005: 1):

Internationalisation of the curriculum is about students developing global perspectives and cross-cultural capability in order to be able to perform professionally and socially in a multicultural environment.

This is a broad definition, which points to the goal of internationalisation of the curriculum in helping students gain multicultural skills that enable them to work and live in a global world. However, it does not mention how to implement this international perspective, or why. This can be clarified by Leask's (1999) view of IoC, which she describes as a goal of internationalisation that can be achieved through embedding internationalisation policies into the academic practices of the institution at all levels in order to provide a suitable educational experience for all students (Leask, 1999). This is implicitly stressed by Webb (2005), who believes that the changing of teaching and learning practices is an IoC approach, which can be reflected in changing the role of teachers and students to be active members in the knowledge building process (Webb, 2005). Qiang (2003: 250) supports Webb's view by interpreting IoC as a "means towards developing the appropriate competencies in the students, staff and faculty". This view reflects implementing the competence approach described by Knight (1999; 2004), and Knight and De Wit (1995), where they agree on the centrality of the people involved in the IoC process. Luxon and Peelo (2009) also have the same opinion that students should be considered as an important element when designing IoC. Haigh (2002: 52) also stresses the previous views, where he believes that IoC is a way of integrating students of diverse cultures through designing a curriculum that suits students from different backgrounds and helps them to develop skills that enable them to work in a global world. Leask (2004: 337) adds that internationalisation of the curriculum can be seen differently by using ICTs in education, which gives the concepts of "international students" and "internationalisation of the curriculum" another dimension.

Leask (2005) focuses on the strategies needed for IoC, which she describes as creating carefully planned teaching and learning strategies that aim to prepare individuals to develop an international perspective. By contrast, Webb (2005) focuses on the diversity of cultural values which need to be included when implementing IoC strategies. He describes internationalisation of the curriculum by stating that it "incorporates a range of values including openness, tolerance and culturally inclusive behaviour, which are necessary to ensure that cultural differences are heard and explored" (Webb, 2005: 110).

According to Leask (2001: 102) internationalisation of the curriculum involves three main areas of interest; these are: course design, developing international perspectives in students, and building teaching and learning strategies for internationalisation. This view is expanded by Morey who, more explicitly, suggests implementing internationalisation of the curriculum through four course components, namely: the content, the assessment, the instructional strategy, and classroom dynamics (2000: 30). These components can be changed differently according to three levels: exclusive, inclusive and transformed, which have distinct perspectives on the role of the teacher and students. Consequently, each level differs in its response to the multicultural perspective, where teachers can determine the level and components to change based on his/her goals of internationalisation of the curriculum (Morey, 2000).

IoC is perceived to have great benefits either on the institutional or the individual level (Knight and De Wit, 1995). Some of these benefits are related to host students, in terms of providing them with a multicultural perspective through the curriculum, which enables them to work in “a shrinking, multicultural and global community” (Leask, 2005: 119). Other benefits stem from helping international students to adjust into the new cultural and educational system (Brown and Holloway, 2008; Brown, 2009a; Brown, 2009b; Brown, 2009c; Brown, 2010). However, the initial motives were purely economic (Leask, 1999; De Vita and Case, 2003).

However, De Vita and Case (2003) argue that internationalisation of the curriculum should not be treated as a commodity and students as customers, which stems from purely commercial purposes. They support Morey’s (2000) model of internationalisation of the curriculum by suggesting a real change in the pedagogy, in the role of teacher/student and in the assessment process, in order for IoC to be successfully implemented into HE. De Vita and Case (2003) call for a more culturally inclusive pedagogy that adopts different learning styles to suit the different cultural backgrounds.

In further research, De Vita shows that the multicultural context has diverse learning styles that could improve the experience of all students in such a context (De Vita, 2001). He also calls for change in the teacher’s role to being more of a facilitator rather than a spoon feeder to help students be more “mature” and be responsible for their own learning. He also calls for change in the assessment process to include student’s preferences that should be designed based on individual differences (weakness and strengths), and that students should be given the option of how to be assessed and when to be assessed (De Vita, 2001: 393). Leask (1999) agrees with De Vita and Case (2003) about the important role that university staff have in the internationalisation of the

curriculum. This role requires university staff to develop new knowledge and skills, attitudes and values (Leask, 1999). She also calls for changing the teaching practice, to not only focusing on the diffusion of knowledge, but also allowing students to be part of the curriculum to reflect the cultural diversity, which she referred to as “putting policy into practice”. This is exactly what De Vita and Case (2003) call for to successfully implement the internationalisation of the curriculum.

The previous discussion shows the different views of IOC, and how it is perceived differently by adopting a multicultural perspective as an institutional policy that aims to achieve institutional goals, or as a pedagogical perspective, which changes the teaching and learning styles through the cultural diversity lens. The research reported in this thesis is more concerned with the pedagogical perspective, where the internationalisation of the curriculum is implemented through different components of the course as Morey suggests (Morey, 2000). One of these elements is classroom dynamics, which is the focus of this research. The following section highlights the significance of studying the social network dynamics of international students in the context of internationalisation. This will be followed by a review of different factors shaping classroom dynamics in a multicultural context.

2.2.6. Internationalisation and Social Networks

As mentioned earlier, various motives (perspectives) influenced adopting the internationalisation process in HE. This was initially driven by the economic motive (Leask, 2001; De Vita and Case, 2003; Qiang, 2003; Altbach and Knight, 2007; Harrison and Peacock, 2007; Luxon and Peelo, 2009). The other motive influencing internationalisation of higher education stemmed from the adjustment motive, which implies that international students need to be supported to be able to adjust to the new social and academic culture (Brown and Holloway, 2008; Brown, 2010). The third view of internationalisation, which is currently the dominant view in internationalisation research, is the diversity view. This view is engendered from the non-deficit model, where cultural diversity is believed to be of added value to the host educational system (Schoorman, 1999; Knight, 2004; Altbach and Knight, 2007; Elkin et al., 2008; Montgomery and McDowell, 2009).

Within the diverse perspectives of internationalisation in higher education, understanding the social network dynamics of international students would shed more light on implementing internationalisation in a higher education context. To be precise, only two perspectives of internationalisation would be illuminated through studying the social network dynamics of

international students, which is the focus of this thesis; these are the adjustment and the diversity perspectives.

Advocates of the adjustment perspective believe that international students need to adjust to the new system. Hence they need to be supported in building social networks, which were found to be significant to adjusting quickly to the new educational and social culture (Montgomery and McDowell, 2009). Helping students to build a support network, regardless the nationality of people in this network is the main concern of this view. However, UK students would be a good source of knowledge to learn about the UK system; hence, it would be beneficial for international students to seek UK friends. The adjustment perspective will consequently benefit from the findings of this research through understanding how international students build and use their social networks for learning and support, and identifying what factors shape the social network dynamics, would add to the findings of adjustment studies.

As for the supporters of the diversity perspective, international students are believed to be a valuable source of knowledge, where interaction among home and international students is considered to be beneficial for students to gain cultural competence to be able to work and live in an increasingly globalised world. In this context, it is important to understand how international students build and use their social networks, and what shapes these networks, which in turn helps in understanding the classroom dynamic, hence maximising the level of interaction among home and international students.

Intercultural interaction that builds social networks is important to achieving the goals of the two perspectives; however, there have only been a limited number of studies that investigated international students' social networks. Few studies found in the literature address the issue of international students' social networks, for example (Bochner et al., 1977; Bochner et al., 1985; Furnham and Alibhai, 1985), and how this impacts on their learning and adjustment (Brown, 2009a; Montgomery and McDowell, 2009). However, these studies have only focused on one type of network; either friendship or work networks. For example, researchers looking at adjustments have only focused on friendship networks and what factors influenced building these networks; whereas, researchers considering the diversity perspective have focused on the work network, more specifically studying the factors that influenced students working in intercultural groups.

In the following section, the different types of international students' friendship networks are discussed. This is followed by a discussion of the factors shaping students' social network formation, from two different perspectives: adjustment and diversity.

2.2.7. International Students' Social Networks

A number of studies have been conducted in different contexts to investigate the different types of social networks (work and friendship) among home and international students in the classroom. This was engendered, based on internationalisation perspectives, either from an adjustment research approach, where international students were supported to build a social network that helps them adjust in the new country; or from knowledge building motives, where interaction among home and international students was encouraged to help students gain a multicultural perspective. However, previous research has shown a relatively low level of interaction among home and international students (Bochner et al., 1985; Volet and Ang, 1998; Maundeni, 2001; De Vita, 2005; Harrison and Peacock, 2007; Peacock and Harrison, 2009; Brown, 2010). In the following section, a discussion of the empirical studies describing these social networks is presented. This is followed by a review of the factors that shape international students' social network dynamics in an educational setting.

2.2.8. Friendship Networks of International Students

Few studies were found to investigate the social networks of international students. One of these studies is by Bochner et al. (1977), who studied the friendship patterns of international students in an American university. They provide a model that classifies international students' friendship networks into three different types. These are co-national networks, where international students form a friendship relationship with people who share the same language and culture. Another type of friendship network is with host students, where foreign students build a friendship relationship with American students to serve instrumental purposes (everyday help, e. g. where to find things). And the third pattern of friendship network is with other international students, which works as a "recreational network". Their findings suggest that a co-national friendship network is the main network among foreign students. This is followed by the friendship network with host students; the third type of friendship network is built based on a relationship with other international students.

In a British university, Furnham et al. (1985) repeated Bochner et al.'s (1977) study but with a larger number of participants. They confirm Bochner et al.'s (1977) model of international students'

friendship networks. However, their study has shown that international students' first choice of friendship is with their compatriots; this is followed by having a friendship with other international students, and their last choice of friendship is with host students. This differs from Bochner et al.'s (1977) model, where a friendship network of international students with host students was preferred over the one with other nationalities. Having a co-national friendship network seems to be dominant in an intercultural classroom, which was also shown by another study by Bochner et al. (1985), who confirmed the previous findings of students' preferences to form co-national friendship networks (Bochner et al., 1977; Furnham and Alibhai, 1985). Their study of the friendship pattern of host and international students also shows that there was hardly any social interaction among international and host students (Bochner et al., 1985).

Both Bochner et al. (1977) and Furnham et al. (1985) were successful in reporting the pattern of friendship networks in a multicultural classroom. However, they did not explain these results or what factors created such patterns; also, they only focused on a friendship network. Their studies provide an initial step towards exploring international students' social network dynamics. The research presented in this thesis provides a more comprehensive study of international student's different social networks. It extends Bochner et al.'s (1977) Furnham et al.'s (1985) previous research by studying the different types of international students' social networks and the factors shaping their dynamics.

2.2.9. Factors Shaping Friendship Network Formation in a Culturally-Mixed Classroom: An Adjustment Perspective

Adjustment is another aspect of internationalisation issues in UK universities. In the context of internationalisation, adjustment is "the process and outcomes of change experienced during the international sojourn" (Brown, 2009c: 503). Brown (2009a; 2009b; 2010) and Brown and Holloway (2008) have conducted comprehensive ethnographic studies in order to study international students' adjustment in a UK higher education context. Brown stresses that the process of adjustment is "dynamic" and shaped by different factors. These factors were individual, cultural and external factors. Her study was another confirmation of the previous findings (Bochner et al., 1977; Furnham and Alibhai, 1985), which showed that friendship networks were composed from "co-national" groups. This is due to sharing common factors, such as language, heritage, access to instrumental support and fear of discrimination from host students (Brown, 2009b; Brown, 2009a). She found that these co-national friendship networks played an important role in students'

adjustment (Brown, 2009a; 2009b; 2008). These co-national groups are normally formed early in the course, due to sharing the same language, culture and experience of being international students in a UK university. This was also supported by (Montgomery and McDowell, 2009).

Yeh and Inose's (2003) study has revealed some factors involved in how international students adapt to a new cultural environment. In a quantitative study, they found that language proficiency, social connectedness and having a social support network were positively correlated with adjustment to a new culture. These findings confirm some of the factors that had been found by Brown (2009a), such as language.

Dunne (2009) also shows that home students prefer to socialise and work in co-national groups. He confirms Brown's (2009b) findings, but from a host students' perspective. Dunne (2009) deploys grounded theory to study host students' perspective of working in culturally diverse groups in an Irish university. The students were undergraduate students from three different programmes, which were chosen because the majority of students were international. Dunne's (2009) findings show that host students also tend to build their friendship networks based on the nationality factor. Time was also important in Dunne's (2009) study, where he found that students build their friendship networks even before international students register for their course. His findings confirmed that nationality is an important factor for students' preference of group members. Dunne has also found that age was another factor that was perceived as culturally different (Dunne, 2009), which was also shown by (Harrison and Peacock, 2007; Harrison and Peacock, 2009; Peacock and Harrison, 2009) (this is discussed in more detail in section 2.2.12).

Montgomery and McDowell (2009) studied international students' social networks and their impact on international students' academic and social life in the UK. Also, whether home students were part of the international students' social network, and if the latter needed to develop relationships with home students in order to succeed in their academic life. Interestingly, the findings of the study showed international students maintaining their social networks with other international students, where previous studies confirmed the formation of co-national networks (Bochner et al., 1977; Bochner et al., 1985; Furnham and Alibhai, 1985; Brown and Holloway, 2008; Brown, 2009a; 2009b; 2010).

Both Montgomery and McDowell's (2009) and Brown's (2009b) studies found being in mono-cultural groups did not affect international students developing cultural understanding and

competence. On the contrary, international students were found to be able to adapt to their new life in the UK without the need to have relationships with home students. This was maintained through having strong social networks with each other and with other international students that supported their needs at both the academic and the social levels. Montgomery and McDowell (2009) suggested more studies need to be conducted to explore the factors that impacted on students' attitudes towards working in a multicultural work group.

2.2.10. International Students' Work Network

As mentioned earlier, some approaches to internationalisation advocate interaction among home and international students in the classroom, or around coursework, as the main sources for intercultural learning. One approach to promoting this interaction is through internationalisation of the curriculum, where changes can be through different elements of the curriculum, such as content, teaching and learning styles, and the assessment form used (Morey, 2000; De Vita, 2001; Leask, 2009). Learning and assessment tasks are also "a critical factor" in enhancing interaction among students. Essentially, this can be implemented through group work assignments which help in promoting intercultural learning.

Researchers have been investigating the type of work network in an international classroom and the factors impacting on students working in a multicultural group. From an internationalisation perspective, intercultural learning is of concern to achieving internationalisation aims. Previous research findings have shown that intercultural interaction is limited in a culturally diverse classroom (Volet and Ang, 1998). Both international and home students tend to form their work networks based on co-national groups (Volet and Ang, 1998; Harrison and Peacock, 2007; Ippolito, 2007; Rhamdhani et al., 2009). Harrison and Peacock's (2007) research studying UK students' perceptions of working in a multicultural group shows that students tend to build their work group with their close friends, who all share the same nationality. This is also confirmed in Dunne's (2009) findings, where he points out that friendship networks that build the work networks among home students are formed earlier in the course, even before international students register for their course. Different factors were found to be related to this situation of non-culturally mixing in the work network. A detailed discussion of these issues takes place in the following section.

2.2.11. Factors Shaping Work Network Formation in a Culturally-Mixed Classroom

Researchers have been investigating the type of work network in an international classroom, and the factors impacting on students working in a multicultural group. Volet and Ang (1998), for example, show that the level of interaction among international and host students is minimal. They found that students tended to work in co-national groups and identified several factors that shaped students' choices. These factors were: cultural–emotional connectedness, language, pragmatic factors, negative stereotypes and pre-established relationships. The cultural–emotional connectedness factor refers to the same way of thinking, the comfort factor and the same sense of humour; pragmatic factors refer to the fact that “the style of the group work is affected by the commitment local students had” (Volet and Ang, 1998: 10).

Kimmel and Volet (2010) have investigated the impact of context in students' attitudes in working as multicultural groups, and how the context affects the change of their attitude over time. Their research explored the experiences of two classes, a science class and a business class. Their findings confirm Volet and Ang's (1998) previous findings of students' preference to work in co-national groups. They also found that the context was an important factor in students' choice of group work, where they found that science students preferred to work with the same cultural group, if they were given the choice. While in the business class, local students preferred to work in a same culture group and avoided working with people from other cultural backgrounds. They also found that language and the “extended contact effect”, or as described in (Volet and Ang, 1998) as having “pre-established relationships”, to be the main factors affecting students' preferences towards working in a multicultural group (Kimmel and Volet, 2010). Academic competencies and cohort characteristics were other factors that were found to shape students' group work formation according to Kimmel and Volet (2010).

Summers and Volet (2008) have recently conducted another study to examine students' attitudes towards working in culturally mixed groups and how they change over time. Their findings were in line with those of Volet and Ang (1998) in showing the student's preference to work in mono-cultural work groups. They also found that students' preferences persisted over time, where working with a diverse group did not enhance students' attitudes towards working in a mixed group in future (Summers and Volet, 2008). In a UK HE context, Ippolito (2007) researched the factors that shaped students' choice of working in multicultural groups. Her findings also

confirmed Volet and Ang's (1998) previous findings of students' preference to work in mono-cultural work groups. She also found that sharing the same language, religion, and identity were the main factors shaping students' group-work choices (Ippolito, 2007: 756). Ippolito also found that "academic and time pressure differences and privileged knowledge" were the barriers for students' intercultural learning, which is similar to the pragmatic factors mentioned by Volet and Ang (1998). Leask (2009) also confirmed that language and cultural differences were other barriers that prohibited international students' and domestic students' interaction. This opposes Montgomery's recent research findings, where she conducted a study that investigated the impact of internationalisation on students' attitudes to cross-cultural interaction (2009). She found that students' attitudes to working in multicultural groups have changed over a decade. Unlike the previous findings of (Volet and Ang, 1998), students' perspectives of working in a multicultural work group have changed over a decade to be more positive and more open to change (Montgomery, 2009). The source of conflict was found to stem from the "the difference in the discipline" rather than the "cultural differences" (Montgomery, 2009). She confirmed Kimmel and Volet's (2010) findings that contexts have an impact on students' attitudes to working in multicultural groups.

However, some stereotypes about other cultural groups were still impacting on building a positive relationship between home and international students (Harrison and Peacock, 2007; Montgomery, 2009). Montgomery found that these negative stereotypes "seemed to be focused on Chinese students" (Montgomery, 2009: 268). Focusing on Chinese students, Tian and Lowe (2009) found that language was the main barrier that impacted on their interaction with host students. The language incompetence forced Chinese students to be isolated in the learning community, causing them to cluster into a more comfortable group of the same language (Chinese), both at postgraduate and undergraduate levels. This was also the case for Chinese students who have been studying in the UK for one year already (undergraduates) (Tian and Lowe, 2009). Language-related difficulties and a different learning and teaching culture led to negative experiences and stereotypes which led to "a sense of exclusion from the learning community". Language problems caused "deliberate social exclusion by other members of the group", "negative day to day experience" and "successful cross-cultural experience" with other nationalities that were not home students. However, this study was only "presenting the experience from one side - the Chinese students" (Tian and Lowe, 2009: 665).

Dunne (2009) found that other factors, such as academic performance, curriculum, friendship formation strategies, institutional support, relative motivations and participation in university life impacted on host students' choice of working with international students. However, in a study of the impact of working in multicultural groups on UK students' performance, De Vita (2002) found that working in a culturally diverse group has a positive impact on UK students' performance, where he found that students perform based on the best student in the group.

A summary of the factors shaping the social network dynamics of international students is presented in Table 2.2.

Factors	Researchers	Network Studied	Context
Language	(Volet and Ang, 1998; Ippolito, 2007; Leask, 2009; Tian and Lowe, 2009; Kimmel and Volet, 2010)	Work Network	Multicultural
	(Harrison and Peacock, 2007; Harrison and Peacock, 2009; Peacock and Harrison, 2009; Harrison and Peacock, 2010)		Home Students
	(Yeh and Inose, 2003; Brown, 2009a; Brown, 2009b)	Friendship Network	Multicultural
Culture	(Volet and Ang, 1998; Ippolito, 2007; Leask, 2009)	Work Network	Multicultural
	(Dunne, 2009)(nationality)	Work Network	Home Students
	(Brown, 2009a; Brown, 2009b)	Friendship Network	Multicultural
Religion	(Ippolito, 2007)	Work Network	Multicultural
Context/ Programme	(Montgomery, 2009; Montgomery and McDowell, 2009; Kimmel and Volet, 2010)	Work Network	Multicultural
Time (networks are formed early in the semester)	(Dunne, 2009)	Work Network	Home Students
	(Brown, 2009a; Brown, 2009b)	Friendship Network	Multicultural
Same Experience/ Fear of Discrimination	(Brown, 2009a; Brown, 2009b; Montgomery, 2009)	Friendship Network	Multicultural
Pre-established Networks	(Volet and Ang, 1998; Yeh and Inose, 2003; Kimmel and Volet, 2010)	Work Network	Multicultural
Age	(Harrison and Peacock, 2007; Harrison and Peacock, 2009; Peacock and Harrison, 2009; Harrison and Peacock, 2010)	Work Network	Home Students
Negative stereotype	(Harrison and Peacock, 2007; Harrison and Peacock, 2009; Peacock and Harrison, 2009; Harrison and Peacock, 2010)	Work Network	Home Students
	(Volet and Ang, 1998)		Multicultural

Table 2. 2: Factors Shaping the Network Dynamics of International Students

2.2.12. How the Factors Operate in a Multicultural Context

2.2.12.1. Language

Previous research in intercultural interaction has identified language as one of the key factors in shaping international students' network formation (Volet and Ang, 1998; Harrison and Peacock, 2007; Ippolito, 2007; Brown, 2009a; Dunne, 2009; Harrison and Peacock, 2009; Montgomery, 2009; Peacock and Harrison, 2009; Tian and Lowe, 2009; Turner, 2009; Harrison and Peacock, 2010; Osmond and Roed, 2010). However, previous research has focused on the role of language in the international and home students mix. This research, however, explores the role of language, where the majority were international students; hence the language role is interpreted differently.

In her study of international students in a UK university, Brown has shown that language was a key factor for international students' formation of co-national friendship networks that helped them to adjust to being in a foreign country. International students found communicating in English is stressful and tiring, but they felt more comfortable speaking their native language, which provides them with a "break" from speaking a foreign language. Volet and Ang (1998) also identify language as a major factor in the formation of co-national work groups, because native language makes it easier for international students to communicate and to understand each other, which impacts on creating better relationships (Volet and Ang, 1998). Having different accents (both home and international students) makes it difficult to understand each other's English, which was a barrier to creating multicultural groups (Volet and Ang, 1998). Osmond and Roed's (2010) study of the impact of multicultural group work on intercultural understanding confirms the previous findings of both home and international students' preference to work in co-national groups. Osmond and Roed (2010) also found that language is a significant factor because communication is easier and more comfortable when talking with people who share their own language.

In a study of the factors shaping students' choice of working in multicultural groups, Ippolito (2007) also stressed that using a different language makes communication slower and might lead to misunderstanding. The problem of misunderstanding related to language was also identified by Volet and Ang (1998), who found that communicating with local students requires international students to be cautious in their language use in order not to be misunderstood (Volet and Ang, 1998). Tian and Lowe (2009) also identify language as a crucial factor in Chinese students' integration with home students. Their study of the Chinese students' experience in a UK university,

supports the fact that difficulty in understanding spoken English impacted on Chinese students' engagement in the classroom by impacting on their confidence to actively participate in the classroom discussion, which forced them to be isolated in the learning community (Tian and Lowe, 2009). Moreover, when studying home students' perspectives in working in a multicultural context, Harrison and Peacock (2007; 2009; 2009; 2010) identified language as a fundamental factor in the intercultural interaction. They showed that the main issue related to language proficiency, as mentioned by home students, was the problem of understanding international students' accents and the need to slow the conversation in order to help international students understand their accents. Home students considered this as time consuming and required them to make more effort and be "mindful" by avoiding specific sentences, idioms and "ethnocentric cultural references" (Harrison and Peacock, 2009: 495). Osmond and Roed (2010) also found that home students find it "frustrating" to communicate with international students as they need to explain things, which takes more time. Furthermore, they were worried of offending international students, who take more time to talk and get themselves understood by home students.

Being anxious was another language-related problem that impacted on intercultural interaction. Harrison and Peacock (2007; 2010) show that home students were anxious about forming a relationship with international students because this requires them to be careful in the words they use in their conversation, in order not to be misunderstood or offend international students (Harrison and Peacock, 2010). They would rather be more "relaxed" and having a "laugh" by forming co-national friendship networks (Harrison and Peacock, 2007: 4). Poor language proficiency makes home students prefer not to work in a multicultural work group, because this creates an academic threat through a collective marking of the group's work (Harrison and Peacock, 2009)

Peacock and Harrison (2009) suggest that the level of language proficiency determines the level of intercultural interaction. For example, a positive interaction among home and international students can be observed when their level of spoken English is good. In this case, home students consider international students as "just like us". On the other hand, having poor English skills minimises the intercultural interaction and pushes international students to be isolated from their peer home students (Peacock and Harrison, 2009). Home students perceived language to be the main barrier for the intercultural interaction, either on the academic or social level (Harrison and Peacock, 2010).

In the same context as Harrison and Peacock, Dunne's (2009) study supports previous research (Harrison and Peacock, 2007; Harrison and Peacock, 2009; Peacock and Harrison, 2009; Harrison and Peacock, 2010), where he asserts that language is one of the factors impacting on the formation of the co-national friendship network among host students (Dunne, 2009). Dunne found that home students feel anxious about being misunderstood because of specific issues in language usage, such as slang and the sense of humour, which made host students feel uncomfortable in communicating with international students. Moreover, in order to communicate with international students, host students needed to adjust their communication style, speed, use of slang and humour that they perceived to be compromising their identity and made them feel "fake" and "superficial" (Dunne, 2009: 234). Moreover, host students believe that communicating with international student needs more effort; also it is less rewarding and more demanding. Consequently, host students would be unsatisfied with the quality of interaction, hence preferring to build their networks with their own cultural peers (Dunne, 2009).

Moreover, being shy to speak because of poor English skills was a reason for international students' preference to work with people of the same ethnic background (Osmond and Roed, 2010). This is also reflected in Brown's (2009a) findings, which showed that one reason for international students' preference of forming co-national groups was related to their "anxiety" and "shame" of speaking "poor" English. Hence, they preferred to be in groups where they can speak their own languages (Brown, 2009a). Furthermore, international students felt frustrated using the English language because they were unable to express themselves as well as they could in their own language (Ippolito, 2007). Meanwhile, international students commented that language was a factor that empowered home students, by putting them in a leadership position, and making them control the classroom discussions (Turner, 2009). On the other hand, international students tend to communicate using their own language, which seems to be excluding to the others (Harrison and Peacock, 2009), where communicating with their native language, as identified by Brown (2009a), keeps them in connection with their home (2009).

In a study to investigate the cross-cultural learning experience in a UK university, Turner (2009) confirms that language is a major source of conflict for the intercultural interaction among group members. By exploring students' experiences of intercultural group work, he found that the inequality of contribution and the "quietness" of some international students (mainly Chinese students) created barriers related to language proficiency which were the reason for home students

feeling unsatisfied and frustrated with multicultural group work (Turner, 2009). Tian and Lowe (2009) also found that poor English skills had impacted on Chinese students in their group work, where they tended to be silent, hence becoming isolated in the group. The language barrier had also pushed Chinese students away further to be dependent on other Chinese peers, for information related to the course, rather than to their lecturer (Tian and Lowe, 2009).

In contrast, Montgomery (2009) found that language was not the main problem for the cross-cultural interaction as identified in Volet and Ang, (1998). She found that international students' English competences were perceived to be good enough for the group work. However, there were some incidents that showed language as a barrier for group work success (Montgomery, 2009). This was also shown by Ippolito (2007), where she finds home students would compromise the language problem in favour of having good grades. Working with highly committed international students is preferred by home students, who do not mind compromising the level of English proficiency in favour of good performance (Ippolito, 2007).

2.2.12.2. Culture

Cultural issues were found to be another major factor that has an impact on the formation of co-national networks, which can be particularly important in a foreign country (Volet and Ang, 1998; Harrison and Peacock, 2007; Brown, 2009a; Dunne, 2009; Harrison and Peacock, 2009; Harrison and Peacock, 2010). Volet and Ang (1998) found "cultural emotional connectedness" as one of the main factors that was found to be inhibiting the formation of culturally mixed groups. Sharing the same culture works as a connecting factor that is considered, by international students, to be a shared identity that distinguishes them from others in a "foreign country". International students felt more comfortable working with people of the same culture, who share the same way of thinking, same style of communication and the same sense of humour. Meanwhile, people of the same culture can easily manage their group work through the creation of interpersonal relationships that have "minimal conflicts and misunderstanding", which is not the case in the multicultural group work. Brown (2009) supports Volet and Ang's (1998) findings by showing that culture is an important factor for international students' formation of co-national groups, which work as a support network that helps them to adjust to the new country. She adds that international students consider being culturally similar, in terms of country and religion, as an advantage, because of the shared knowledge that stems from their shared culture. The similar culture also includes the way of thinking and understanding of cultural values and behaviours,

having the same sense of humour and sharing interests, food, sport, festivals and religion (Brown, 2009a). This sense of “sameness” encouraged international students to create the co-national groups, which were always a reminder of their home countries (Brown, 2009a).

Home students also consider culture as a fundamental factor in the intercultural interaction (Harrison and Peacock, 2007; Dunne, 2009; Harrison and Peacock, 2009; Harrison and Peacock, 2010). Dunne (2009), for example, shows the influential role of the culture in host students’ choice of forming co-national groups, which stems from the “commonality” they have and because of ease of communication; also, being in groups with cultural peers gave them a feeling of security (as discussed earlier in the language factor section). Harrison and Peacock’s (2007; 2009; 2009; 2010) findings support Dunne’s by emphasising the fact that home students consider the cultural factor as a distinctive factor that reflects their identity (Harrison and Peacock, 2007). Sharing interests and knowledge such as music, films and TV programmes, which were generally of British, American or Australian origin (Harrison and Peacock, 2007: 8), was the base for building the friendship network of home students. This is considered to be a barrier for international students to form friendship networks with home students, because of their unawareness of such “specific sub-cultural artefacts” and the language related to them. Another specific aspect of culture as a barrier for intercultural interaction was the British drinking culture, which is considered to be one of the main ways to build a friendship network, beyond the classroom boundaries, for home students (Harrison and Peacock, 2009). Harrison and Peacock identify different culture as a barrier for intercultural interaction, even among people who speak the same language; “we may speak the same language, but we don’t understand them” (2010: 133).

2.2.12.3. Co-national Clusters

Co-national clusters (groups of the same language and culture, who form a cohesive network) were found to be one of the factors that had an impact on the network formation of international students. These clusters form a cohesive network that stops any “outsider” from joining such co-national clusters. Dunne (2008) has emphasised the role of these clusters in minimising the intercultural interaction. He found that international students managed their social and academic needs through contacting their own cultural peers in these clusters, and hence had no motivation to interact with home students. On the other hand, host students build their friendship network based on a friend of a friend strategy, which is normally with people of similar language and age. This in turn, hindered the mixing between home and international students. This is also supported by

Harrison and Peacock (2007,2009) (Harrison and Peacock, 2007; Peacock and Harrison, 2009), who found that having a large number of international students of the same nationality in the classroom is considered to be one of the barriers for home students to integrate with international students. Such cultural groups caused a feeling of “threat” for home students and a “fear of being swamped” (Peacock and Harrison, 2009: 492). These groups are clearly identified in the classroom through the seating “segregation”, which gives home students the feeling of being excluded and was perceived to be “intimidating”, “annoying” and giving the feeling of a group that “don’t integrate quite well” (Harrison and Peacock, 2007: 4).

2.2.12.4. Age

Difference in age was found to be one of the factors that impacts on the creation of the work and friendship networks of home students (Harrison and Peacock, 2007; Harrison and Peacock, 2009). This factor did not appear to be significant in shaping international students’ networks, which might be because the majority of international students are of the same age. This reflects that age in previous studies is linked to commitment and attitudes to socialising, where there might be other reasons show up among students in other contexts that are related to the differences in age and commitment. They also showed “Stronger commitment to their study” and “Disinterest in socialising”. This is stressed in a similar study, of the home students’ perspective, by (Dunne, 2009). According to Dunne (2009), difference in age was perceived to be a cultural difference that impacted on the intercultural interaction among host and international students, either in or beyond the classroom. Host students who were older were also perceived to be culturally different from undergraduate host students. This disparity stems from the difference in their academic motives and interests, their participation in the social life and their attitude in the classroom. Mature host students and international students were reported to be more committed to their study and to have “a strong work ethic” compared to the young host students. Furthermore, the amount of pressure (academically, financially and family-wise) that international students have, is much higher than the one that host students have, which makes them more responsible and study oriented. This in turn reduces their participation in the social events that allow for intercultural interaction. Mature host students and international students were also perceived to have a kind of “authority” as young host students reported; they were also academically not equal, where the former were better in their academic attainment. The other difference that is related to age was also noticed through the seating “segregation” in the classroom, where young host students used to

sit in the back of the classroom and mature and international students used to sit in the front of the classroom; this also reduced interaction in the classroom.

2.2.12.5. Friendship Formation Strategies

In their investigation of the role of group work in creating cross-cultural friendship networks, Osmond and Roed (2010) found that international students believe that, in some cases, group work encouraged the formation of cross-cultural friendship relationships. However, some believe that the relationship was not strong enough to form a friendship relationship, a conclusion supported by (Montgomery, 2009), who shows that the intercultural relationships formed are formal ones.

However, according to Dunne (2009), home students did not think that group work creates friendship relationships, which is much more related to their friendship formation strategy that occurred before the start of the course. This is also related to the time factor, where they have no time to form a friendship relationship with international students (this is related to language and cultural differences, discussed earlier). Dunne (2009) stressed the friendship formation strategy as one of the barriers for the intercultural interaction, where he found that the co-national friendship network is formed early in the course before international students have registered. He stressed that similar age and programme are the factors that shape these co-national friendship networks. He also adds that building the network is extended through a friend of a friend strategy “referral system” (Dunne, 2009: 229).

2.2.12.6. Instrumental Support

In her ethnographic study of the friendship pattern of international students, Brown (2009a) identifies the instrumental support factor as one of the factors for the formation of co-national groups. She argues that international students form these co-national groups to provide them with support in everyday life (Brown, 2009a). This includes all kinds of advice and support that helps them to quickly adjust to the new culture and “diminish loneliness and offset disorientation” (Brown, 2009: 190). Forming these co-national support networks was also related to the “unforthcoming” character of the (British) host culture, which might also be related to a cultural difference (Brown, 2009a). This factor was not explicitly mentioned before in any of the other studies of intercultural interaction.

2.2.12.7. Learning Motives and Work Orientation

Learning motives were found to be the driving force for the international students' attitude of being highly committed towards their study. This factor was found to be important in the formation of their networks. Previous studies have identified the learning motives of international students as being more motivated and being hard workers compared to home students (Harrison and Peacock, 2007; Harrison and Peacock, 2009; Harrison and Peacock, 2010; Osmond and Roed, 2010). This was found to stem from either economic reasons, because of paying higher fees, or personal reasons in order to satisfy their families' expectations in succeeding in a foreign country. International students' learning motives were also related to their age, where they tend to be more mature than home students (Harrison and Peacock, 2009).

Harrison and Peacock (2010) suggest work orientation as a factor that impacts on intercultural interactions. They have identified several patterns of work orientation among home and international students. For example, having a highly committed attitude towards work was likely to be a factor that encourages intercultural interaction among home and international students who share the same attitude towards their work, regardless of their language or culture (Harrison and Peacock, 2007). On the other hand, home students with a low attitude towards their work tended to avoid interacting with international students, who have a high attitude to their work and were perceived to be "academically intimidating" (Harrison and Peacock, 2009). Moreover, home students avoided working with international students who have no commitment towards their work, and considered it as negatively impacting on their work. When the work orientation is low from both home and international students, this would result in no interaction among the two groups.

2.2.12.8. Time

Time was found to be crucial in the formation of international students' networks, which is affirmed by both home and international students as an inhibiting factor in the intercultural interaction (also mentioned earlier in the language factor section). According to Volet and Ang (1998), pragmatic factors were one of the barriers for the formation of culturally *mixed groups*. Pragmatic factors are related to being busy with commitments, other than study, which was the reason for international students preferring not to work with Australian students. This in turn affects the management of the group work, where it was difficult to arrange group meetings that suited all group members.

The consequence is to force students to work individually by dividing up the work (Volet and Ang, 1998). International students asserted that they experienced finding time to meet as an issue that persisted outside the class due to Australian students being busy with other commitments (work and family). Ippolito (2007) also identifies the time factor as inhibiting intercultural interaction because working in multicultural groups needs more time in order to get to know each other, where this time could be used towards the project. Time is a crucial factor that is needed to build “a cross-cultural understanding” and to find common interests that could support the creation of the multicultural groups.

2.2.12.9. Conclusion

In the previous sections, the main factors shaping the formation of students’ social networks in a multicultural context were presented. Many factors were identified as key aspects of the mixing of home and international students. However, these studies have tended to focus on the mixing of home and international students, where the former were the majority. Furthermore, much of the research has been about the failure of UK students to mix with a minority of international students in the class. This shows that if the balance of numbers is different, then how the factors operate would be likely to be different, even though the same factors are at work. While the factors at work in shaping networks may be the same, there might be differences on how these factors operate in different contexts, such as in postgraduate classes or contexts where international students are the majority.

Previous studies have also focused on just one network of international students, either work or friendship networks, where they have only studied the network in a static form. It is important to differentiate work and friendship networks and how these change over time. The current study aims to bridge the gap by further exploring the factors shaping international students’ networks and how these change over time.

2.2.13. Summary

In this section, internationalisation in higher education based on its various motives, concepts and perspectives was discussed. This was followed by a discussion of what internationalisation of the curriculum means. A review of how researchers address the social network dynamics of international students, and what factors shaped these network dynamics, was then presented.

From the previous discussion, internationalisation of higher education was found to bear more than one interpretation. Each institution has its own motivations for adopting internationalisation and their own strategies in how to implement the internationalisation agenda. Studies of international students' social networks have been influenced by the internationalisation perspective. Previous studies were found to be limited to one type of social network, either a work or a friendship network. This gap in the literature was a motive for this research, because it explores the social network dynamics of international students, in all types of network.

Both international and home students were found to prefer building their social and work networks based on co-national groups. A number of factors were found to shape their choices (Table 2.2). Language seemed to be one of the main factors. Language was perceived as a factor that impacts on students' performance which prohibits home students working with international students. In addition, language was found to be a barrier for building a friendship relationship and even for a weak relationship to evolve. Interestingly, difference in age was found to be culturally different among UK students, which was a barrier to building a friendship or work relationship with people of the same nationality and having the same language. However, none of the previous studies explored exactly how these factors interact, which is one of the motives for the research reported in this thesis.

Rather than adopting only one method of research (qualitative or quantitative), this research will be integrating qualitative methods along with social network analysis to provide a holistic picture of the research problem. The following chapter will discuss the methodology adopted in this research: a mixed methods approach.

3. Research Methodology

3.1. Introduction

This chapter addresses the research methodology and design that have been adopted to answer the research questions. First, the philosophical assumptions, including the ontological and epistemological assumptions that influenced the research design, are discussed. This is then followed by a description of the three approaches to research: qualitative, quantitative and mixed methods research; the rationale for adopting the mixed methods approach for this research (qualitative and quantitative Social Network Analysis (SNA)) is then developed. The data collection and research methods adopted in this research are then discussed, namely interviews, observation, photographs and SNA. The ethics of conducting this research is then presented. The final section discusses the quality of research and shows how this issue was dealt with in this research.

3.2. Research Methodology

Teddlie and Tashakkori, (2009: 21) have defined research methodology as:

A broad approach to scientific inquiry specifying how research questions should be answered. This includes worldview consideration, general preferences for design, sampling logic, data collection and analytical strategies, guidelines for making inferences, and criteria for assessing and improving quality (Teddlie and Tashakkori, 2009: 21)

In other words, research methodology is the framework for conducting the research, including what kind of methods and tools the researcher has chosen in order to answer the research questions. Determining the research question is often considered to be the first step in research (Bryman, 2007: 5). In this research, the process of choosing the research questions and the research methods has been continuously evolving throughout the research process. Many factors have influenced the choice of the research topic and hence the research methods adopted in this research. First of all, the researcher started her research with some interest in exploring the idea of creating a community in the classroom. A broad review of the relevant literature was conducted and preliminary research questions were then raised, in addition to developing the theoretical framework for the study. During the first year of study, the researcher took training courses in social network analysis and research methods in knowledge management; these were very

important in giving the research more direction, shifting the focus of the research to exploring the social network dynamics of a learning group. Consequently, the social network methodology was then chosen as the main research approach. Choosing the SNA stemmed also from the researcher's earlier *worldview of the social reality*, that was engendered from a positivist view of reality. The researcher's view of social reality has also evolved throughout the research process from reading the literature and through discussions with fellow researchers, which have led her to understand more fully the value of interpretivist views. Consequently, qualitative methods: namely, observation, interviews and photographs, were then adopted as another way to investigate the research problem. During the first stage of data collection, the limitations of social network analysis were identified through the use of other qualitative methods, which was important in providing a deeper insight into the research problem.

3.3. Research Paradigms

Teddlie and Tashakkori (2009: 10) have defined the research paradigm as "a worldview including philosophical and socio-political issues". This includes the philosophical position that the researcher has and their perspective of "social reality".

Ontological assumption deals with "the nature of social realities" (Mason, 2002: 14). Whereas epistemology refers to the question of "what is regarded as acceptable knowledge in a discipline" (Bryman, 2008: 13), which reflects the way we come to know this reality. Every research paradigm has its own ontological and epistemological assumptions; for example, positivists tend to deploy natural science methods to study "social reality and beyond" (Bryman, 2008: 13). Positivists seek to apply scientific methods in order to test a theory, which leads to confirming or refuting this theory (Hammersley and Atkinson, 1995), through following specified scientific steps that are context free (Kvale, 2008: 21). In such a view, research variables are fixed "physically" or "statistically" (Hammersley and Atkinson, 1995: 5), where the outcomes are expected to be based on some pre-defined causes (Creswell, 2003: 9).

Interpretivists, on the other hand, believe that there are "differences between people and the objects of the natural sciences and therefore requires the scientist to grasp the subjective meaning of social action" (Bryman, 2008: 16). This is also identified by Hammersley and Atkinson (1995) as naturalism, which suggest that "the social world should be studied in its 'natural' state, undisturbed by the researcher" (Hammersley and Atkinson, 1995: 6).

The pragmatic approach is another way of interpreting social reality, which is based more on practical justification, in which it assumes that “worldview arises out of action, situations, and consequences” (Creswell, 2003: 11; Creswell, 2009: 10). In pragmatism, the research problem is the main drive of the research, which gives the researcher the freedom to adopt different tools that enable them to answer their research questions. The pragmatic view can also be perfectly well adopted by mixed methods researchers, because of the freedom it allows in using multiple methods, assumptions and the integration of multiple data collection and analysis tools (Creswell, 2003).

For this research a pragmatic view of social reality is taken, where both positivist and interpretivist views are adopted in interpreting the research problem. This research aims to investigate the dynamics of international students’ social networks, and the factors shaping the formation of these networks. Answering these questions requires an investigation of participants’ perspectives and how they believe their networks changed over time. Consequently, the interpretivist view is applicable in answering the research questions related to the factors shaping students’ networks, because researchers need to be immersed in the research context to provide a better understanding of the research problem. Whereas, positivism is more suitable for answering the research questions related to the network characteristics and evolution patterns.

3.4. Research Inquiry

Inductive and deductive are research inquiry approaches that define the relationship between theory and the research (Bryman, 2008). Deductive inquiry begins with a theory and works towards findings by either proving or disputing the theory (Nueman, (2006). Inductive inquiry on the other hand, generates a theory that is grounded in the data (Patton, 2002: 56).

In this research both inductive and deductive inquiry approaches were adopted. The study of network evolution is based on a deductive design, which employs social network analysis in delineating the evolution of the network, where social network data are encoded and, through an empirical process, the characteristics of the network, the position of individuals in the network, and how the networks evolve over time, are explored. Applying an inductive approach in the investigating of network characteristics would not be possible; the inductive approach is only beneficial in settings that require immersion in the research context to enable a deep understanding of the research problem, which leads to inductively developing a theory that is data

driven. Hence, for this research, an inductive approach is applied in investigating the factors shaping the network dynamics of international students, because in order to answer this research question, an investigation of participants' views is needed in order to build a model of these factors based on the data collected from the participants of this research. This implies combining both qualitative and quantitative methods to answer the research questions and to better understand the story of the network dynamics of international students over time.

3.5. Research Approaches

3.5.1. Qualitative Research

Bryman (1988; 2008) states that the difference between qualitative and quantitative research strategies stems not only from the data collection method but also from the "role of theory, the epistemological issues, and the ontological concerns" (Bryman, 1988; Bryman, 2008).

The qualitative approach is a theory generating approach (Bryman, 2008). Instead of focusing on producing numbers, the main concern of qualitative research is to produce meaning and interpretation of the research issue. In qualitative research, participants' knowledge and practices are studied (Flick, 1998). Patton (2002) stresses that qualitative designs are "naturalistic" which means that research takes place in a natural setting without the researcher having any role in the research results (Patton, 2002: 39). The strategy of inquiry used in qualitative research is inductive which is particularly oriented toward exploration and discovery of meaning and insight in order to build general patterns from the research results (Patton, 2002). Creswell's suggestion is that the epistemology of the qualitative approach is based either on "constructivist" perspectives, or "advocacy/ participatory" perspectives, or both. Data collected by qualitative approaches are "open ended" and "emergent" data that aim at identifying themes and meaning from the data (Creswell, 2003). Strauss and Corbin (1990) assume that the use of qualitative or quantitative methods should help achieve the main aim of theorising, which is creating a useful theory. They stress that both strategies are important in doing research (Strauss and Corbin, 1990: 27). The data collection tools used in qualitative approaches are interviews, observations and/ or photographs. The qualitative approach gains its strength from the ability to "access directly what happens in the world" (Silverman, 2006: 11). However, generalisation of research findings is very problematic in qualitative research, where findings might be generalised, with caution, to similar research settings.

This is due to the fact that qualitative research is concerned with reflecting the “reality” of its own participants, and this will be different from one context to another.

3.5.2. Quantitative Research

A quantitative approach is employed in this research through adopting social network analysis methods. Generally speaking, the quantitative research approach is based on testing a theory on a large sample of participants; this sample should represent the entire population of the study, in order to explain a phenomenon by numerical means. Bryman (2008) defines the quantitative approach as a “research strategy that emphasises quantification in the collection and the analysis of data” (Bryman, 2008: 22). Some researchers have classified quantitative research in terms of an epistemological view, a strategy of inquiry and a data collection method (Creswell, 2003; Bryman, 2008). Quantitative research adopts the “objective” view of “social reality”, where research is deductively conducted through applying scientific methods in testing a specific theory to answer the research questions (Bryman, 2008: 22). Quantitative approaches often deploy a questionnaire as a main data collection tool (Creswell, 2003). Research that adopts a quantitative approach normally aims at generalising the research findings to a larger population. However, social network analysis has some limitations that need to be addressed, such as informant accuracy and recall (Bernard et al., 1982), the missing data issue, and cumbersome of filling in the SN questionnaire, which could be intrusive and time-consuming. Furthermore, social network analysis can be less successful in discovering how social actors themselves view the context being studied, which requires combination with qualitative methods to better understand the research problem and answer all the research questions.

3.5.3. Mixed Methods Approaches

Mixed methods research is an approach that combines quantitative and qualitative research within one project (Creswell, 2003; Bryman, 2008). Some researchers, however, have more specifically defined mixed methods research according to the perspective they applied in their research; whether it applies a methods perspective, a methodological perspective, a paradigm perspective or a practical perspective (Creswell and Tashakkori, 2007). From a philosophical stand, mixed methods research is based on “pragmatism” (Creswell, 2003; Johnson and Onwuegbuzie, 2004: 14; Onwuegbuzie and Johnson, 2006: 54). Onwuegbuzie and Johnson (2006: 54) define pragmatism as “a search for workable solutions through the practice of research to help answer questions that we

value and to provide workable improvements in our world". Their definition reflects a practical point of view, where adopting this view stems from finding a solution for specific research questions in order to improve the social world. Pragmatism is considered to have the advantage of combining qualitative and quantitative approaches, where the strengths of both approaches can be utilised (Johnson and Onwuegbuzie, 2004). Furthermore, pragmatic researchers can use a variety of methods that they can choose to suit their research questions and goals (Onwuegbuzie and Leech, 2005: 385). Johnson et al. (2007: 119) provide a comprehensive discussion of the various definitions of mixed methods research, based on key researchers in the field.

Adopting mixed methods research can be appropriate in some cases, "due to the complexity of the research questions" (Teddlie and Tashakkori, 2009: 129) (Bryman, 2006: 1). Mixed methods research can be adopted when the research questions need to incorporate both qualitative and quantitative data, in order to be answered (Teddlie and Tashakkori, 2009: 129). In mixed methods research, data collection and analysis can follow one of two designs, where the mixed methods design can be either a sequential or a parallel one (Teddlie and Tashakkori, 2009). The sequential mixed methods design combines methods in a consecutive way, where the use of one method follows the use of another. The parallel design, on the other hand, combines the two methods in the same stage of research; for example, interviews and surveys can be combined in one stage of research.

In this research, parallel mixed design was adopted, where both qualitative and quantitative methods were applied in parallel in data collection, which is related to the limited time-frame of the research. The findings were integrated at the end of the study in order to answer the research questions (Teddlie and Tashakkori, 2009).

3.5.3.1. Rationale for Adopting a Mixed Methods Approach

The mixed methods approach is valuable for capturing the best of both quantitative and qualitative approaches (Creswell, 2003: 22). Using multiple methods in research provides "cross-data validity checks" (Patton, 2002: 248) and "improves accuracy" (Neuman, 2006: 149), while studies that use only one method are more "vulnerable to errors linked to that particular method". Using mixed methods helps in confirming results from both qualitative and quantitative approaches, and also helps to balance the weaknesses within one approach with the strengths of the other one (Creswell, 2003). Using mixed methods in research gives researchers the option to use results obtained from

two approaches (qualitative or quantitative), which considered as a “legitimation” process to better answer the research questions (Johnson and Onwuegbuzie, 2004). Onwuegbuzie and Johnson (2006: 54) view integrating qualitative and quantitative methods in research as complementary, where each method could support the other, and minimise any weaknesses arising from using either approach on its own (Jick, 1979; Johnson and Onwuegbuzie, 2004; Brannen, 2005; Onwuegbuzie and Leech, 2005: 385).

Mixed methods approach is beneficial in the sense that it provides solutions to practical questions through combining different sources of methods (qualitative and quantitative) (Onwuegbuzie and Johnson, 2006: 49). Mixed methods research design can be reused by other researchers in different research contexts if it is “well documented” (Onwuegbuzie and Johnson, 2006: 49).

Mixed methods research can be adopted with the aim of providing a holistic view of the research under study. Findings from qualitative and quantitative methods can complement each other, where each set of findings improves the findings from the other method (Brannen, 2005: 12). Another advantage of mixed methods research as seen by Onwuegbuzie and Leech and (Creswell and Miller, 2000; 2005: 384) is that it is useful for validating research findings.

In the learning context, where ties are weak and dynamic, combining qualitative with quantitative (SNA) research methods may be more effective. Such a combination may also allow us to answer different types of questions, such as about peoples’ perceptions of the network. In this study the use of observation, interviews and photographs were explored as ways of enhancing data collected using social network questionnaires. Integrating of methods was proposed to enhance the quality of the data collected and its accuracy, while also providing a richer story of the network evolution and the factors that shaped these changes over time.

3.5.3.2. Triangulation

Several researchers have defined triangulation in mixed methods research. Teddlie and Tashakkori (2009: 27), for example, suggest that triangulation can be achieved through integrating various methods in the collection and analysis of data throughout the entire research process , which could also include more than one researcher (Teddlie and Tashakkori, 2009: 27). Focusing in one aspect of research, Jick (1979: 602) suggests that triangulation is the integration of methodologies in one study. He added that triangulation is good not just for being a source of reliability and validity for

the research, but also in providing a “a more complete, holistic, and contextual portrayal of the unit(s) under study [...] enrich our understanding by allowing for new or deeper dimensions to emerge” (Jick, 1979: 603). Furthermore, triangulation of methods increases researchers’ confidence in their research findings (Jick, 1979: 608).

Researchers tend to combine the qualitative and quantitative approaches in their research, when they cannot depend in one of these approaches alone (Bryman, 2008). As Bryman (2007) has suggested, the research questions of this study drive the researcher’s choice of the mixed methods approach. Studying the social network of a learning group, whether online or face-to-face, has specific problems: partly linked to the brief time-frame of a class’s life and particularly the weak nature of links at the beginning of a course. The problem of fluctuating attendance and the instability of enrolment can also be barriers that not only interfere with students initiating and developing relations with each other, but also interfere with collecting “clean” data. In this research, data triangulation was explored as a means to address these issues in a study of the evolution of the social network in a formal, face-to-face learning community over time. It further offers another source of data validation through data triangulation.

3.6. Qualitative Data Collection Methods

Qualitative data can be collected using interviews, participant observation, and/or audio or visual material (Creswell, 2003). In this research, the data collection tools employed were questionnaires, ethnographic field notes, observation, interviews and photographs.

3.6.1. Interviews

According to Kvale and Brinkmann (2008), a research interview is “a professional conversation”; it is “an inter-view” where the interaction between the interviewee and the interviewer is the base for building knowledge. The purpose of conducting interviews is to understand participants’ views, experiences and thoughts and to reveal the meaning behind these perceptions (Patton, 2002; Rubin and Rubin, 2005; Kvale and Brinkmann, 2008: 1). The interviewer’s concern is to “gather participant’s stories” (Patton, 2002: 341) and to understand their worlds. Interviews can be conducted either face-to-face with one interviewee, or with a group of interviewees as a focus group. Interviews can also be conducted by telephone, or using other electronic forms, such as email (Kumar, 2005).

Interviews can be in three forms; structured, semi-structured and unstructured interviews. A structured interview has a fixed set of questions (schedule) used in all interviews to ensure that interviewees answer exactly the same questions. The questions in this form of interview have the same wording and order of questions as specified in the interview schedule: “an interview schedule is a written list of questions, open ended, or close ended, prepared for use by the interviewer in a person to person interaction”(Kumar, 2005: 126). Structured interviews are used to collect the same data from all interviews which make it more reliable as those replies are based on “identical cues” (Bryman, 2008: 193). A semi-structured interview also have a schedule of questions, but is different from the structured interview in the flexibility it gives to the interviewer to ask the questions in any order, and gives some freedom to interact with the interviewee and ask more questions, if necessary, based on interviewee replies (Bryman, 2008: 196). The unstructured interview, on the other hand, allows for more freedom in terms of content and structure (Kumar, 2005: 123), and for more interaction between interviewee and interviewer. With only a list of topics to explore in the interview, the researcher’s role is to encourage the interviewee to keep telling his/ her “story” with less interruption. “What matters or how procedures are understood” is the main aim that the interviewer seeks to get from participants in this form of interview (Morse and Richards, 2002: 93). Unstructured interviews use open ended questions that are usually “informal” with different order and wording in each interview (Bryman, 2008: 196) where respondents use their own words and perspectives in answering interview questions (Patton, 2002: 348).

Data collected by interviews has some limitations related to the bias of the interviewee and any other emotional state he/she has such as anger, anxiety, political bias and simple lack of awareness. Also, what the interviewee says might be affected by the researcher, or might not recall the full details of the “story” and give a “self serving response” (Patton, 2002: 306).

In this research, the students completing the SN questionnaires may not have been highly motivated to complete lengthy questionnaires with complete accuracy. They may also not recall all the interactions they have had. Further, sheer quantitative data does not tell us why the network is the way it is. It does not tell us why actors interact more with particular others or how they themselves view the network. Interviews will be conducted to fill in gaps and discover “the story” of the factors shaping the network. Furthermore they enable the researcher to construct a model of factors shaping the network. The interviews also showed how some informants had misunderstood some of the questions in the questionnaires. Yet interviewing was even more demanding of student

time than the questionnaires and interviewing everyone proved impractical. It also seemed less effective at looking at detailed changes over time; even over a short period of time, respondents had forgotten some of their early social experiences in the class.

3.6.2. Observations

Observations are a qualitative data collection tool. Data collected by observations is considered as a primary source. Kumar (2005: 120) defines observation as “a powerful, systematic and selective way of watching and listening to an interaction or phenomenon as it takes place”. Patton argues that observation is a “personal experiencing” of a setting of interest to gain better understanding of the problem (Patton, 2002: 262). He describes observations from his experience in evaluating a leadership programme by stating that “we would never have understood the program without personally experiencing it” (Patton, 2002: 262). Observations are conducted with the aim of directly collecting data about social processes in a “naturally occurring context” (Silverman, 2006: 21). They are best deployed when it is difficult to apply other data collection tools such as interviews in studying group interaction (Kumar, 2005: 120). Observations are recorded by taking field notes in an unstructured or semi-structured way that describe the activities and the behaviour of the observant (Creswell, 2003: 188). The setting of the observations, the activities of the participants, and the meaning of these observations can also be elicited from observations (Patton, 2002). Observation quality is evaluated by the way it is described, which gives the reader a “real” feeling and understanding of the observed setting (Patton, 2002: 262). The researcher may take an active part in the activities being studied, which is referred to as participant observation, or may not participate in the activities and be only a passive observer, which is called non-participant observation (Kumar, 2005).

According to Patton’s personal experience (2002), observations enable better understanding and delineation of the observed setting and the interaction among participants in this setting. They also allow the researcher to be more creative, “discovery oriented” and “inductive”. This is done by noticing every nuance that may not be elicited by other data collection tools, either because these nuances might appear not important to the observant to tell, or that they might be unwilling to talk about when interviewed, for example, which leads to new findings.

Observations have some limitations however; these are related to the researcher who may unintentionally affect the observed setting. Observations are also limited because they only enable

the studying of external behaviours. Researchers thus need other data tools to understand the “complete story” of a social setting (Patton, 2002: 306).

In summary, observation is better when the researcher is more interested in investigating the detailed nature of behaviour and the specific patterns of interaction in a particular setting. Where interviews are better is when the researcher is interested in the perspective of participants and how they see the “world”, and observing what behaviour means to them. Observation cannot be used to directly capture participants’ feelings, thoughts, intentions and perceptions. In this instance, interviews are needed (Patton, 2002: 341). However, observations and interviews can be used to complement each other; “observations provide a check on what is reported in interviews, interviews on the other hand permit the observer to go beyond external behavior to explore feeling and thoughts” (Patton, 2002: 306). Using different sources of data, the researcher can build on the strength of each type of data collection tool, while overcoming the limitation of any single one (Patton, 2002: 307).

In this research, observation would be beneficial in collecting other types of data that cannot be collected using other methods, particularly in the research context where students have newly arrived in a class and do not know each other’s names. Observation will help to explore network characteristics and also to identify isolates, where it enables noticing nuances that may not be elicited by other data collection tools, either because these nuances might appear not important to participants to tell or they might be unwilling to talk about when they are interviewed, for example, which leads to new findings. Data collected by observations can be compared with SN questionnaire results in terms of network centrality and frequency of attendance and participation in class activities, which will give a clearer picture of the reported network (the network that was reported by student through the SN questionnaire) students have in a learning context. However, observation has some limitations such as being subjective, because it reflects the perspective of the researcher more than other qualitative data tools such as interviews, where participant perspectives are arguably more dominant. Observations were also experienced by the researcher to be intrusive, in the sense that their presence in the observed setting could unintentionally affect it. Observations are also limited because they primarily enable the study of external behaviours.

3.6.3. Photographs

The photograph is one of the earliest “artefact”, or visual data tools, that has been used in research (Silverman, 2006: 243). Photographs can be considered to be one of the qualitative data collection

tools that are normally analysed in an inductive way (Bogdan and Biklen, 2007: 141). Using photograph in interviews, for example, works as “a stimulus for questioning” (Bogdan and Biklen, 2007; Bryman, 2008: 448). Furthermore, photographs can be beneficial in eliciting more information, which might not be remembered otherwise. They can also help the interviewee to engage in the situation and to think in a different way, hence providing more useful and detailed information (Bryman, 2008). Photographs can be used as a supplementary tool for data collection (Silverman, 2006: 244).

For this research, photographs would be used in making an assumption that students who sit next to each other have some sort of relationship, which could be used as a substitute for questionnaires, at least for collecting data about some aspects of the network. However, completing SN questionnaires is intrusive and makes considerable demands on the time of those being studied, though on the surface such data would be entirely objective. Photographs would also be useful to enhance the accuracy of the social network questionnaire by adding participants’ names to the photographs, since there was a lack of mutual knowledge between participants. Photographs would certainly be useful in the interviews to elicit more accurate data about the evolution of the network.

3.7. Qualitative Data Analysis Methods

According to Bogdan and Biklen (2007: 159) data analysis implies “working with the data, organising them, breaking them into manageable units, coding them, synthesising them and searching for patterns”. However, in qualitative analysis, there is no specific way to follow in the analysis process (Strauss and Corbin, 1998: 58; Patton, 2002: 432). Starting the analysis process early in the research is strongly recommended to help the researcher to continuously refine the data collection methods to collect “new, often better, data” (Miles and Huberman, 1994: 50). This is also the case in the qualitative analysis process, which is a constant “move” forwards and backwards through the data analysis elements (raw data, codes, and themes) based on the research problem (Strauss and Corbin, 1998: 58; Braun and Clarke, 2006).

According to Strauss and Corbin (1998: 103), the first step in qualitative analysis is “Open coding” or “conceptualising”, where “labels” or “codes” are assigned to specific pieces of the data. Codes are “tags or labels for assigning units of meaning to the descriptive or inferential information compiled during a study” (Miles and Huberman, 1994: 56). According to Miles and Huberman (1994: 57) codes can be of three different types: namely, descriptive *codes*, *interpretive codes* and *pattern*

codes. Data coding could be based on the literature (Strauss and Corbin, 1998: 115) or could be inductively or data driven, particularly in the early stages of research (Patton, 2002: 453). Data “categorising” is the next step of analysis, where similar concepts are grouped into a more general category (Strauss and Corbin, 1998: 14). Patterns or themes are the third step of analysis, where they are created “based on shared characteristics” (Strauss and Corbin, 1998).

3.7.1. Thematic Analysis

Identifying themes is a basic approach to analysing qualitative research (Boyatzis, 1998; Braun and Clarke, 2006; Bryman, 2008), which constitutes building the “core meaning” within the data (Patton, 2002: 453). Thematic analysis is considered to be a flexible and straightforward technique for data analysis (Braun and Clarke, 2006) that can be used in all stages of research (Boyatzis, 1998) and within various theoretical frameworks (Braun and Clarke, 2006: 81) to give a better understanding (Bryman and Hardy, 2004: 562) and richer account of the content of the data (Braun and Clarke, 2006: 78). Braun and Clark (2006: 79) define thematic analysis as “a method for identifying, analysing, and reporting patterns (themes) within data”. These themes are created through a comprehensive and constant reading of the data transcript (Bryman, 2008: 554). Thematic analysis is perceived as a “way of seeing codable moments” (Boyatzis, 1998: 1) through identifying patterns in the data (Fereday and Muir-Cochrane, 2008). These patterns are the themes created by researchers to describe and organise some aspect of the research phenomenon (Boyatzis, 1998). In thematic analysis, themes are created based on the research framework (Tashakkori and Teddlie, 2010). These themes are created based on a “top down” coding scheme, where the researcher starts the coding process with some codes in mind, normally based on the literature; or on a “bottom up” coding scheme, where the codes are inductively driven from the data; or an “iterative coding” scheme, where the coding process is based on both predefined codes and driven from the data (Boyatzis, 1998; Tashakkori and Teddlie, 2010: 392). Themes can be “labelled” (named) based on two levels; manifest level or “semantic” (Braun and Clarke, 2006), which is “directly observable in the information”; and latent level, which is based on data “underlying the phenomenon” (Boyatzis, 1998: 4). The thematic code is considered to be a good one if it reflects the “qualitative richness of the phenomenon” (Boyatzis, 1998: 31).

Boyatzis (1998: 11) has suggested general guidelines for conducting thematic analysis through four stages. First, the researcher needs to search for patterns by “recognising a codable moment”

(Boyatzis, 1998: 9). This is followed by coding the data into meaningful “labels”, where the researcher is advised to be cautious of the reliability issue at this stage (in terms of coding process). The final stage is the interpreting of these patterns or themes. More explicitly, Braun and Clark (2006) have identified six phases for conducting thematic analysis; these are: *data familiarisation stage, code generation stage, themes identifying, reviewing and refining stages, and findings reporting stage* (the data analysis process will be discussed in the light of these stages in the next chapter).

3.8. Social Network Analysis

Social network analysis is a multidisciplinary approach that has been widely used in different disciplines (Wasserman and Faust, 1994; Knoke and Yang, 2008; Borgatti et al., 2009). In information science, specifically, the interest in applying social network theory has grown (Otte and Rousseau, 2002; Schultz-Jones, 2009: 592). Social network analysis is an approach that focuses on the pattern of the relationships among individuals rather than on their characteristics (Wasserman and Faust, 1994), where the type of network is based on the type of relationship among individuals in this particular network (Knoke and Yang, 2008: 8). Representing the relationships among individuals in the network is considered to be the basic difference between a social network explanation and a non-network explanation (Wasserman and Faust, 1994). Relations, and patterns built through these relations, characterise the entire network, which is considered as the main principle in SNA (Scott, 2000: 38; Marin and Wellman, 2011: 1). In fact, social network analysis is considered to be “a powerful new approach to the study of social structure” (Emirbayer and Goodwin, 1994: 1411), where it is best applied in identifying community structure (Watts, 2004: 253) through the patterns of relations that bind its members.

In social network analysis, the position of an actor in the network is key, which determine the importance of the role an actor has in the network (Borgatti et al., 2009:894). For example, people in the central position of the network have a more important role than others who are not connected to the network, or are “poorly connected”, or who are identified as an “isolates” in terms of their connection with others in their network (Watts, 2004: 254). In social network analysis, the structure of the network is an essential idea (Knoke and Yang, 2008), where people in two networks (with similar skills) perform differently, according to their pattern of relationships (Borgatti et al., 2009: 893). These structures can be represented visually using sociograms, or statistically (Van Duijn and Vermunt, 2006: 1).

3.8.1. Social Network Analysis Concepts

There are specific concepts that social network analysts use in interpreting the results, which is a key feature of social network theories (Wasserman and Faust, 1994). For example, *cohesion* is a concept that indicates a strong relation between members in a network, where in a cohesive network; all actors are connected through number of steps called a "path". *Density* is a cohesive measure that shows the degree to which a group of actors are closely connected (Wasserman and Faust, 1994; Scott, 2000). A *clique* is another cohesive measure which is "a subset of a network in which actors are more closely and intensely tied to one another than they are to other members of the network" (Jamali and Abolhassani, 2006: 68). *Centralisation* is another measure of cohesion, which reflects the distribution of ties among the members in the network. The *centrality* measure indicates the position of an actor in a network; it measures how important an actor is in a network. *Central* actors are those who have many ties with other actors in the network. Their central position gives them the advantage of receiving and passing knowledge from and to other actors in the network (Wasserman and Faust, 1994). *Centrality* can be predicted by some measures, the first of which is *betweenness centrality* which is "the actor who lies between two non adjacent actors". Actors who have a *betweenness centrality* play a bridging role to connect two unconnected members of a network which helps in building a cohesive network. The other measure of centrality is the *closeness centrality* measure, which is the shortest distance among actors in the network. Centre actors play an important role in the network where they can reach other actors in the network quickly (Wasserman and Faust, 1994: 183).

3.8.2. Social Network Data Collection

Social network data can be collected by different methods. To study network change over time, which is a focus of this research, "longitudinal" data collection is best used (Wasserman and Faust, 1994). Using such data enables a researcher to measure one or more relations at different intervals of a process. Longitudinal data "is more powerful when researchers seek answers to questions about social change" (Neuman, 2006: 37). Wasserman and Faust stress that longitudinal design "allows one to study how stable ties are and whether such ties ever reach an equilibrium state" (1994: 55). According to Wasserman and Faust (1994) there are two questions to be answered when doing a longitudinal study. The first is "how the process has changed over time", and the second question asks "how well the preliminary structure of the network affects the future

network” (Wasserman and Faust, 1994: 55). Questionnaires, interviews, and observations can be used to collect the longitudinal data. Wasserman and Faust (1994) indicate that the questionnaire is the most commonly used data collection method in SNA. Normally, SN questionnaires contain questions about the actors in a specific network and their relations with other actors in the network. In this research, social network data were collected through presenting research participants with a list of network members and asking them to indicate the people with whom they share ties (Marin and Wellman, 2011: 14). This approach is useful in eliciting more accurate data, where people might not remember who they have contacted if asked to name people they were in contact with.

3.9. Combining SNA and Qualitative Methods

Social network analysis is considered to be prominent in studying the social structure and the pattern of interaction among individuals in the network (Emirbayer and Goodwin, 1994; Crossley, 2010). However, SNA is an abstract approach that some consider fails to describe the “story” behind the network patterns (Crossley, 2010: 2). Furthermore, there are other aspects of networks that SNA fails to address, such as “culture, agency, and process” and how a network was formed and dissolved over time (Emirbayer and Goodwin, 1994: 1414).

Qualitative approaches have the strength of going beyond the structure and understanding what happens “beneath the surface”, and provide an explanation of “a shared meaning, conventions/norms and identities” of a network “which cannot be ignored” (Crossley, 2010: 4). However, a qualitative approach lacks the ability to generalise the findings and to delineate the structure of the network in the precise way possible with quantitative data (Crossley, 2010: 2; Edwards, 2010; Jack, 2010). Thus combining SNA with qualitative methods can provide a powerful tool, where each method has its own strength and weakness that can be overridden through integrating these two approaches in one study (Crossley, 2010: 2). Qualitative social networks are of particular interest in studying the network dynamics and how it changes over time (Emirbayer and Goodwin, 1994; Coviello, 2005; Heath et al., 2009; Crossley, 2010; Edwards, 2010; Jack, 2010; Hollstein, 2011).

Many studies have adopted the use of mixed methods design in the study of networks (Martinez et al., 2003a; Martinez et al., 2003b; Barnes, 2005; Coviello, 2005; Daradoumis et al., 2006; Martinez et al., 2006; Sack et al., 2006; de Laat et al., 2007; Cross et al., 2009; McGuire, 2010), where combining qualitative methods with social network analysis was useful in complementing each

other (Crossley, 2010; Edwards, 2010; Hollstein, 2011) and in providing a better understanding of networks in different contexts. Crossley (2010), for example, believes that combining qualitative and quantitative approaches in social network analysis is a complementary process, where each method can add its strength in a way that minimises the limitation of the other approach (Garton et al., 1997; Crossley, 2010: 1; Jack, 2010). Hollstein (2011: 1) believes that integrating qualitative approaches with social network analysis would achieve “the most fruitful results”. This is related to the qualitative approach’s ability of extracting the meaning behind the network formation, which provides substantial benefits such as “exploring and developing new concepts, enriching the study of SNs in substantial ways and addressing challenges faced in network research” (Hollstein, 2011: 1). Because of the special characteristics of networks such as being “fluid, flexible, and dynamic, constantly changing and evolving”, qualitative methods need to be incorporated into social networks studies, which can deepen our understanding and enable the study of different aspects of the social network (Jack, 2010: 134).

Focusing on the entrepreneurial network, Jack (2010: 132) believes that integrating qualitative and quantitative approaches in social network studies is an “ideal situation”. Incorporating qualitative methods with social network studies, will “enhance current understanding of entrepreneurial networks” and “improve knowledge about the entrepreneurial process” (Jack, 2010: 121).

In a study of the impact of networks on educational decision making, Heath et al. (2009) found that applying qualitative approaches with network analysis was beneficial in providing “rich data” that enabled them to fully understand their research problem, and was also effective in providing a solution for the problem of missing data in the SNA (Heath et al., 2009).

Again, in a study of classroom social interaction, Martinez et al. (2006) and Martinez et al. (2003a) show that combining ethnographic data from a variety of sources (questionnaires, formal observations, etc.) with social network analysis was successful in better understanding the research problem from different angles, where the findings of each method complements the findings of the other one. Their use of social network analysis was as “filters” to predict some issues in the classroom network; these findings were then deeply investigated using qualitative methods. Combining methods provided “a more efficient data” and also increased the “reliability of data” through triangulation of methods from different sources (Martinez et al., 2006: 4).

Based on studying previous literature that integrated quantitative and qualitative approaches in research SN, Edwards (2010: 24) concluded that “there is ‘no best way’ of integrating quantitative and qualitative methods in SNA. As such, there is both a great deal of innovation in existing research design, and a lot more room for methodological development in the future” (2010: 24).

3.10. Research Ethics

Ethical issues are considered to be important in social science research, because the research involves working with human subjects. Researchers have agreed on some criteria for the search to be called “ethical”. Bryman (2008), stresses some ethical aspects that need to be taken into consideration when conducting research; these were: participant *anonymity*, where the identity of participants is not revealed in reporting the findings (Bryman, 2008: 119); *informant consent*, which is the participant agreeing to participate in the research based on their understanding of the research details; and *invasion of privacy*, which entails the process that the researcher will follow to ensure that participant privacy will be protected. Teddlie and Tashakkori (2009: 199) also emphasise the importance of consent in the research and suggest that the research should include no risk or harm to the research participant, or explain any risk (if there is any). Patton (2002: 408) has also provided a checklist of the ethical issues researchers need to follow before commencing research that involves human subject’s participation. These are: *explaining purpose, promises and reciprocity, risk assessment, and confidentiality*. Miles and Huberman (1994: 290) have also suggested other sets of ethical issues to consider throughout the research process: before starting the data collection, during the data collection stage, and at reporting the findings stage.

3.10.1. Ethical issues in SNA

Social network studies, in particular, have some ethical issues that are different from other studies (Borgatti and Molina, 2003; Borgatti and Molina, 2005). However, in social network studies, the ethical issues vary from one context to another; where it is not “very threatening” to ask network questions in one context, it could be “risky” in another, such as in organisations where the management is interested in respondent participation (Borgatti and Molina, 2005: 113). In an academic setting, for example, one of the key issues is the “participants’ anonymity” when collecting the social network data (Borgatti and Molina, 2003: 338). This can result from the fact that social network studies are based on the premise of relationships among actors in the network, hence it is not feasible to anonymise the participants during the data collection, where the research

participants needs to report their relationships with everyone in their network. Borgatti and Molina (2003) suggest that participants need to be aware of who will see their responses and the potential risk (if any) if their responses have been revealed (Borgatti and Molina, 2003: 338).

Another ethical issue that is related to social network studies *per se*, is “non-participation”. Choosing not to participate in the network study does not guarantee total omission from the study, as people who chose to participate could report on their relationship with this particular participant (Borgatti and Molina, 2003: 339). To solve this problem, Borgatti and Molina (2003; 2005) suggest the complete exclusion from the entire study of any participant who chose not to participate, hence no one would report any relation with this participant. In this research, students all agreed to participate in the social network questionnaire, which makes this problem of no concern in this study.

“The possibility of identifying individuals by combining collateral information” is a third ethical issue that social network studies have in an academic setting (Borgatti and Molina, 2003: 342; Borgatti and Molina, 2005).

3.10.2. Ethical Considerations in this Research

As the aim of this study was to investigate the social network dynamics of international students, where data collection was performed in two stages, this research involved working with human subjects that required taking the ethical issues into consideration. Ethical approval was granted from the Information School ethics committee at the University of Sheffield prior to the start of collecting the first stage of data.

The following steps were taken in order to conduct an ethical research:

Before the Data Collection Stage

1. An information sheet and consent form (Appendix 1) were distributed in the first lecture; this included:
 - a. Explaining the research purpose and research methodology.
 - b. Participation in the study was made clear to be optional, where being unwilling to participate was explicitly explained to have no impact on participants’ grades.

- Withdrawal from participation was also made clear to be the participants' own choice, which they could do at any time during the study.
- c. A clear explanation of the research methods that will be used, the considerable time each of which will take, and what types of questions will be asked.
 - d. The strategy of dealing with data collected was made clear, and that it will be done in a way that guarantees participant anonymity and protects participants' privacy. This includes data storage, analysis and how it will be used in future.
 - e. Potential risk and benefits were explained.
2. A Power Point presentation explaining the key ideas of the research (including research purpose and methods which will be used in the study, participant's right of voluntary participation, role in the study and reason for being chosen for this study) was also given in the first lecture, as an additional source of information, in case of participants not reading the information sheet.

Data Collection Stage

1. **Questionnaire:** at the end of each questionnaire there was a written statement that covered students' consent to participating in the research. Return of the completed questionnaire was taken to imply the participant's willingness to participate.
2. **Photographs:** before taking photographs in the classroom, a clear statement from the researcher/lecturer was made to ask students for their permission, however, this was explicitly mentioned in the information sheet provided before commencing of data collection (Appendix 1).
3. **Interviews:** the researcher went through the information sheet with the interviewee before commencing the interview. Interviewees were informed the interview would be recorded, which was explained to be only for research purposes, and all interviewees agreed.

Reporting Findings Stage

1. **Anonymity:** a code of participants' names that included two letters was created and the data coded using these names, where participant's real names were kept in a separate file.

2. Data protection and saving: all data were stored securely as an e-copy that was password protected.
3. A research paper was published, reporting the first stage findings, which contained only the languages and programmes of participants, without revealing the identity of the research participants.

3.11. Research Quality

The criteria for evaluating the quality of research are different within different research paradigms and from one research methodology to another. Seale (1999: 8) points out that “quality is an elusive phenomenon that can’t be specified by methodological rules”. He believes that “research is a craft skill”, where it is through doing their own research and through looking at different examples “done within different ‘moments’” of research that the practicing social researcher can learn how to undertake good research (Seale, 1999: 31). This can be done regardless of the need to go through the underling methodological disagreement about research paradigms (Seale, 1999: 9). However, there are still some quality criteria within each research approach that the researcher should seek to apply, in order to have a “valid” and a “reliable” research.

From a pragmatic view of research, the mixed methods approach was adopted for the purpose of this research. The following section goes through the criteria by which mixed methods researchers deal with the quality issues in their research, and how these criteria were applied in this research.

3.11.1. Research Reliability

Reliability refers to the replicability of the study (Bryman, 2008); reliability implies having the same findings each time the study is repeated (Babbie, 1979: 129). In qualitative research, Silverman (2006: 288) believes that interviews could be considered reliable by applying the peer checking technique suggested by (Creswell and Miller, 2000) earlier. In this case, analysis could be done by more than one researcher (Silverman, 2006).

3.11.2. Reliability of SN Data

One of the issues in social network studies that could impact on the reliability of the research is related to the “missing data” problem (Borgatti and Molina, 2003; Kossinets, 2006). One way to solve the issue of missing data in social network studies is to depend on the “reciprocal nomination”

(Kossinets, 2006: 11), where when one of the actors in the network reports having a relationship with another, the researcher assumes it means that they do have a relationship. Essentially, this depends on the type of relationship being examined. The reliability of network data can be checked through other sources such as observed data or interviews (Marsden, 1990).

3.11.3. Research Validity

According to Babbie (1979: 132), validity is “the extent to which an empirical measure adequately reflects the real meaning of the concept under consideration”. Onwuegbuzie and Johnson (2006: 48) point out that validity is an indication of the quality of the entire study, “its parts, the conclusions drawn, and the applications based on” (Onwuegbuzie and Johnson, 2006: 48). Researchers have adopted different models in evaluating their research (Maxwell, 1992; Creswell and Miller, 2000; Creswell, 2003; Bryman, 2006; Onwuegbuzie and Johnson, 2006; Creswell, 2007; Onwuegbuzie and Leech, 2007; Teddlie and Tashakkori, 2009).

The quality issue is more of a concern in qualitative research compared to quantitative research, due to its less precise nature, and the difficulty of applying the more well-established criteria of quantitative research to it, (Savenye and Robinson, 2004: 1049). Furthermore, qualitative researchers believe that some of the criteria of evaluating quantitative research do not match with qualitative research’s nature and goals (Onwuegbuzie and Leech, 2010). Consequently, researchers have developed different models to explain the process of evaluating qualitative research. Maxwell (1992), for example, has identified five types of validity model for evaluating qualitative research. These criteria are: descriptive validity, interpretive validity, theoretical validity, internal and external validity. Maxwell (1992)’s model explains the steps that researchers need to take in order to have valid research through the different stages of their study. This starts with the data description stage, through building the theory, and ends at the implications of the study and its applicability in different contexts; known as “external validity” (Seale, 1999; Silverman, 2006; Bryman, 2008).

Creswell and Miller (2000) have a different view of the quality issue, where they suggest that validity should be viewed through two lenses: “the lens researchers choose to validate their studies and researcher’s paradigm assumption” (Creswell and Miller, 2000: 124). They suggest a nine criteria model for validating qualitative research. These are: *data triangulation, member checking, the audit trail, disconfirming evidence, prolonged engagement in the field, researcher reflexivity*, and

collaboration *and peer debriefing* (Creswell and Miller, 2000: 126). In order to improve the qualitative study, researchers need to employ one or more of these criteria (Creswell and Miller, 2000: 124).

Some researchers went through describing specific criteria to evaluate each research tool individually. Roulston (2010: 202), for example, suggests evaluating the quality of interviews through discussing the process of asking the interview questions, the framework of the study and how it matches with the methodological and theoretical assumptions of the entire study. Moreover, Patton (2002: 433) stresses that evaluating qualitative research is not an easy task, where he points out that “no straightforward tests can be applied for reliability and validity” and “no absolute rules exist”. Patton simply suggests that in order to undertake valid qualitative research, researchers should “do their very best with full intellect to fairly represent the data and communicate what the data reveal given the purpose of study” (Patton, 2002: 433).

In mixed methods research, there is also a debate on what criteria to use in evaluating the research, and number of concepts were consequently presented (O’Cathain, 2010; Tashakkori and Teddlie, 2010: 537). Some criteria were borrowed from other research approaches to evaluate the mixed methods research. However, Onwuegbuzie and Johnson (2006: 48) argue that evaluating the quality of mixed methods research is complicated, due to the fact that it includes “overlapping” weaknesses and “complementary” strengths of qualitative and quantitative methods. Conceptually, they suggest using alternative terms for evaluating mixed methods research, such as “legitimation” (Onwuegbuzie and Johnson, 2006: 55) as a reference of validity, instead of using terms such as “trustworthiness” as used in qualitative research (Onwuegbuzie and Johnson, 2006: 51). Meanwhile, Bryman (2006) suggests that rather than following a specific model in evaluating mixed methods research, the research nature and purpose should be the base for the evaluation criteria.

Meanwhile, the mixed methods approach on its own can be seen to offer a good design, where qualitative data could be used as a validation tool through “explaining, illuminating, or interpreting” data collected using quantitative methods within the same context (Miles and Huberman, 1994: 10). Integrating multiple methods in data collection and analysis is considered to be a measure of validity, where each method is assessed through the strength of the other one (Brewer and Hunter, 2006: 5). Triangulation is considered to be another validity measure (Onwuegbuzie and Leech, 2010), which is conducted through comparing findings from different methods that study the same

phenomenon. Through triangulation, the bias of one method could be eliminated by employing the other method (Seale, 1999: 53).

3.11.4. Research Quality in this Research

Data triangulation was conducted in this research as a form of validating the research findings, where this proved to be effective in providing a fuller picture, overcoming some of the limitations of each specific method.

Every attempt was made to reflect the insight of the study as reported by the research participant. However, there are still some subjective issues related to researcher's role in the research. Further to this, follow-up interviews were held in the first stage of the study that asked students about the findings and asked them to compare the findings of each research tool, and indicate which they felt showed reliability. Research findings were also checked and discussed with the research supervisor (module lecturer); these discussions were useful in stimulating further analysis of the data and provided a clearer picture of the study from another perspective. Some further interviews were also conducted in the second semester, to explore informants' responses to the network diagrams based on the questionnaires, as a form of validation, but also to elicit further information. These interviews tracked the further evolution of the network after the end of the module.

3.11.5. Reflexive Account

Based on her educational background in applied mathematics and computer science, the researcher of this study inherited a positivist worldview, believing that reality has one answer that can be either a true or false, which was the norm in natural sciences. Entering the social science world, the researcher encountered other paradigms of research (naturalistic, constructivism), which made her realise that other perspectives of knowledge exist, and the importance of context in explaining the social phenomena. This was perceived as "odd" at the beginning of the research, but this changed when the researcher immersed herself in the research context. Applying qualitative studies to the research was new to the researcher; this required her to study the different research perspectives and their epistemological roles.

The fact that she was an international student herself, and was close to the age of participants, were factors that helped in building a rapport with research participants, who often shared the same experiences in studying in the UK. This helped in encouraging them to disclose more information.

This could be creating the possibility of bias by interpreting the data through the researcher's individual experiences, (as mentioned in section 1.4). However, number of methods were taken into consideration to overcome the possibility of being biased, such as rigorous methods of data analysis and data triangulation. Systematic coding methods were also helpful in identifying factors that were outside the researcher's personal experience. Furthermore, impressions gained through observation were checked by data from interviews.

3.12. Chapter Overview

Based on the research aim of this study, this chapter has discussed the research design and methods that have been adopted to answer the research questions. This began with a general description of the philosophical assumptions, including the ontological and epistemological assumptions that informed the research design. It was then followed by a description of the three approaches to research: qualitative, quantitative and mixed methods research; and gave justifications for adopting the mixed methods approach for this research (qualitative and quantitative SNA). The methods that have been employed in this research were then discussed, namely interviews, observation, photographs and SNA. Then the ethics of conducting this research was explained. Finally, the quality criteria followed in this research were presented.

In this research of a formal learning context, the dynamic character of the network and lack of mutual knowledge between participants particularly at the beginning of the module meant that using social network questionnaires alone gave an incomplete picture. Questionnaires did provide some basic network data and some indications of the positions of individuals in the network, and how this evolved over time. However, completing questionnaires is also intrusive and makes considerable demands on the time of those being studied. The questions that could be answered from social network data alone were also restrictive. This led the researcher to taking a mixed methods approach to data collection.

Through conducting this study in two stages, this research has proposed and tested a package of methods that could be used in collecting SN data in similar research contexts. Using social network analysis was helpful to describe quantitatively the different positions individuals had in the learning network, and how this changed over time. However, using this method alone was not sufficient, because of limitations in informant accuracy and recall, and also because of the dynamic nature of this learning context. It also makes considerable demands on respondents' time.

Observation and photography were explored as ways to improve the questionnaire, hence increasing the accuracy of the picture of the network. They also provided their own insights into the character of the network. Interview data was beneficial in enriching the understanding of the factors that shaped the evolution of the learning network. Triangulation of methods in studying social networks proved to be effective in providing a fuller picture, overcoming some of the limitations of each specific method. Nevertheless, no package of research tools can be comprehensive. Some gaps remained about the relations that isolated students have in this network, for example.

4. Data Collection and Analysis - Stage I

4.1. Introduction

Having discussed the methodological approach of the study in the previous chapter, this chapter and the following one present the findings. As has been discussed in the previous chapter, a mixed methods approach was deployed in this research, which involved collecting data over two consecutive years; year 2008/2009 and year 2009/ 2010. This chapter presents the findings of the first stage of the research, which was conducted in the first semester (2008/2009), whereas the second stage's findings will be discussed in Chapter 5. The research findings were triangulated based on two sources of data; qualitative methods, namely: interviews, observations and photographs; and quantitative social network analysis.

4.2. Research Context

The research participants of the first stage of research were 27 international students studying a first semester, 15 week long module: Information Systems and Information Society (INF6400), at the Master's level, in the School of Information, University of Sheffield.

4.2.1. Module Assignments

Students in this stage of the study had to do two assignments in the module. The first assignment was a group assignment, which required them to form a group of their choice that included 3-4 members that was supposed to be formed by week 3 of the semester. This assignment suggested them to do a group presentation based on one theme of the course content (related to information society), then present this work in a written form, as a group report, documenting their work in the presentation. The deadline of the first assignment was due in week 7 of the semester and had 25% of the total mark. The second assignment was an individual assignment to write an essay that was due to be handed in at week 13 of the semester and formed 75% of the overall mark of the module.

4.3. Social Network Analysis

Social Network Analysis (SNA) was used as a quantitative method to understand students' interaction patterns and to find the changes in network cohesiveness over the course of a semester. In this stage of the study, the number of students was relatively small (27); therefore no statistical

tests (hypothesis testing, etc.) were applied on the data and the SNA was mostly used as a visualisation technique.

4.3.1. Cohesion Measures

Cohesion measures were applied to examine the connectedness of the network, the patterns of interaction among students and how their networks change over time. In order to conceptualise and measure cohesion in social network analysis, five measures can be examined; these are *network density*, *centralisation*, *distance*, *K-core* and *N-clique* measure. According to Wassermann and Faust (1994), density is the average number of ties in the network, i.e. the number of ties that an actor has in the network divided by the total ties in the network. Density indicates the degree of how connected the network is; the higher the density value, the more dense the network, which means more interaction among network actors. The centralisation measure, on the other hand, explains the distribution of ties among individuals in the network (Wasserman and Faust, 1994). Having a high centralisation value means that the network ties are not evenly distributed among network actors, but some actors are in control of network ties (having comparatively more ties than the other actors in the network); these actors are normally in the central position of the network. The distance measure is another way to measure network cohesion, where it refers to the number of paths between actors in the network (Wasserman and Faust, 1994). In the distance measure, both average distance between individuals in the network and the shortest path length can be measured. These two measures can be compared to reflect the cohesiveness of the network. A small difference between those measures reflects a more cohesive network. The K-core measure is a subgroup cohesion measure which is: “the maximal group of actors, all of whom are connected to some number (k) of other members of the group” (Hanneman and Riddle, 2005: 85). The K-core measure reflects the number of groups an individual is part of in the network. An individual needs to know at least one member of the group to be connected to that group. The more groups an individual is connected to, the more cohesive the network. Finally the N-clique measure, which refers to the number of the maximal sub-graphs, where the largest shortest paths (geodesics) between two individual in the network are not more than N (Wesserman and Faust 1994). Normally it is $N=2$ in a friend of a friend relation (Hanneman and Riddle, 2005: 81).

From the many potential network measures available, a number of specific measures were selected for this study. Cohesion was chosen because it is a measure of the extent to which everyone in the network is connected to everyone else; hence the information is easily flowed in the entire network.

The centrality measure was also considered important, in order to find out the central people who have key role in the network and identify the extent to which some individuals were isolated. In this research context, having a more cohesive network could be favourable to learning, because in cohesive networks, information can be easily exchanged among all actors in the network, hence having better chances to learn. However, in non cohesive networks there might be a number of isolates, hence information will not flow and exchanged among all network members, which could have an impact on the learning as a whole.

4.3.2. Centrality Measure

In order to apply the centrality measure on the SNA data, Freeman's degree centrality using UCINET SNA software (Brogattie, Everett and Freeman, 2002) was employed. The centrality of the networks gives an indication of the importance of the position an individual has in the network. Central people in the network can have an important role in connecting the network, hence creating a more cohesive network (Wasserman and Faust, 1994: 183). The centrality measure was another measure that has been performed in SNA to better understand the network dynamics and to examine the cohesion measure finding.

4.3.3. Social Network Data collection: Questionnaire

Based on the researcher's interest in investigating the social networks of international students and through finding a gap in the literature. This study aimed to investigate the social networks that international students build in a UK HEI. The social network questions were employed to investigate the type of networks international students create in the UK HE context. Consequently the question of what kind of relation each individual has with others in the network was asked, rather than how frequently they contact each other, because the research was not interested in investigating the strength of the relation among individuals in the network (as in Haythornthwaite's research). A printed questionnaire was the primary source used to collect the social network data. In order to measure the change over time, the questionnaire was distributed four times during the semester. Based on Haythornthwaite's (2008) suggestions, the questionnaire was designed to capture different types of relations students have in a learning network such as work, information, friendship and social support networks and the evolution of these networks over time. The first questionnaire (appendix 3) was distributed at the beginning of the semester to capture the initial status of the network. It consisted of three questions; the first question asked

students to indicate their relation to others in the class by choosing from the class names list. The relations students were asked to indicate were: socialise with, work with, ask information, give information, give personal support and receive personal support, respectively. 20 out of 27 students filled in the first questionnaire. The questionnaire was repeated in week 3 with some modifications to the questions. These included adding participants' photographs to the questionnaire, which aimed to improve the accuracy of the questionnaire. The addition of the photographs resulted from observation, which identified participants' problems in recognising the each other's names. Hence, photographs were used to enhance the accuracy of the data collected using the SN questionnaire through adding the participants photos with the names to help students recognise each other. The photographs were added to all questionnaires except for the first questionnaire, because photos have not yet been taken.

The order of the relations in the first question was also changed to: ask information, give information, work with, socialise with, give support and receive support, respectively. The order of relations in this question was according to the assumed evolution of the relations, as it also was observed that students relations might start with the ask/give information relation and then evolve to other relations such as work and then social and support relations. 19 out of 27 students filled in this questionnaire. The third time the questionnaire distributed was in week 9. Again, the questionnaire was modified to include a list of students' names with their photographs attached to their names. The number and order of questions was the same as the previous questionnaire in week 3. Only 15 students filled in the third questionnaire. The final questionnaire was distributed in week 11. It was the same as the third questionnaire, but the photographs of students were not given this time, assuming students already knew each other. As with the first questionnaire, 20 out of 27 students filled in the final questionnaire. The variance in the number of students who filled in the four questionnaires was due to the level of attendance in the classroom at the time questionnaires were distributed (see table 4. 1 and table 4.2).

Week Stage I: 2008-2009	Practical	Lecture	Questionnaire
Week1-			1 st Questionnaire (no photographs were added)
Week3	Deadline for forming self chosen group work		2 nd Questionnaire (photographs were added)
Week7	Deadline for first assignment (group presentation)		
Week9			3 rd Questionnaire (photographs were added)
Week 11	Last lecture of the module		4 th Questionnaire (photographs were added)
Week 13	Deadline for submitting the second part of the assignment (individual essay)		

Table 4. 1:Data collection timetable Stage I

Questionnaire	Participants (27)
1 st	20
2 nd	19
3 rd	15
4 th	20

Table 4. 2: The number of participants in questionnaire

4.3.3.1. Work Network

The SN was analysed using UCINET 6.0 (Borgatti et al., 2002) and the data was coded in Microsoft Excel 2007 in the form of zero-one tables, where the value of 1 indicated having a relation among two actors and 0 indicated having no relation among them. The direction of the relations was ignored because of missing data, which was substituted with a blank value. Note that in UCINET, data is treated as symmetric (i.e. assume the reciprocal of relations (the existence of a mutual relationship in case any report of a relation)) (see figure 4.1) Students were asked to put (✓) in front of each individual they “worked with in module assignments”, as an indication of having a work relation with them. In the following tables, the work network evolution is presented in term of cohesion measures.

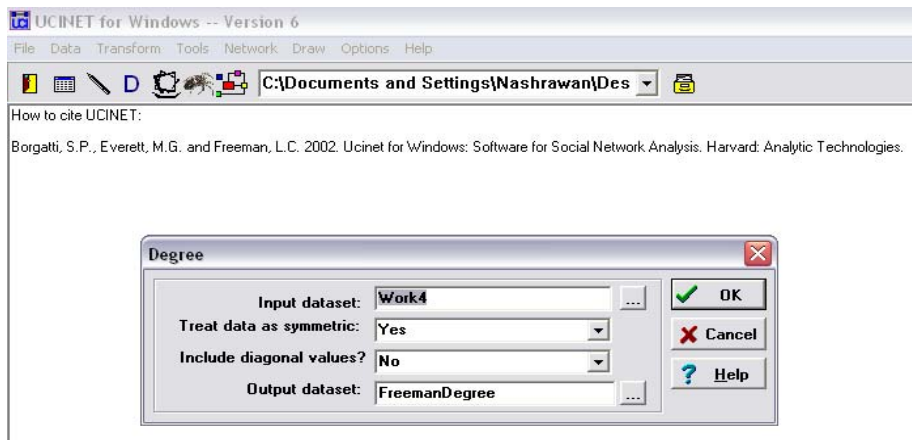


Figure 4. 1: Symmetric of Data in UCINET

The network density of the work network shows a dramatic change from work1 to work2, as can be seen in Table 4.3. It can be noticed that only 25% of participants were connected in a work relation in the first week, where this increased remarkably to 65% of participant to be working with each other in work2, which means an increase in the cohesion of the work network from work1 to work2. This result seems reasonable, as there was no interaction among students in terms of work in the first week of this module, and the 25 % might be related to working in another module. However, the result might be affected by the fact that students were not aware of each others' names, as was observed later in the research.

Density	Work1 (week1)	Work2 (week3)	Work3 (week9)	Work4 (week11)
	0.0682/ 25%	0.1762/ 65%	0.1525/ 56%	0.1552/57%

Table 4. 3: The Density measure of the work network

The increase of network density in work2 can be explained by the fact that participants had to start to work with each other to form groups for the first assignment which was due in week 7. The network density in week 9 has slightly fallen compared to the network density in week 3. However, 56% of students were still connected to each other in the class that indicated a cohesive work network compared to work1. The decrease in network density in week 9 could be related to the group assignment that was due on week 7 of the semester, where interaction might have fallen. However, the average distance measure was almost the same between these two networks (as can be seen in Table 4.4).

Distance (Average distance)	Work1 (week1)	Work2 (week3)	Work3 (week9)	Work4 (week11)
	1.584	1.493	1.483	1.976

Table 4. 4: The Distance measure of the work network

The network density in work3 and work4 showed stability in the network cohesiveness between week 9 and week 11, which means students' interaction had reached a stable point after week 9 (which is also related to group work assignments). On the other hand, the average distance measure has slightly increased from 1.5 in week 9 to 1.9 in week 4. This could be related to the fact that there was no group assignment after week 9.

The number of cliques has increased from work 1 to work 2 and from work 3 to work 4 (see Table 4.5), however, the number of cliques has slightly decreased between work 2 and work 3. In general, the network became more cohesive at the end of the semester. The main change was between work1 and work2 as the number of cliques dramatically increased from only 6 cliques in the first network to 16 cliques in work2, then fell again in work3 and settled between work3 and 4.

Cliques	Work1 (week1)	Work2 (week3)	Work3 (week9)	Work4 (week11)
AFOF relation	10 2- Cliques	28 2 Cliques	16 2-Cliques	20 2-Cliques
(direct relation)	6 1-cliques	16 1-cliques	12 1-cliques	12 1-cliques

Table 4. 5: The number of cliques in the work network

As for the centralisation measure (see Table 4.6), the four networks showed an almost similar value of centralisation, a low centralisation value, which shows that no individual in the class dominated the network ties; rather these ties were distributed among individuals in the network.

Centralisation	Work1 (week1)	Work2 (week3)	Work3 (week9)	Work4 (week11)
	20.46%/0.053	23.69%/0.06	23.23%/ 0.06	25.23%/ 0.07

Table 4. 6: The centralisation measure of the work network

The centrality measure (see Table 4.7) supports the centralisation results, which shows that no particular student was in the central position of the network all the time. Using UCINET, the individuals who had the highest centrality measure were considered to be at the centre of the network; however, the same group seemed to be in the centre through the semester. This could not

be explained using social network data; hence, qualitative data was important for providing an explanation.

Centrality	Work1 (week1)	Work2 (week3)	Work3 (week9)	Work4 (week11)
	<i>RA</i> 7	<i>RA</i> 10	<i>TP</i> 9	<i>RA</i> 10
	<i>TP</i> 5	<i>EJ</i> 9	<i>YJ</i> 7	<i>TP</i> 10
	<i>SM</i> 5	<i>TP</i> 8	<i>EJ</i> 6	<i>EJ</i> 6
	<i>SN</i> 5	<i>SA</i> 8	<i>HM</i> 5	<i>YK</i> 6
	<i>BD</i> 4	<i>AK</i> 7	<i>SA</i> 5	<i>KA</i> 6

Table 4. 7: The centrality measure of the work network

To measure the cohesiveness of subgroups within the work network, K-core measure and N-clique are deployed. As can be seen in (Table 4.8), the K-core measure shows a decrease in the number of isolates over time; also the n-clique measure where N=2 (the minimum number of people that a person knows in a network in order to be connected to the whole network equals two; which is the case in the friend of a friend network) shows an increase in the number of the cliques where people can reach other through two individuals (a friend of a friend). Those two measures reflect an increase in the network cohesion of subgroups within the work network over time.

Isolates	Work1 (week1)	Work2 (week3)	Work3 (week9)	Work4 (week11)
	10	5	2	3

Table 4. 8: The isolates in the work network

The sociogram of the work network at the end of the semester (Figure 4.2) shows that students were clustering on the basis of sharing the same programme of study (the nodes represent individuals in the network and each shape represents a different programme of study). However, there might be other factors shaping the dynamics of the work network that SNA could not predict. Consequently, qualitative methods were combined with the SNA to better understand the network dynamics.

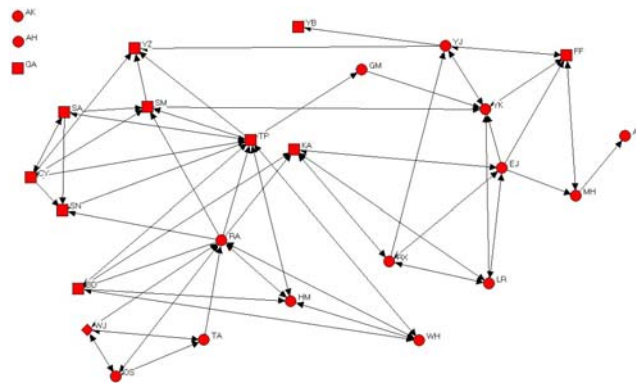


Figure 4. 2: Work Network based on Programme of Study Factor (week 12)

4.3.3.2. Friendship Network

Friendship relation was defined as socialising with each other (such as having coffee together, going to parties and/ or any other social activity). Friendship networks showed a different pattern compared to the work network. The network density of the friendship network (Table 4.9) shows a continuous increase throughout the semester, which reflects an increase in the cohesion of the friendship network over time. The network density in F1 (friendship1) indicates that only 23% of participants had a friendship relation in the first week. However, the network density of the friendship network has steadily increased over time, as can be seen in the F2 and F3 networks (37 % and 49 % respectively). The network density in F4 shows a dramatic increase, where 94% of the students were connected to each other by the end of the semester. This means that almost everyone in the network was a friend of everyone else, which is also reflected by the decrease in the number of isolates in friendship network (F4) (Tables 4.10), also the number of cliques showed a remarkable increase from F1 to F2 and a steadiness between F3 and F4 (Table 4.11), which also indicates an increase of the network cohesiveness between F1 and F4. The distance measure (Table 4.12) also supports the increase in network cohesiveness of friendship networks over time. however, there seemed to be a slight decrease of the distance between F2 and F3, which might be related to the inaccuracy of the SN data.

Density	F1(week1)	F2(week3)	F3(week9)	F4(week11)
	0.0632 / 23%	0.1003/ 37%	0.1337/ 49%	0.2553/ 94%

Table 4. 9: The Density measure of the friendship network

Isolates	F1(week1)	F2 (week3)	F3 (week9)	F4 (week11)
	11	6	3	0

Table 4. 10: The number of isolates in the friendship network

Cliques	F1(week1)	F2(week3)	F3(week9)	F4(week11)
<i>AFOF relation</i>	7 2- Cliques	19 2 Cliques	9 2-Cliques	9 2-Cliques
<i>(direct relation)</i>	4 1-cliques	7 1-cliques	12 1-cliques	35 1-cliques

Table 4. 11: The number of cliques in the friendship network

Distance (Average	F1(week1)	F2(week3)	F3(week9)	F4(week11)
	1.507	1.511	1.480	1.627

Table 4. 12 The Distance measure of the friendship network

The centralisation measure (as can be seen in Table 4.13) stresses the same results were found in the centralisation of the work network (as mentioned earlier), where it shows none of the participants was in the central position of the network throughout the semester (holds the majority of ties in the network). Furthermore, the centralisation low value indicates that the network ties were distributed among individuals in the network.

Centralisation	F1(week1)	F2(week3)	F3(week9)	F4(week11)
	11.08%/ 0.029	22.46%/0.058	32.46%/0.084	38.00%/0.098

Table 4. 13: The centralisation measure of the friendship network

The network centrality of the friendship network (Table 4.14), was also a confirmation for the network centralisation's findings, where it shows none of the participant was in the central position most of the time; rather, people who occupy the central position of the network changed over time. This finding also cannot be explained using social network analysis; hence, qualitative data was important to clarify the SNA results.

Centrality	F1(week1)	F2(week3)	F3(week9)	F4(week11)
	SN 4	AS 8	TP 11	KA 17
	GB 4	WH 6	SA 9	BD 15
	TP 4	YK 5	BD 9	SM 14
		EJ 5		

Table 4. 14: The centrality measure of the friendship network

Unlike the work network (as discussed earlier), the sociogram of the friendship network at week12 (Figure 4.3) shows that the friendship network was shaped based on the sharing the same language factor (the nodes represent individuals in the network and each shape represents one language).

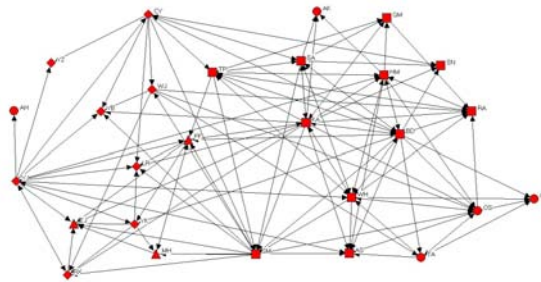


Figure 4. 3: Friendship Network based on the Language Factor

4.3.4. Discussion

By applying cohesion measures to network cohesiveness and evolution, work and friendship networks have shown different patterns of change. For the work network, the main changes occurred between the work1 and 2 networks, where the network became more cohesive in week 3. The main factor for this is the group assignment (assignment 1) as it was the main factor between week 1 (work1) and week 3 (work2). The network was almost settled between weeks 3 and 9, but changed again in week 11 to be less cohesive compared with the previous weeks. Also this could be related to the final assignment where students needed to work individually on this assignment; this could explain the increase in the distance between students and the lower cohesiveness of the fourth work network compared to work3. For the friendship network, the cohesion of the network has gradually increased, and the network became very cohesive by the end of the semester (the number of isolates was zero).

Work and friendship networks were rather different in shape. For example, the work network cohesion was found to fluctuate during the semester, whereas the cohesion of the friendship network steadily increased and the friendship network became more cohesive over time. Having the same programme of study seemed to shape the formation of the work network, whereas the language factor was found to shape the formation of the friendship network (as can be seen in Figures 4.1 and 4.2 respectively).

Some of these results seem reasonable; however, employing mixed methods in collecting the data of this research showed some gaps in the SNA, such as information accuracy and recall (also described earlier). Attaching participants' photographs to the third and fourth questionnaires seemed to improve students' responses, and hence gave better results that showed an increase in network cohesion.

4.3.5. Conclusion

Conducting SNA in this study was a tentative indication of the character of the network that reflected some aspects of the classroom dynamics. However, the data should be treated with considerable caution because of the following issues:

1. The relatively small number of participants, which did not allow a significance statistical test to be conducted.
2. The accuracy and recall problems associated with the social network data, also the inability of students to recognise the names of their colleagues.
3. The missing data was particularly related to the dynamic nature of the research context, where there was instability in the class attendance that caused inconsistency in the number of students who filled in the questionnaire each time.
4. The misinterpretation of the particular meaning of the work and friendship networks, where it seemed that there was some confusion about what to consider a work or friendship relation.
5. The inability to explain some of the network data. For example, SNA was not able to provide a clear interpretation of the findings of the centrality and centralisation measures, such as why there was no particular individual in the central position, what were the characteristics of people who were in the central position, and how this changed over time. Moreover, showing the factors that shaped the classroom dynamics was not possible using SNA in its own.

Consequently, integrating qualitative methods with the SNA would be beneficial to provide a better understanding of the network dynamics and what factors shape these networks. Furthermore, it would also be important to clarify and explain some of the unclear findings in

the SNA. Qualitative methods would provide another source of data that could be important in overcoming the limitations of the SNA method and in strengthening the findings of this research.

4.4. Qualitative Data Collection Process

In order to explain the nature of the network in the class, qualitative methods were deployed. More specifically, to answer the question of what are the factors shaping the cohesion of international students' networks. Qualitative data in this research was collected through interviews, observations and photographs. However, the findings of this research were mainly drawn from the data collected from interviews. Qualitative data collected from using other tools, such as interviews, observation and photographs, were important in enhancing these findings; hence increasing the accuracy of the picture of the network. In the following section, the steps followed in collecting data, particularly the qualitative interviews, are presented.

Observations were conducted starting from the first week of the semester. The researcher attended all the classes and laboratory sessions for the module, observing changes in the students' network, and recording them as field notes. She was introduced as a researcher, participated in some of the teaching, but was generally a non-participant. Research observation was focused on the relations students had with each other, such as who talked to whom, who attended classes, and who were vocal or quiet in the class. The findings of these observations were used to complete the picture of the network but were not analysed or coded on their own. The results of observations were also compared with what students said in the questionnaires. This revealed the problem with the accuracy of the data in the first questionnaire. The participant observation and field notes observations were helpful in spotting these problems, because students who were clearly found to know each other from observation did not record this in the questionnaires. Questionnaire results were also compared with observations in term of network centrality and frequency of attendance and participation in class activities, which give a clearer picture of the reported network students have in a learning context.

Interviews were conducted through week 7 to 11 of the semester in the first stage of research (see Table 4.15). Weekly photographs were also taken. These interviews were all digitally recorded using an advanced digital recorder, in both stages, which was necessarily for sound clarity. However, one of the interviews was not successfully recorded, but an attempt was made, by the

researcher, to write it down on the same day the interview was conducted, trying to remember as much as possible of the information.

Interviews Stage 1	Week 7 – week 11
Gender	Female/Male: 3/ 13 (only 3 females in the module were all interviewed)
Programme of Study (have been interviewed)	ISM/IS/Journalism : 6/ 9/ 1 (only one from Journalism dept. was interviewed)
Nationality (16) (have been interviewed)	India/ Pakistan: 5/ Chinese: 4 (2 Taiwan - 3 Females)/ Arab: 2 / Nigeria/ Mali/ Korea/ UK (all the different languages and countries)
Nationality of students in the classroom.	India/ Pakistan: 11 Chinese: 7 Middle East : 5 UK: 1 Korea : 1 Mali: 1 Nigeria: 1

Table 4. 15: Interviews Information

Participants' consent (Appendix 2) was obtained to record the interviews prior to commencing them, and it was explained to participants that this recording will be only used by the researcher for research purposes. In fact, interviewees were previously informed about the research purpose through a presentation of the research process in the first lecture; also an information sheet (Appendix 1) was distributed along with the questionnaire, just in case some students did not attend the first lecture. However, at the beginning of each interview, the researcher explained the research purpose, and participants were given the chance to ask any question they may have about the research process.

The length of the interviews varied between 30 minutes to one hour. Most of these interviews were transcribed the same day as the interview was conducted, which guarantees more accuracy of the data. The interviews were transcribed by the researcher, which enabled the researcher to be more fully immersed in the research context, and hence provide a better interpretation of participants' views; it also helped the researcher to prepare for the next interview (Rubin and Rubin, 2005: 204). The transcription process was conducted in a systematic way, where a table was created in which

interview questions and answers were separated into rows. Being systematic in the interviews' transcription was important for "valid analysis and interpretation of interview data" (Mishler, 1986: 50). It is also important for research ethics to guarantee participant anonymity and privacy by not exposing the data to a stranger.

Then, the interviews were verbatim transcribed in Microsoft Word, where comments were added during the transcription process, including the response/behaviour of the interviewer during the interview. Moreover, important text was highlighted and a theme was attached to this text (Figure 4.3). The process of transcription included a careful listening to the recording, then transcribing it in sections to ensure the accuracy of the transcription. The transcription time for interviews varied based on the length of each interview, where some interviews took 10 hours of work.

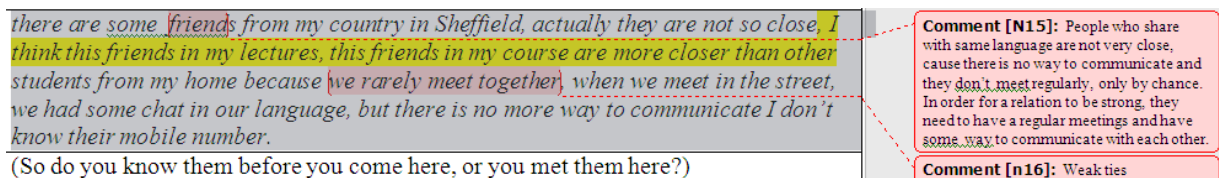


Figure 4. 4: Sample Interview in Microsoft Word

4.5. Qualitative Data Analysis

Interview analysis was part of the data collection method, where meaning and themes were assigned to the data throughout the data collection process. These interviews were then coded using Atlas-ti software for qualitative data analysis (Figure 4.4). Each excerpt was followed with a reference number that includes the first two initials of the interviewee name; this is followed by the interview number then the code numbers, (e.g. HM – 5: 20)

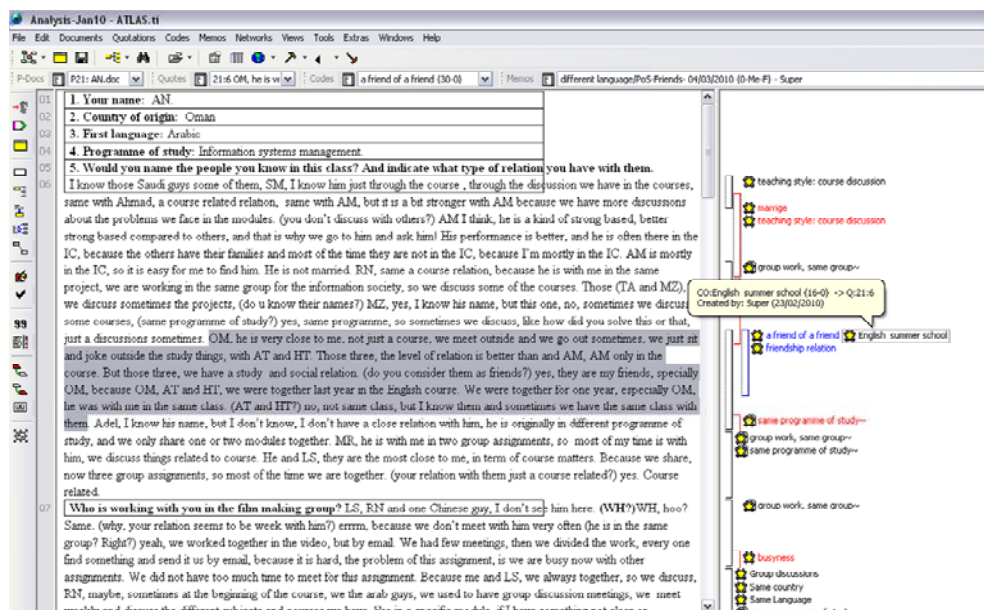


Figure 4. 5: Sample Interview in Atlas-ti Qualitative Data Analysis Software

As mentioned earlier in the methodology chapter (Section 3.7.1), thematic analysis was adopted for the analysis of the interviews. Basically, thematic analysis aims to find the patterns or themes in the qualitative data. In this research the analysis of interviews were based on Braun and Clark (2006), who have suggested six steps to follow in using thematic analysis; namely: *data familiarisation stage, code generation stage, themes identifying, reviewing and refining stages, and findings reporting stage*. The analysis in this research was conducted in the light of these steps.

1. Data familiarisation stage

The data familiarisation stage suggests researchers should be familiar with the data through being immersed in the data. In this research, this step was conducted through reading and re-reading the transcripts (Braun and Clarke, 2006), also by comparing the transcript with the actual recorded interview to ensure the accuracy of the transcript (which was also done by the researcher). This step was necessary to enable the researcher to better understand participants' views and to highlight important themes or patterns in each interview.

2. Code generation stage

Generating the codes was the next step that followed in the analysis of the interviews in this research. For each interview, a preliminary analysis was conducted using Microsoft Word, where

important words (based on the research question) were highlighted; Then a second stage of analysis was conducted in Atlas-ti, where a systematic coding process was used. The process of creating these themes were based on an “iterative coding” process, where the coding process was based on both predefined codes derived ultimately on understandings from the literature (e.g. the language factor) and some were driven from themes emerging from the data itself (e.g. learning motives). In this stage, an “interpretive reading” (Mason, 2002) was carried out throughout the entire interview to better enable understanding the meaning of participants’ views by going beyond the actual words of participants.

3. Searching for themes, reviewing themes

After coding all the interviews, the search for common themes started throughout the interviews, reviewing and refining these themes, by comparing and contrasting the data across the entire set of interviews. Codes with similar themes are grouped together, which led to building meaningful categories.

4. Findings Reporting stage

The analysis process ends through presenting the findings in a way that explain the themes and patterns revealed in the data, including expert analysis of participants’ views to reflect the accuracy of interpreting the data.

4.6. International Students’ Networks

4.6.1. Support Network

Very few instances showed the availability of support networks inside the classroom. On the contrary, the majority of interviewees seemed to rely on their pre-existing networks for personal support. Time was found to be crucial in creating the support network, which was found to be the reason for students not creating a support network within the classroom boundaries.

HM shows a clear example of his support network with his pre-existing network.

Most of my friends are from my country and two of my best friends, like my childhood friends, they are my cousins as well, but they live in my country now, so most of the time if I need some kind of personal support I would phone them up and just talk to them and all that[...] some of my friends are here in UK, they are from my country as well, they studied with me from school, they have been with me like seven to

eight years I communicate with them over the internet mostly or through the phone, mostly by MSN, and now days, I'm a bit using facebook a bit more so that is it (HM – 5: 20).

The personal support network for HM stems from his previous network; those involved were clearly from the same country. The relation with people in the support network seemed to be a strong one, made up of those HM has been communicating with for quite some time like his “childhood friends” or “school” friends. Using technology, such as his phone, the internet and facebook, helps him to keep in contact with those friends, even with the ones who were still in his home country.

Another interviewee seemed to rely on his compatriot roommates as a support network.

For personal support again, it would be my roommates and a group of friends we live close, they are students here in the architecture, I got to know them through SM and IN, he is another roommate, they introduced me to those people, they are all from my country, they are all female and I go for them for information and personal support and advice. If I have totally personal problem nothing to do with the coursework, it would be IN and a couple of girls I mentioned and SM and the family back home (SN – 12: 26).

Unlike HM, SN managed to have a support network here in the UK; however, the majority of those people were from outside the classroom, and were from the same country. Living together as roommates and spending more time together was a factor that encouraged the creation of SN's support network with his compatriots. Meanwhile, SN's family were still part of his support network, even though he has other support networks here in the UK.

Outside the class we have a group of 6-7 boys and 5-6 girls, we all stay nearby, once the school is done, whatever you do is with those, we all from same country but never knew each other before came here [...] if one has a problem you can put it in front of them all, of them are close and stuff. So you can say that they are the backbone support you here in Sheffield, cause when you get home sick or when you feel sad ... they will help, so that is the group to be with they will take care (SM – 11: 39).

SM stresses the importance of the support network as a “backbone” for him. He seemed to have a big support network, where he spent his time beyond the university with this group. As with the previous two interviewees, being from the same country is also stressed by SM as one of the conditions for the formation of the support network. SM shows his strong relation with people in his support network through his reliance on them for any kind of “problem”, such as home sickness

or depression and when he “feel[s] sad”. These problems might only have resulted from his being in a foreign country, where in this case, compatriots can provide a lot of support and “take care” of each other (as discussed earlier in the language and culture factors).

Sharing many factors and having more time together can create a support network in the classroom.

after becoming roommates we are very close friends, he is the closest in Sheffield, if I need any advice or any support , the first person I would approach is SN, because obviously we are roommates and spending the most of time together (SM – 11: 44).

SM shows the importance of time to strengthen his relation with his compatriot roommate, SN, where they became “close friends” and someone SM sought advice and support from.

4.6.2. Friendship Network

Students were able to recognise the type of relations they had in their network. In most cases, friendship relations were found to be formed on a co-national basis.

So basically my relation with WH and AS is more like a friendship relation and with the others is a work relation (HM – 5: 24).

HM, for example, has clearly identified the type of relation he has with people in his network. HM has a friendship relation with people from his country, and a work relation with people from different countries.

Not particularly, my social network is generally with my flat mates and some other friends but not in the program. Generally for social things I don't ask those guys (in the class), so my relation with them is mainly because of this course (MH – 8: 22)

MH has also stressed that his network in the classroom was only for course purposes, where he has his social life with people outside the classroom, with his flatmates.

4.6.3. Advice Network

Similar to the support network, the advice network showed continuity with pre-existing networks beyond the classroom boundaries.

For personal advice I think family first, my sister and my other brothers around here[...] like my sister, and her family, most of the time talk to her and get her view and things, anything in Sheffield because she has been here for quite a while now, I can ask her advice about that. And since she is older than me, I can get big sister advice from her (FF – 4: 14).

FF has made it clear by referring to his family, who live here in the UK, as his first choice for advice. This seemed to be a natural choice for advice, as it is based on very strong relations, obviously with his sister and her family, who are “experienced” mainly from living in the UK for some time. This is also related to age, where being older can be a reason for FF to trust and refer to his “big sister” for advice. However, FF did not say that he would not refer to people in the class, rather he stressed that for advice, it is “family first”.

For advice I just tend to get to my parents (EJ – 3: 10).

EJ has clearly expressed that his advice network was his “parents”.

Some participants, though, showed their tendency to go for advice to people in the classroom.

For advice? I don't think so. I might go to AS, AK, apart from that, I don't think so[...]the thing is that AS has been living here for one year, and he looks quite mature and talks quite mature and he is a good person one more thing, I see him pray five times a day, that is my perception so far, I'm not sure if I would go (HM – 5: 19).

HM, for example, would go to one of his compatriots for advice (AS); however, this seemed to be based on characteristics such as being mature and being a good person. For HM, these characteristics were reflected by looking and talking “quite mature”, also having experience in living in the UK. For HM, praying was also a good sign to judge AS by and to consider him a source of advice. However, HM seemed reluctant to go to AS: “I’m not sure if I would go”.

My relation is formal with almost the majority of them, informal and formal with TA, AS and RA... we share stuff, but we did not go that far as advice or something! I have discussions with them beyond the class context, but there are still limitations. You know them for one month, two months and that is it. And I already have my friends from my country or from here, they are not studying in this module, but there are studying different courses in Sheffield (OS – 9: 19).

OS also had built his advice network with people outside the classroom, where he considered seeking advice from people in the classroom as “going too far”. However, it has been noticed (based

on the observation) that AS has more than a work relation with TA, where they have been observed to be together most of the time. Having worked with TA, AS and RA made OS have a different kind of relationship with these three, which is reflected by “sharing stuff” and having discussions beyond the classroom. However, this relation had “limitation”, such as time and trust, where people in the classroom were new friends, and AS has already has his old friends (from the same country) who he has known for quite some time and who he trusts if compared with people in the classroom, who he has only just known; “you know them for one month, two month”.

Me and YJ have a common friend, I know YJ before I come to this major, after I come to Sheffield, because he is the same course, he is doing the same course with my ex-mate, my roommate in summer, so I know him before(What about advice and any other relation?) I don't think we go this deep(LR – 7: 13).

Knowing each other for sometime was not a factor that LR considered for having an advice network in the classroom. She stressed that going for advice to people in the classroom was “going deep”. She seemed to know YJ for quite some time and they were from the same country (based on my observation); however, LR did not consider YJ as a source of advice.

One of my friends his name is PA, he has been studying with me since we were 10 years old, he finished his master degree last year from here, so most of the time I phoned him up if I need more advice, he is more experienced, he is in Bradford, there is another friend, his name is PF, he is also from my country, he is actually an older brother of my friend but he is a friend to me as well so normally if I need personal advice or anything apart from like studies I will phone him up and talk to him (HM – 5: 21).

HM has expressed that he would seek advice from people who were already in his network (pre-existing network). Time was an important factor that the advice network is built based on. For HM, his advice network comprises people he has known for a relatively long time. Experience of living and studying in the UK was another factor used to build HM's advice network. Age was also one of the factors that shaped HM's advice network.

With IA even he has this far age, he still tingle mingle with us so we give him respect, but when we have fun he is there with us. So if we feel a sort of advice we go to him and ask him (SM – 11: 37).

SM has also confirmed that age was an important factor in shaping the advice network, which he also created with his compatriot. For example, SM shows that being from the same country was

important for him to “tingle mingle” which is a sign of a strong relationship; however, the age factor makes IA suitable as a source of advice for SM.

For information [...] I have many friends who all are elder than me, two are from my country and one from other country, but we have same language [...] they all are here for four years, I think basically they are good source for me because if I have some problem, if I can't find specific information in the internet! I GO FOR THEM (AS – 1: 29)

Sharing the same language and country and being older and having experience of living in the UK were also the main factors used by AS to build his advice network.

With TP, he is a guy who everyone tries to give information to, because he is fresher and he is not that confident, and he is usually the part of our jokes, if we want to joke he will be the guy to be called (SM – 11: 47).

On the other hand, having less experience and being younger were factors in seeking others' advice. As SM expressed, being a “fresher” made TP seek advice from others and put him in a position where he was “part of our joke”.

In terms of work advice and working related stuff, unless we are group together, there is no much movement apart from the programming maybe, because I took a course before and I'm trying to help them if I can (EJ – 3: 2).

4.6.4. Instrumental Support Network

For instrumental support, international students were found to rely on other sources outside the classroom, such as their pre-existing networks. Essentially, these networks were found to be on a co-national basis. Community clubs, former students and people who live in the UK were among those students refer to for general inquiries and advice regarding living/ studying in the UK.

4.6.4.1. Instrumental Support through Co-national Pre-existing Networks

Instrumental support was generally maintained through the co-national friendship networks.

I also know people in some society, like Chinese society, I know a lot of people, they are local people but they are Chinese in the university. Sometimes like Saturday or Friday, we usually have a party or maybe go outside. Sometimes see them in the information commons and we talk to each other. Sometimes I ask

for advice and give advice, for instance, my roommate, sometimes I don't know how to do things, I ask them, so for my roommate I ask her in living, like cooking, these kind of common things (LR – 7: 10).

This was through mutual support by giving and asking general information and advice related to everyday life, such as “living” and “cooking” as LR expressed.

Community clubs, for example, are considered to be one of the main providers of instrumental support from the moment students arrive in the UK.

I think for general help, there is my community club here, it is not related to any person, anyone who want to serve students from my country here, he goes there, and they provide, any one from the new coming students the information about accommodations, visa, about everything here, and they also arrange for us as well. So when I came here first of all, they gave me a good advice where to stay and which company to get contract with for the phone, and if you want a car they will provide you with a car as well. That is for the general help, and for the information about studying, searching, and that stuff, I go to my friends who are doing their PhD now, they work at my university as well, so I know them (OS – 9: 20)

For OS, the community club was important in supporting him since he came to the UK. Their help includes basic advice and information regarding starting life in the UK, such as finding accommodation, etc. Having such a community that helps students with their basic advice and information needs makes them feel comfortable and not needing to build another network inside the class. OS also relied on his compatriot friends, outside the classroom, for information related to the course because they were experienced and knowledgeable as they were “doing their PhD”.

Students tended to rely on others, outside the class, for their instrumental support.

I do have lots of cousins; two of them are staying in London. my cousin brother I talked to him with everything related to UK all the lifestyle and everything, he was the guy who guided me and for everything I do here, I call him and say I'm doing this is it okay? If he knows it is alright then say ya do it! If he doesn't he will tell me just give me two minutes, I will get you information then he call me back. I do have a cousin sister, and it is more about living how to do this and that, go to this shop you will get this, she is married and can help me in term of the house, she is teaching me how to cook (SM – 11: 48).

SM has also showed his reliance on people outside the classroom for instrumental support. He seemed to rely on his “cousin brother”, as the main source of information related to the UK and “for everything I do here”. This can be clearly related to his experience of living in the UK, also this

extended to his cousins' social network, where he tended to seek other sources of information in order to provide SM with the information he needs. SM has also referred to his "cousin sister" for other instrumental support such as "living" and "how to do this and that"; this also stems from her experience of being married, where she provides SM with help "in term of the house" through her teaching him how to cook.

I have one friend who has done his MBA from City University of London last year, so I'm in touch with him, so anything related to study, subjects, visa passport, or any information that I need, he is my point of contact, I accept his advice because I consider he is a reliable source (KA – 6: 18)

KA also stressed SM's view by referring to the existing network for instrumental support, mainly compatriot friends, who have experience of living and studying in the UK. KA has clearly referred to his friend because he is "a reliable source" of instrumental support.

4.6.4.2. Instrumental Support through Co-national Work Networks

International students were found to obtain their instrumental support through their co-national work network. This can be seen through the mutual help they provide to each other, either in sharing information related to work, such as with an "assignment"; or in everyday life matters, such as to "go out together", "shopping", and "travelling". It is also noticed that more experienced individuals can be a source of such information.

Mostly, when we are at the university, we are together, discussing most of the time about the study and all these things. But sometimes we do go together, like shopping or like this kind of things, travelling sometimes (HM – 5: 16).

YJ, he is a Chinese guy, we discuss with each other our Java programming, he I'm not sure, maybe he don't have the programming experience before so sometimes, I tell him where he can find relevant information about Java, and he also send me some assignments requirements and what he found difficult for him, we often chat via MSN, we discuss our problems - problems about Java programming (RX – 10: 7).

Others tended to seek instrumental support from their roommates.

I do have three to four flat mates, and most, two of them finished their master last year and two of them still studying but it is just like flat mates relationships, we cook together, we eat together, if we want to go outside! They are all from my country (HM – 5: 18).

HM has stressed his dependence on his flatmates for instrumental support, for example, cooking and eating together; obviously they share the culture and language factors.

4.6.5. Communication Networks

International students were found to use different communication tools based on their country. The common communication tools they were found to use were online chatting (IM) and social networking sites, such as facebook. Meanwhile, they were found to create a facebook account here in the UK, as the majority of them used their own country's version of a SN tool. Technology use was found to be an indication of the strength of the relation, where students were found to change their current communication tool to suit people in their networks, normally creating a facebook account. On the other hand, email was found to be the main tool to communicate with the people they share a work relation with.

*We are all connected to Google Talk, it is a messenger, myself, BD, TP, EJ, LR, RX, SM, most of us are connected through that. Even if you are not having a messenger and you are checking emails, there is this browser, you can chat also. So we are normally are there online, so anything is there we share our opinion or any document or anything, if someone is getting bored, will say hi, how are you doing? Everybody is there in this messenger, so we stayed connected through that also, it is very difficult to meet here, cause in the evening it is very cold to go out and in the daytime you are occupied with work, so its via the internet, Google talk messenger or MSN messenger that we interact with each other. [...]
Facebook is another way through which we are connected (KA – 6: 17).*

KA explained that online communication tools offer a way to maintain his relation with his class friends by “staying connected” beyond the university, which can be a problem during the daytime because of being busy in their classes, also because of the “cold” weather, for them to meet in the evening, after classes. For KA, Google talk provides them with more time to “share opinions”, “sharing files”, or just a normal chat, “hi, how are you”. KA also stressed that using facebook was another way to be connected with friends here in the UK.

People from different countries were found to use different communication tools within their country. In order to keep in contact with people here in the UK, students tended to use different communication tool depending on the strength of their relation with people in their networks.

Different people also use different SN tools, where people join facebook here in the UK. SM, for example started using facebook here in UK to keep in touch with friends.

We have a Taiwan version of facebook, "Writch"(CY – 2: 19).

even I'm not used to facebook or anything, I'm not used to use any social networking tool, I have many friends in Hi5 and facebook, Hi5 is another social networking tool from the US, I think, I have many friends there [...] I use this site to communicate with my friends in US and even in my country[...] I also have some friends on facebook, but I don't use it often (HM – 8:22)

Ah, actually we have another IM (instant messenger) in my country- NATEON, now a days, many people use this, it is for guys from my country, so it is impossible to use some other international guys (YK – 16: 19). EJ is on my facebook friends list, I can talk to him using facebook, and LR, she has my mobile number, and I have her mobile number we text each other and RX, she is also in my facebook list, when we went movies, we organised with facebook message [...] I think after using facebook, EJ me and RX we are getting closer before, because we can say whatever we want whenever, (Is LR in your facebook?) No, she said she does not use facebook, so I recommended her to use facebook. I think she will use it (YK – 16: 20).

For example, YK expressed that using the country's version of IM can only work with people from the same country; while it was "impossible" to communicate with his friends in the classroom, who were international. This led him to use facebook, which is clearly an indication of strong relations with EJ and RX; "we are getting closer". Having a strong relation with LR was also a reason for YK to recommend her to use facebook that she only knew here in UK, as she had a Chinese version of IM (see the following quotation).

We have a similar MSN messenger in China called OICQ (QQ), we always use this tool to contact each other, it is better than MSN, I used this when I was second year in the school students, and my friends already, so we used to use this (LR – 7: 12).

LR also showed her use of a different communication tool to keep in contact with her friends outside the classroom, which she believed is a "better" tool that she has been using for quite a long time, since "second year in the school".

Having alternative communication tools might also be preventing the intercultural mix.

We have something in China that is same to facebook, XiaNie, I have my friends there (YB – 15: 8).

For YB (who was isolated in the class, as shown by the observations, and by SNA), having a Chinese version of facebook that he already uses to communicate with his friends might have had an impact on him being isolated in the classroom network.

My friends, sometimes I use QQ to communicate with them [...] And I communicate with my family members with QQ, because in QQ it is almost like MSN, we can chat online, we can see each other by the internet[...] I've got my facebook account here in UK (WJ – 14: 13).

WJ also shows her use of QQ as a main communication tool to keep in contact with pre-existing networks.

I often have my space, my MSN Space (QQ), because most of my people use that rather than facebook. Facebook I know it is favorite in western countries but in China it is not so favorite, we often use space and share my sites on the MSN space[...] Not in this class, for Chinese people use this one (XiaNie) (RX – 10: 19).

These communication tools allow Chinese people to keep in touch only with other Chinese people, preventing others from joining their network. It might be because Chinese students were only able to access facebook outside their home country, which could be preventing them from maintaining their relations before or after the course started.

In my country this social networking tool (ORKUT) is more prominent than facebook, just because my friends back home uses Orkut a lot, I don't want to change, like many friends here ask me to come to facebook or something like that, but I know that then I will not give much time to Orkut then I will lose all those friends back home (SM – 11: 42).

4.6.6. Conclusion

As mentioned earlier, in the SNA questionnaire, the majority of students either did not fill in the section related to advice, information and support networks, or they just put a tick to indicate it is similar to the work and friendship network. Basically, this reflected a problem in the SNA that needed to be investigated using qualitative methods. Collecting qualitative data has enabled the research to shed light on this issue and allowed further exploration of the types of networks developed in a multicultural classroom in a UK HE context.

Based on these data, international students were found to form multiple networks; namely: work, friendship, advice, instrumental support and personal support networks. However, only work and

friendship networks were found to develop in the classroom; whereas advice and personal support networks were found to be continuations of pre-existing networks. The support and advice networks, for example, were found not to develop in the classroom, but rather showed continuity with pre-existing networks or with co-national networks beyond the classroom boundaries. The main factors found to shape the support and advice networks were trust, experience related to age, and time. The instrumental support, on the other hand, was found to be created both within and beyond the classroom, where most of the time it was based on co-national factors. The other type of network was the communication network, where this network was found to develop in the classroom as a result of having other relations, either work or friendship; or to continue with pre-existing networks through having a country-based communication tool. Meanwhile, the work and friendship networks were found to develop in the classroom and they were found to be shaped by many factors. Also these two networks transformed from one into the other over time. The factors shaping these two networks are discussed in the following section. Then in the discussion chapter (section 7.4) comparison of the findings of this research to the previous studies will be discussed in more details.

4.7. Factors Shaping the Dynamics of International Students' Networks

The analysis of the qualitative interviews and observations showed many factors to be impacting on the dynamics of a multicultural classroom in UK HE. However, these factors were somewhat different to those shown by previous studies because the majority of research participants were international students. The factors were found to be mainly related to differences in language and programme of study. The time factor was also important in identifying the role of other factors, and showing how the networks change over time. As mentioned previously, work and friendship networks were the main networks developed in the classroom. This section explores the factors shaping these networks and how they transformed one into the other over time.

As discussed earlier, work and friendship networks were the only networks that developed as a result of classroom relations. Initially, a co-national work network was formed, where the time factor, the programme of study and meeting early in the course factor were found to be the main shaping factors. However, the language factor seemed to be decline in importance over time, whereas learning motives appeared to have a growing role in shaping the work network. The friendship network, on the other hand, was found to be formed on co-national factors (language,

culture and co-national clusters factors). Over time, the friendship network is transformed into a work network.

4.7.1. Language

Language was found to be an important factor in shaping the work network of international students because it is easier to understand and communicate with people who share the same language, to create a relationship, to be close and to share stuff related to home with people speaking the same language.

This sense of similarity that same language creates forms “*a common ground*” for compatriots, where they have the same sense of humour and a similar way of “making fun of people”, which is also related to sharing a similar culture.

This girl, LR, she is from China we speak in Chinese, it is easier for us to communicate, we talk about our hometown, where we travel in China, she went to my hometown before and how about Sheffield, because she is in her first two months in UK now (RX – 10: 13).

According to RX, sharing the same language makes it “easier to communicate”, which allows students to talk about common topics, such as “travel”, and compare their life in their home country with that in the UK.

I have a friendship relation with AS and WH, because they speak my language, I can interact with them more easily, because if you want to talk with someone in English, you can't really express yourself, even I'm speaking English for years and years, still you can't (HM – 18: 1).

In addition to being able to easily communicate, people can “express themselves” better using their native language, even when their English proficiency was not a problem. This can be a significant factor in creating the friendship network as HM mentioned.

I discuss with SA and SM more of the personal level, the problem with CY is the language barrier, cause he is from Taiwan, otherwise, we discuss like everything (SN – 12: 10).

Sharing the same language fosters a relationship and allows the relation to be stronger through discussing personal issues as SN expressed.

If it comes to BD and KA, since we share the same language, we can joke, the way we make fun of people would be very similar that is a common ground for us (SN – 12: 25).

SN considers sharing the same language as a “common ground” that allow students’ relationships to develop. With a similar language, people can share other things, such as how to “joke” and “make fun of people”, as clearly expressed by SN.

Yeah the language, I can say is one of the major reasons probably, it helps, but that is not a constraint, but you can also say that someone who can speak English and also can speak Hindi, so it is better, you can share things in Hindi and stuff like that! (KA – 6: 5).

Moreover, speaking the same language is also preferable because it allows students to talk about common things related to their native language and countries, as expressed by KA.

Different language was found to be a barrier in creating multicultural networks. This is related to the difficulty in understanding the various English accents of international students, which is another reason for not creating a close relationship among them.

We are all, most of us are international students, we have our different languages and we are using same language in English, so we have different accent and pronunciations so sometimes it is really difficult to understand some other guy’s English so I think that is why it is not so close between us, I have many Chinese friends here, the pronunciation is not same but much easier to understand than Indian guys’ English, I think this is a kind of barrier to block to be close (YK – 16: 15).

On the other hand, sharing a similar language could create co-national clusters that inhibit others from being part of these networks. According to a Korean interviewee, people tends to form the co-national or co-regional groups, because people from the same country/ region speak English the same way and can understand each other’s English better compared to communicating with other nationalities.

This was also stressed by another interviewee.

Yeah I did try talking to people from China, say Chinese they have difficulty understanding and telling what they want, then there is no possible way you get close to them because you have to keep repeating the sentence like not only Chinese but sometimes we find like we had friends outside, you have particular you have particular language barrier then if you are not able to talk very easily you don’t tend to get comfortable (SM – 11: 32).

Speaking English with other international students can be uncomfortable, because some international students can have difficulty in “*understanding and telling what they want*” in English. This is considered to be a barrier to creating close relationship among international students which force them to be in co-national groups.

Meanwhile, there was a variance among preferences to build a mono-cultural network based on their level of understanding and speaking the English language, which can vary from one person to another.

YB he came about three weeks (I think because his visa was delayed) after the course started, yeah, we have fun, we talk but not that much, again we have the language barrier, but with CY it is different, because he can understand much quicker, and we can also understand him better (SM – 11: 40).

For example, the reason for SM not to talk “that much” with YB compared to CY is because their level of understanding is different.

4.7.2. Culture

Culture was also found to be one of the factors that created co-national work and friendship networks. However, there was a variance in the role of culture in the formation of international student’s networks. For example, in this study, sharing cultural factors was found to be fundamental in the formation of the co-national friendship network, whereas culture factors were not always the factors that shaped the work network.

Being similar was one of the reasons that make cultural factors important in creating co-national friendship networks, which can be the base for the creation of the work networks.

TA because he is from my country, speak same language same culture, everything is similar to me, so that is a good reason to communicate with him (OS – 9: 11).

OS, for example, stresses the “sameness” between him and TA as a main factor that brought them together.

And BD also he is not a team member but he is very... like... he is from the same place so we get along very well [...]same country, because when you know they are from your country half of the barrier is taken away, we can be a close far easier (SM – 11: 5).

According to SM, being from the same country is considered to remove “half of the barriers”, and is a main factor to form co-national groups. SM believe that it is much easier to be create a close relationships with compatriots: “closer far easier”; also compatriots do not need to have a work relationship in order to be friends, because they “can get along very well” even if they were not “team members”.

Two are male and two are female, I did not know them before I move to the flat in this September, but we know each other quite quickly, maybe because the similar culture (LR – 7: 11).

Cultural similarities strengthen the relationships and create personal support relations among co-national groups.

If anything happened it would be BD, TP, GM, it is because they are my country man, they understand me and trust me (KA – 6: 14).

KA refers to his compatriots, who he described as “my country man”, in cases where he needs personal support, because of the common things between him and his compatriots, such as sharing the same values towards things that enable them to “understand” and “trust” each other.

However, cultural similarity need not be solely based on co-nationality. Regional or “ethnic” cultures can also be the basis of relationships.

As you can see, there is a Chinese people around me, I’m not Chinese but I’m same; Asian, so I think maybe we have similar life style or similar way of thinking or cultural, we don’t have a big cultural gap, that is why we can be close I think!(YK – Follow up interview).

Having similar “life style” and “way of thinking” related to the culture factor was one reason for YK (who is from Korea) to be in a group of Chinese students, even though they do not share a common language.

Sharing the same culture also has an important role in the formation of the friendship networks. The co-national friendship network is represented by sharing the social events and the festivals related to the country with co-national groups beyond the class boundaries.

SA, same, he speaks Hindi also, I met him in a number of events outside, such as depavalli event or the night out parties, or he meet me out, in these extra social activities (KA – 6: 7).

Sharing the same interests stemming from the shared culture helps to build co-national friendship networks, by the ease of having extended conversations compared to those with people from different nationalities, who need more time to build a relation with because of the cultural differences. Sport is one of the shared interests that are related to culture that helps build the co-national networks.

And probably common things between us like most of us like cricket, if there is a match going around, we have something to talk about, so we say did you check the score? Yeah, I checked the score (KA – 6: 4).

People in these co-national groups will have the feeling of togetherness, which they express through the use of collective words such as, “us” and “we”, as can be noticed in KA’s comments.

4.7.3. Co-national Clusters

Having large numbers of students from one country has an impact on the entire network, which seems to exclude other minority students (in terms of nationality), which was noticed through the seating segregation inside the classroom. In this case, those who form the minority tend to form a network, because it is far easier for them to be in one network or to be isolated from the whole network. The role of the co-national clusters factor was found to extend to impact on other factors, such as group work and programme of study, to build the work and friendship networks based on this factor.

I think in the class room, for example, there is a lot of Indian, so they tend to be together, or Pakistani students who also tend to be together, I think this can be one cause. For example I don’t think EJ met other students, may be apart from particular one, maybe because he is the only one of two or three from his country in the program. But I think Indian students or Pakistani students tend to meet each other. I think it is about country (MH – 8: 10).

This is clearly expressed by MH, who believes that these co-national clusters that “tend to be together” prevented other student such as EJ from joining such a group.

No social, cause my friends in the class don’t know my Chinese friends. All my friends outside this class, they did not have link with my class mates (LR – 7: 7).

4.7.4. Same Programme of Study

Participants in this study were from different programmes of study. The research findings identified programme of study as an important factor in shaping the network of students in this study. This can be due to sharing more than one module, sharing the same schedule, having the same assignments, the same course-related problems and the same future plans. Having the same programme was influential in creating the work network. This was because students shared more than one module, which allows for more discussions and questions to ask each other. Further, sharing the same schedules enabled students to easily find common time, hence work together in the same group. Having shared assignments that need to be discussed in groups was one of the main reasons to connect students from the same programme. This can be through helping each other in solving technical problems and in discussing different ways of solving the common assignments.

Following the same programme was also important in building the work network that evolves into a friendship network over time. Moreover, students from the same programme see each other more often; hence can have a better chance to get to know each other and to create a closer relationship. On the other hand, studying different programmes can be a barrier to forming relations among students, even among co-national groups, which can be as a result of having less time they can spend together compared to people from the same programme; also because of not having much in common in terms of work-related issues.

EJ, he is doing information systems, he is on my same course, I think we are quite close, we went movie once, after that we have drink together. RX, she is also doing IS course, so all the lectures are same, and we have.... Yeah I actually visited her place once, we have many ...we talked lot (YK – 16: 3).

Being on the same programme of study, hence sharing the same schedules, offered a good chance for students to develop a friendship network. This is explained by YK, who developed a “close” relation with EJ and RX, because of sharing the same programme and “all the lectures are same”. Furthermore, this gave them more time to be together, which strengthens their relation through the social activities they had beyond the classroom.

Moreover, sharing the same programme allows for more topics to be discussed in relation to the shared assignments, modules and same problems related to modules.

Just discuss about the module, how everything is going. YK we have also some discussions, last week I called him to ask him questions about one module. We had an assignment and I forgot something, and sometimes we had chat after and before the class about the modules. The same is OS, also sometimes I discuss with him about some courses some assignment, yeah, WH also, the same just to discuss about the module, or if they have some thinking about some assignment to share this (MH – 8: 4).

Following the same programme, for example, was the main factor for MH to create a relationship with others in his network.

Moreover, sharing lectures and assignments through the same programme created a common ground for students to develop their networks

With FF, we have some lectures, several lectures in common, one of the lectures is Java programming, which is really challenging for US, so we often discuss about the assignment together [...] Writing an essay is not so difficult, it does not need any technical knowledge so, but some other assignment like Java programming, this kind of things, we need some technical professional knowledge, so it is really helpful to finish our assignment (YK – 16: 9).

YK has expressed his need to discuss the assignments with people from the same programme, who share the same attitudes towards some modules, such as Java programming, which they thought is “challenging” for them. This can be by working together in discussing and solving technical assignments.

Some students for my major we have more chance to communicate, but other student who have different major or something, we just meet one time every week for lectures in Friday, maybe Wednesday sometimes. So there is no much chance to always talk with them (LR – 7: 5).

LR agrees that people from the same programme have “more time to meet”, which creates better a relationship compared to people from a different programme of study.

No I did not do any coursework with MH, but we exchange our opinions about other assignments (YK – 16: 5).

Sharing the same programme of study allows students to have common conversations related to the different modules they share as YK expressed.

YJ, he is a Chinese guy, we discuss with each other our Java programming he I'm not sure, maybe he don't have the programming experience before so sometimes, I tell him where he can find relevant

information about Java, and he is also send me some assignments requirements and what he found difficult for him, we often chat via MSN, we discuss our problems - problems about Java programming (RX – 10: 7).

Moreover, people in the same programme can also share information related to modules that helps them to solve technical problems related to programming, for example, as RX stated.

But AS, QA and AK, because we had our project assignment together. So I had also some particular conversation with them, sometimes AS call me to ask me about the timetable of the course and this kind of things or sometimes I discuss with him about career after the study (MH – 8: 9).

Through sharing the same programme of study, MH for example, had the chance to “exchange opinions” related to the assignment with EJ. In addition to assignments discussion, MH shares his career plans with people who shared the same programme of study.

4.7.5. Meeting Early in the Course and Network Formation Strategy

Findings showed the importance of meeting early in the course as a factor, and its role in shaping international students’ networks. Essentially, this happened through various channels; namely: through a friend of a friend, through meeting in the orientation week, through meeting in the English summer school or through meeting on the social networking sites. Meeting before the start of the course was found to impact on the creation of the friendship network, which forms the basis for building the work network.

A friend of a friend was found to be a typical way for international students to know each other before they come to the UK, which is based on co-national networks.

I only know TA before the start of the course, he contacted me before we started in one month, he told me I know you are going to study this course...he knows that I'm going to start the course so he contacted me...through his friend, he knows me....He has a friend here in Sheffield, and he knows them before I came here and he has some contact with them, they told him about me (OS – 9: 9).

For example, OS and TA knew each other through a common friend before they meet, which impacted on their network by making a friendship relation that evolved into a work relation over time.

By other friend, I know a friend, my friend knows her and she is in the engineering [...] YB is the same situation with RX I know a friend who introduce her to me (WJ – 14:5)

She is my friend, I knew her one year before, I was in Halam University she is from china, I know her through a friend of us. Sometimes I have dinner with her (YB – 15: 5).

This is also clearly shown by WJ and YB, who were from different departments, but who got to know their compatriots (RX and YB) through a common friend. The relation formed among them was a friendship relation. They were not in the same group, but they had discussions related to the course and to the module assignments.

On the other hand, missing the orientation week could be a reason for not making many relations with others.

I was late, I did not come here at the orientation week, when I come here for the classes, I found that people already have their groups (HM – 5: 6).

In the case of HM, being “late” for the orientation week was a barrier for him to be part of other groups in the class which were already formed.

4.7.6. Time

Findings showed time as a factor that had an important role in shaping international students’ networks. Work and friendship networks found to evolve one into another over time. On the other hand, “busyness” in both study or with other personal commitments (work or family), was a barrier for the formation of the networks or even for their evolution. Time management was one of the factors that shaped the group work formation. Students were found to prefer to work with people who have the same schedule as themselves, where they can easily arrange time to meet. On the other hand, the failure to find a suitable time for the group meetings was a barrier for the formation of the work network.

Actually we are quite busy, we have many things to do plus the assignments everyone is busy so, if we want to do something, everyone is so busy, YJ, he is specially busy, he is really busy every day because his girl friend staying in Coventry and every week his friend come to Sheffield and he goes to Coventry so he does not have any weekend, so it is impossible to have a social activities with him on weekends (YK – 16: 18).

Busyness beyond the university seemed also to be an inhibiting factor in the building of other networks, such as friendship networks. For YK, having many things to do, in addition to his study, had impacted on the development of his relation with YJ, who was busy even in the weekends, which seemed to be the only chance for them to have social activities and for their work relation to evolve.

Being busy with other commitment beyond university life, such as with work or with family, can minimise students' chances to strengthen their work relation.

Actually, they are very busy, TA is married, he has his family, whenever he finish his lecture, he rushes to his home, plus OS, he has a kind of schedule in which he leaves after the class (AS – 1: 19).

Having no time to meet after classes was a reason for AS not to have social activities with AT and OS, which also impacted on how their network developed.

People who were married, for example, spend less time with their peers after classes; also their social circle would be different from other people in the class.

I might visit some friends with my family, go to Manchester or Bradford, we have some relatives there, this is my social life, but after school, I spend my time home. And because I'm married, when I want to find someone to socialise with, I need to find someone who is married and has family like me (TA – 13: 11).

TA, for example has clearly mentioned that having a family made him build his network with those who also have families.

She (LR) met my wife as well and my wife likes her and she likes my wife as a kind of sisters. And LR, she is quite close to me, if I have a chance I will invite her to my place (YK – 16: 10).

For others, having a social relation with people in the class needs to be compatible with their personal life and might need to be approved by their spouse, as YK expressed.

4.7.7. Proximity as a Factor

4.7.7.1. Sitting in the Classroom and Teaching Style

Teaching style was another factor that helped in initiating a relation among students. For example the discussions during the lecture give students chances to discuss things with other students who normally sit next to them.

CY ya! Because in the class, he always sit next to me ya, so in the class we can we have some conversation and if we have a discussion we discuss ya (WJ-011).

I think this is the only group, maybe during the course, when we have a group discussion in the lecture, then we talk to the one who sit beside us (TA-010).

Because of this teaching style, students would be able to discuss different issues related to the course with other students in the class. Students in this case would tend to discuss things with people around them, so sitting next to each other could be a reason to create a latent network, which might evolve later to build other networks, such as work or friendship networks.

EJ, LR and RX also, it is just when you sit in a class you happen to talk to a group of people sitting next to you, then you share some understanding and build on, it just happen to be our group, so you find us sitting next to each other in the class, or after the lecture or in the break we meet together and have some chat, so it just happen to form a group, so that is one reason (KA-09)

Sitting next to each other, for example, was a factor for KA, EJ, RX and LR to form their work group. As can be seen in KA's excerpt, sitting next to each other and discussing different issues helped them to "share understanding" and so "build on" their relation that was important in building their work network.

4.7.7.2. Same Accommodation

Being close, in terms of the place where they live, and sharing the same accommodation or same way of going home, can be important factors in allowing for more time to discuss the shared interests.

MH is much closer than the others guys! He said that he has a flat mate from my country so we talked about him [...] and he is living in VH, so from this regent court to VH is the Same way to going... sometimes we go back together (KY-025).

KY and MH for example, although they did not share a work relation, they had more chance to discuss different interests because of sharing the same way of going home, such as different assignments, roommates, etc. This could create more topics for them to discuss and may help in the evolution of their relation. KY does not have the same kind of relation with others in the same course, for example, but his sharing the same way home with MH was the factor that created the bond between them and could be the reason for strengthening their relation.

4.7.8. Learning Motives

Learning motives were found to be significant in creating international students' networks. Research findings showed that learning motives had a clear impact on building the work network, which, in some cases, was the base for forming the friendship network. There was a variance in learning motives among international students. The majority of international students were found to be more achievement-oriented and aimed to attain the best performance. In this case, students who showed more commitment towards their study formed a work network, regardless of their nationality. In fact, participants were found to prefer working in culturally mixed groups that share the same learning motives, which were more focused in having "better" results. On the other hand, being highly motivated towards work was a barrier for those who prefer to work in a more relaxed environment. Previous studies have also shown the role of learning motive factor in the integration between home and international students (will be discuss in more details in section7.4.6)

Learning motives were identified to be more influential by time. Initially, international students tended to form their work group based on co-national groups or on other factors (as discussed earlier). However, this found to change over time, where more emphasis was given to sharing similar learning motives.

I want to advise the interaction with group members , I mean the course works and how it, how the lecturer should... that would have helped a lot of people... that could have helped me first, because it is natural when you come here, you scared, you don't know other people, so you tend to go and join friends from your own country, so in order to break that thing, you, because not everyone is willing, they are willing, they want, they wish to, but they are not very confident at doing it, because, I mean over here, British people they are confident, they do what they want, they don't care, but other people, like from India or Pakistan, they consider many things, should we do it should we not do it, how will people think about it ...those kind of things (HM – 18: 6).

It can be clearly seen that HM's justification of preferring to work in co-national groups was due to feeling unconfident and being "scared" to work in mono-cultural groups, especially at the beginning of the course. However, he realises the benefits of working with people from other nationalities and prefers to be forced to work in culturally mixed groups in order for him to have more interaction with other nationalities.

KA is a bit studious kind of guy he is always serious working so we don't tend to hang out with him very much, study, study! We do talk, like once in a way but not that often (SM – 11: 7).

However, it was not always the case for compatriots to work with each other, even in the initial stages of the course. For example, having strong commitments towards study is not always the motive for international students, as expressed by SM, who does not seem to "hang out with" his compatriot KA, because of having different learning motives and because of being perceived as a "studious" person.

Learning motives can be an important factor in forming the multicultural work groups over time. For international students, the role of the language and culture factors in shaping the co-national work groups can be more significant at the beginning of the course, because students still do not have knowledge of each other's learning motives and working style.

In the first semester, okay this is from my country, I will work with him, I will interact with him more. But now I know both of them, I will take a call not on a basis of the country, but on the basis of how good a person is in terms of how he works and whether it would be fun to be with (SM-follow-up interview).

Learning motives and work orientation were the factors that shaped the work network in the second semester. This is clearly expressed by SM, who preferred to work with people based on sharing the same working style and motives; also with the ones who "would be fun to work with", rather than on a co-national basis.

I tried to contact her (RX) but she was like having other friends so ,even though I tried to do a group with her this semester, but she was already her group, because she was a bit serious wise, I mean I wanted to work better (HM – 18: 3).

The impact of the learning motives factor can be more influential over time, also can be given a priority over the language and culture factors. This is what makes HM seek to work with RX, who is from a different country, in order to "work better", as she was a "serious wise" student.

At that time, I was sitting around FF, so I noticed that he had a kind of aggressive participation attitude in the lecture. I wanted to have a better group mate rather than a just quiet guy, so I asked him. YE, he wasn't there I guess, when we met him later, he was the only guy who wasn't joined in a group we found, and we needed another group mate so we asked him to join our group(YK – Follow-up).

Having the motive to have a “better group mate” made students form their groups based on who can help them improve their grades.

I did not like working with him in that working group, and so I decided not to work with him this semester, he wants to work with me, but I don't want to, because I will not get anything by working with him. And I 'm working with people I know, because people whom I know, I can make them do their work without annoying them [...] It is really difficult to work with someone who you don't know, [...] In general, they are not serious, I did not come here to get to know him, I only want to have a master degree and go back home, that is why I worked with people who I can ask them to work, so we get better results (OS – Follow-up).

Having a bad experience in working with a mono-cultural group makes student prefer to work with people they know, because students can easily manage their group work when working with people they already know. This also stems from the motive of having a good performance; hence, preferring to work in co-national groups. If getting better grades was the main motive, then students would try to form a group that guarantees that.

most of the time, you tend to be with those people who are more relaxed, and less serious, they are in the middle, so you can work with them and you can have fun with them as well. So most of them are like that, some of them are, like for example, GM, is totally unserious, so I will never ever ask him to come and have group with me in a course work (HM – 18: 5).

Having similar learning motives and attitudes towards work is an important factor in forming the learning network. HM, for example, prefers to work with people who have similar learning attitudes to him, those who are “in the middle”, who can work and have fun at the same time. However, he would avoid working with people who have different learning motives to himself.

4.8. Chapter Overview

Social network analysis was important in identifying the types and characteristics of the international students' networks, and the characteristics of these networks. However, there were

some aspects of the data that could not be clearly explained using SNA alone, which made it necessary to combine the SNA with qualitative methods to further understand the research problem.

Based on the social network analysis, the work and friendship networks were found to be different in shape. The work network was never dense, and the number of isolates varied during the semester. Group work seemed to have a significant impact on network cohesion. The visible class network was different from the reported network (students reported to have in the learning context) as reflected through the centrality measures in both networks. SNA has generally provided a sociogram that showed students clustering according to the same programme of study in the work network, whereas, the language was the shaping factor for their friendship network.

Social network analysis was not very useful in providing a detailed account of the types of networks international students build in a UK HE context. However, it gave an indication that students had misinterpreted the advice and information relation (because most of them they did not fill in the questionnaire or just filled it in as being similar to the work or friendship information). Qualitative findings were useful in this regard, by showing that international students build specific networks in the classroom; these were based on work and friendship relationships. However, other networks, such as support networks, were found to extend from pre-existing co-national network. Advice networks were also found to stem from pre-existing co-national networks.

Qualitative methods were also successful in providing a comprehensive account of the factors shaping the network dynamics of international students. The main factors shaping the advice network of international students were found to be time, experience and age. The time factor was crucial in building trust that was the base for the support and advice networks. Another network that was found to stem from pre-existing networks was the instrumental support network, which also developed among people in the classroom, to support everyday needs. Experience and living/ studying in the UK were important to shaping the instrumental support network, which in the majority of cases was found to be based on co-national networks. International students were found to form their friendship network based on co-national groups, because sharing the same language and culture factors made them more comfortable in communicating with each other, and because of having much in common that kept them connected with their home countries. Work networks, on the other hand, were found to be shaped based on sharing the same programme of

study factor. Sharing the programme of study is also related to the time factor, where in this case, it was easier for students to find common time to discuss their assignments and to discuss the modules they had in common. In the next chapter, the second stage of findings is discussed.

Understanding the factors shaping international students network can be useful in impacting on the network patterns. For example, those factors that create clusters in the classroom (whatever common factor they based on) can be encouraged to create more cohesive network. The more common factors between individuals, the stronger the relation that formed, which would have impact on their learning experiences. For example, strong ties help in creating a cohesive network; meanwhile, weak ties (that could be based on one common factor) can impact on the learning in different way because of the different sources it brought to the network.

5. Chapter 5: Data Collection and Analysis - Stage II

5.1. Introduction

Having discussed the findings of the first stage in the previous chapter, this chapter presents the second stage findings. The second stage of data collection was carried out in the first semester of the year 2009/2010. Similar to the first stage of research, findings in this stage of research were also integrated from the two sources of methods; namely: qualitative interviews and observations and quantitative social network analysis. This package of methods was developed in the first stage to be applied in this stage and in order to test its effectiveness in a full cycle.

5.2. Research Context

In this stage, the number of participants was 41 international students studying a first semester, 15 week long module: Information Systems and Information Society (INF6400), at the Master's level, in the School of Information, University of Sheffield.

Based on the first stage findings, some interventions were proposed to improve network cohesiveness, believing that this could improve student's learning experiences and enhance information exchange and flow in the whole network. Some of these changes were suggested based on first stage findings, such as mixing students based on nationality in their group work. Whereas other changes such as the type and the deadline of the assignment were the instructor's choice.

5.2.1. Module Assignments

In this stage, different strategies and types of assignment were suggested compared to assignments in stage 1. These were, firstly, creating a multimedia (MM) project as a more creative and intense form of group work. Secondly, the group make-up was determined by the tutor, based primarily on mixing nationalities. In addition, a social bookmarking tool was adopted to try to minimise isolates in the class network by providing another means of communication, which all students could take part in. Students needed to work in groups of three to produce a multimedia project, on a topic related to the module content. This assignment required them to first design a formative plan (not assessed) of their MM project, which was due on the end of week 6. The second part was the MM project itself, which was due on week 10 of the semester and formed 30% of the overall mark of the module. They were also required to do a group bibliography using a social bookmarking tool

(Diigo), which formed 10 % of the module's overall mark. Finally, they were required to produce an individual essay reviewing the theoretical background relevant to their MM project.

5.3. Second Stage Purpose

- a. To confirm the factors shaping international students' networks found in the first stage of study and to avoid the danger of having findings based on one class only.
- b. To further explore how these factors evolve over time.
- c. To test the SN tool in a complete cycle.

5.4. Social Network Analysis

As has been discussed in the first stage, the SNA findings need to be treated with considerable caution, since the number of students was too small to allow for the test of significance to be performed. However, SNA was useful in explaining the types and the characters of international students' networks. Based on the findings of the first stage, students were found to have two main networks in the classroom; namely work and friendship networks. Consequently, in this stage, the SN questionnaire developed in the first stage was used to study the evolution of these two networks.

5.4.1. Social Network Data Collection

Questionnaires were distributed four times during the semester, at carefully designed intervals, where more interaction was assumed in terms of group work, to allow measuring of these changes in the network. The first questionnaire was distributed in the first week of the semester, aiming to establish the initial status of the students' networks. The second questionnaire was distributed in week 5 of the semester where students were assigned into their work groups. The third questionnaire was distributed in week 7, which was also the deadline for students to present the first phase of their group work (the multimedia production plan). The final questionnaire was distributed in week 10, which was the deadline for students to present their first group work, the multimedia project (a summary of questionnaire distribution times is given in Table 5.1). Students were asked about four relations in the questionnaire. These are: ask/give general information, ask/give course related information, work and friendship relations (based on (Haythornthwaite, 2008)). Only work and friendship relations were analysed, which were the main two relations that built the

social networks of students in an educational context (based on the first stage of study). Except for the first questionnaire, students' photographs and names were added to the other questionnaires. In practice, this was based on the findings of the first stage, where using photographs in this dynamic context was found useful in increasing the accuracy of the SN data.

Week /Date	Practical	Lecture	Questionnaire
Week1- 30 Sept 09		01/10	1 st Questionnaire
Week5- 28/10/09	Group work and assessment briefing		2 nd Questionnaire
Week7- 11/11/09		Groups present plans	3 rd Questionnaire
Week8-10 18/11/09-02/12/09	No Lectures: Students working on the multimedia production		
04/ 12/09	Deadline for the video submission		
Week11 09/12/09 & 11/12/09	Student MM presented to class for comments and debate		4 th Questionnaire
22/01/ 10	Deadline for submitting the second part of the assignment: Diigo bibliography and individual's essay.		

Table 5. 1: Data collection timetable

The majority of students filled in the four questionnaires; the number of students participating is shown in Table 5.2. In practice, the number of students who filled in these questionnaires varied, which emphasises the need to treat the SN data with caution.

Questionnaire	Participants (41)	%
1 st	34	82%
2 nd	36	88%
3 rd	31	77%
4 th	30	73%

Table 5. 2: The number of participants in questionnaire

5.4.2. Social Network Analysis: Stage II

Similar to the first stage, the cohesion and centrality measures were applied in this stage to examine the patterns of network cohesiveness over time. The main two networks analysed in this stage were the work and friendship networks. First, the work network is discussed.

5.4.2.1. Work Network

In order to identify the work network, students were asked to place a tick (✓) in front of the names of individuals who they worked with in module assignments or had discussions with related to coursework. In order to study the network cohesiveness, different cohesion measures were performed. First, the network density measure, which shows how the network is connected and the degree of collaboration among actors in the network, was used; the higher the density, the more connected the network and the more the interaction among group members.

In this class, the network density values showed a continual increase (Table 5.3). This suggests an increase in student's interaction activity; hence the class network became more connected over time. As it can be seen in (Table 5.3), only 10 % of students were found to have work relations at the beginning of the semester; however, this increased in work2 to 31%. The increase in network density in work3 reflects an increase in the interaction in terms of work relations. The network density showed a slight increase between work3 and work4, from 39% in work3 to 42% in work4, which is roughly the same as in work3.

Density	Work1 (week1)	Work2 (week5)	Work3 (week7)	Work4 (week11)
	10%	31%	39%	42%

Table 5. 3: The Density measure for the work network

The centralisation measure indicates the distribution of the ties among people in the network. It indicates the balance of the network ties among people in a network. A 100% centralisation value means that one actor is in control of all the network connections and this member is in the central position of the network. On the other hand, a 0% centralisation value means all actors are equal in the number of ties they hold; hence, no actor is in the central position of the network. A high measure for centralisation means that one particular individual has the majority of network ties which leads to a less cohesive network, where a low measure indicates the ties are equally distributed among people in the network which implies a more cohesive network.

The centralisation measure for this class (Table 5.4) has shown a clear increase between work1 and work2 (which might not be significant, however) but there was almost no increase between work2 and work3, and a decrease between work3 and work4. The low centralisation measure (12% - 25%) shows that there was no particular actor holding the majority of the network ties, i.e. No particular individual was in the central position of the network. It can be noticed that while density

steadily increased over the four points of time, centralisation has slightly decreased in work4 compared to work3. This might reflect the fact that fewer people were in the centre of the network.

Centralisation	Work1 (week1)	Work2 (week5)	Work3 (week7)	Work4 (week11)
	12%	26%	25%	21%

Table 5. 4: The centralisation measure for the work network

Degree centrality refers to the number of ties that an actor has. Actors who have a high centrality measure are in a central position of the network. In the class network, the centrality measure (Table 5.5), showed that people in the central position of the network were always changing, and no particular actor was in the central position all the time. This confirms the centralisation findings, which reflects an increase in the network cohesiveness. Different members had the central position of the network at each specific point of the network evolution. However, understanding this pattern of change in the network was not possible using SNA alone, which stresses the importance of the qualitative methods in enriching and clarifying the findings in SNA.

Centrality	Work1 (week1)	Work2 (week5)	Work3 (week7)	Work4 (week11)
	AM	SM	TA	AV
	FL	GD	FL	AM
	SM	AN	AV	AN
	WL	PR	AM	MuA
		TA	SM	

Table 5. 5: The centrality measure for the work network

Cliques are another measure of network cohesion that represents groups of people, normally more than 2, where members of cliques all have a reciprocal relation; the more cliques in the network, the more cohesive and connected the network is. The number of cliques in the class network has massively increased between work1 and work2. From 8 cliques to 46 clique in work2, then a steadily increase between work2, work3 and work4 respectively (Table 5.6). This means more interaction had occurred among people in the network, and the network became more cohesive by the end of the semester.

Cliques	Work1 (week1)	Work2 (week5)	Work3 (week7)	Work4 (week11)
	8	46	55	52

Table 5. 6: The clique numbers in the work network

The number of isolates in the work network dropped from 6 students in work1 to none in work2, work3 and work 4 respectively (Table 5.7). This reflects the cohesiveness of the network; however, justifying these findings can only be conducted using qualitative methods.

Isolates	Work1 (week1)	Work2 (week5)	Work3 (week7)	Work4 (week11)
	6	0	0	0

Table 5. 7: The isolates in the work network

5.4.2.2. Friendship Network

In order to identify the friendship relation, participants were asked to place a tick in front of the name to identify a person as “a friend (e.g. socialise with, go out together, etc)”.

Density	friendship1(week1)	friendship(week5)	friendship(week7)	Friendship (week11)
	0.0399	0.0769	0.0835	0.0929
	9%	17%	19%	21%

Table 5. 8: Density measure in the friendship network

As shown in Table 5.8, the network density of the friendship network has continuously increased over time, which means the cohesiveness of the friendship network increased over time. The decrease of the average distance among actors in the network (Table 5.9) also confirms that the cohesiveness of the friendship network increased by time, although there was a slight increase of the average distance between friendship3 and 4 (also reflected by the cliques measure (Table 5.10)).

Average Distance	Friendship1(week1)	friendship(week5)	friendship(week7)	Friendship (week11)
	2.316	1.731	1.645	1.882

Table 5. 9: Average distance measure - friendship network

Cliques	F1(week1)	F2(week5)	F3(week7)	F4(week11)
1-Clique	10	18	23	26
2-Clique (FoF)	13	25	39	42

Table 5. 10: The number of cliques - friendship network

Centralisation	F1(week1)	F2(week5)	F3(week7)	F4(week11)
	7.61%	12.49%	20.44%	16.90%

Table 5. 11: the Centralisation measure - friendship network

The centralisation measure (Table 5.11) was another confirmation of the increase in friendship network cohesiveness, which also shows that there was no person holding the majority of ties in the friendship network. This is also confirmed in the centrality values (Table 5.12); interestingly, there seem to be a steadiness in the people who were in the central position of the network over time.

Centrality	F 1(week1)	F2(week5)	F3(week7)	F4(week11)
	FL 5	RN 9	AM 12	MR 11
	AM 5	AM 9	SM 11	FL 10
	SM 5	SM 8	MuA 10	AM 10
	OM 5	AT 8	ZJ 10 TA 9	MuA 9
	RN 5	AN 7	MA 7	CE 8
	WL 5	TA 7		WT 8 HeN 7

Table 5. 12: the Centrality measure - friendship network

5.5. Qualitative Data

Qualitative data in this stage was based on data gathered from interviews, observations and photographs. This package of methods was developed in the first stage of research and was designed to be tested in a full cycle in this stage. Interviews were conducted between week 8-week 11, in order to further explore the dynamics of international students and what factors shape their networks. In conducting interviews, this was done in a way that takes the perspective of the majority of nationality/ programme of study factors in the classroom; the number and nationalities of students interviewed is given in Table 5.13.

Interviews stage 2	Week 8- Week 11
Gender	Female/Male: 9/ 8
Programme of Study	ISM/IS/EDL (electronic digital library)/EU (Erasmus) (18/19/3/1): 9/6/2/1
Groups	2- 7 groups, 1 3groups
Nationality (17/ 41)	Arabic: 4/ Chinese: 3/ UK: 2/ Iran: 2 (a male and female)/ India: 1/ Sri Lanka: 1 Finland: 1/ Malaysia: 1/ Nigeria: 1/Columbia: 1 (all the different languages and countries)
Nationality	Arabic: 14, Chinese: 10, India: 6, Sri Lanka: 2, Iran: 2 (one was a UK resident) Nigeria: 2, UK: 2, Columbia: 1, Finland: 1, Malaysia: 1

Table 5. 13: Interviews Information

5.6. International Students' Social Networks

As in the first stage of findings, the second stage of findings confirmed the idea of multiple networks (multiplex relationships) in the multicultural classroom. It was also shown that the international students formed the same types of networks as in the first stage. For example, both support and advice networks were found to stem from pre-existing networks, which confirms the findings of the first stage of this research. As for the friendship network, many students manage to form friendship networks based on multicultural relationships. This might be related to the intervention in this stage, where students were assigned into multicultural work groups. However, more established friendship relationships were formed based on co-national relationships. Instrumental support was also maintained through the co-national friendship networks, which provided international students with academic and instrumental support. Mono-cultural networks were also found to be one of the sources that provide students with instrumental and academic support. Sharing the “same conditions” among a multicultural group can be the connecting factor that enables them to be of support and help to each other.

5.7. Factors Shaping International Students' Networks: Stage II

This section discusses the findings of the qualitative data, in terms of the factors shaping the network dynamics of international students. This stage discussed the factors that confirm the findings of the first stage. It also provides a further explanation of how these factors operate over time. Co-national factors (language, culture and co-national clusters) were found to have a crucial role in shaping the work and friendship networks in their initial states, however, this changed over

time to give more role to the learning motives factor. Programme of study, time and meeting early in the course were also found to shape both networks. Having said that, the findings of this stage showed that the factors work in a complex way, where some factors could be creating some type of network in one pattern, whereas the same factor would have no impact on creating another type of network in another pattern (Figure 5.1). These factors are discussed in the following.

5.7.1. Language

Language was found to be one of the significant factors in shaping international students' networks. Participants found it easier to build a bond through the shared language, which also makes them closer. However, students in this class showed a preference to build a network with native English speakers because this improves their language proficiency, hence their performance.

Language was the first thing to connect people because of the many “interesting” topics to discuss. Sharing the same language was often found to be the first factor in connecting people, hence in building their networks. Initially, formal relations were built, which are then strengthened over time to form work and/ or friendship networks.

Honestly, the first thing connect us are people who are like us...in terms of language, culture, the first one I met was AN, then gradually, we started to know more people from different countries, who might be of same programme of study, then might be a working project then might be a specific interest, so gradually it evolves (AM-20:21).

AN and AM, for example, had a potential relationship- a latent tie, mainly because they share a common language. A work network is then created based on the same language factor. Furthermore, sharing a common language can be a factor that strengthens the work relation, where having strong ties helps the network to evolve into a friendship network. AM has also expressed the view that his network was shaped by other factors that change over time, such as programme of study, group work and same interest.

The friendship network was found to be created based on sharing the same language as a factor.

Everyone has his own friends already, and for me, I don't like to make friendship with people from different language, I feel we understand each other better (EA-26:21).

EA has clearly described her preference to form a friendship relation with people sharing the same language. She believes that being a friend with people who share the same language makes it easier to “understand” each other.

WS, I met probably the third or fourth week [...] we have many interesting subject and topic to discuss, and I now see him every day, we don't meet, but I see him around, we always have just 5 minutes chat, just to see how other courses are going. I made a friendship with him now (HP- 29:5).

HP has demonstrated that having the same language creates many “interesting topics to discuss” with WS, which was significant in building their friendship network. However they were from different programmes of study and worked in different groups (based on my observation). HP and WS did not seem to have time to meet very often because they were from two different programmes; “we always have just 5 minutes chat”. However, this was not a barrier for them to form a friendship relation that was based only on sharing the same language.

Regarding those guys who are from the same country and language, it is a kind of friendship relation, we might go out together. But regarding the others, it is mostly course related relation, asking them questions related to the course and projects, not more than this. For example, WS, HN, most of the talk is about the project and what we are doing and so (AM- 20:6).

AM confirms HP’s view, by stressing that language was crucial in building a friendship relation. Whereas AM had only a “course related” relationship with the others in his group work, who were from different countries to AM.

I think language makes a big difference. Because when you talk in your language, you feel more, it is more informal and it is closer. And if you talk in English, it is like a kind of formal or professional talk that you've been doing. So may be language makes a little difference (PR – 33: 27).

For compatriots, speaking the same language makes them feel “informal” and “closer” compared to the “professional” and formal feel of speaking the English language, which they believe it is more to talk about work related topics. PR’s relation with both SD and GS was “closer” because they share the same language.

Sharing the same language was also important to build a close relation in a short time.

You can't build a rapport very quickly, [...] unless you share a common language, it is very difficult to do that, because it is hard to get pass what are you studying, where are you from, how do you find things, which is really superficial and does not really give you any kind of, you know, anything more developing relationship, that is why, with HP[...] it is very easy to move from conversation into more depth stuff, there is also this, the language as well, I guess (WS-35:21).

WS finds it easier to “build a bond” with compatriots, also faster compared with other nationalities. WS expresses the ease of building a relation with HP through the short time he spent with HP compared to the others. WS also stresses the common language factor as a very important factor for the relation to evolve. His relation with HP, for example, has evolved to a friendship relation mainly because of the shared language and culture, where they can easily discuss other common things, rather than having to start with the “*basic questions*” as is the case with different languages, which could prevent the relation evolving. Sharing the same language brought HP and WS together and created a friendship relation among them; however, they were from two different programmes of study and they did not work in the same group.

However, sharing the same language was found not to always be a factor that shaped students' networks.

I know GS, because she is from the same place where I come from. We have a better relation. I mean all kind of relationship, friendship, work related and all kind of discussions we have. RS, I met her here, I don't work with her, neither we had this kind of close friendship, we just know each other, and just talk when we come across (PR-33: 47).

Being different in character, for example was the reason for PR not to have a friendship relation with RS, even though they shared the same language and programme of study. However, PR had a friendship relation with GS because of sharing the same country, and the same programme factors. PR's relation with RS seemed to be weak (having weak ties) as he commented that we “*just talk when we come across*”; this might be related to other factors, such as different characters, where it has been observed that RS was much quieter than the others who were from the same country.

They are completely opposite, they are different in characters, RS is very quiet person, and GS is more social, also RS has her own group from outside the class, who are from same country. Maybe, she did not feel that she needed to make a friendship relation with those in the class (HN- 20: 1).

HN (as a group mate and friend with RS) has also confirmed that the different character that RS has compared to the people from the same country was the main reason for her not to be part of their network; also this might be related to having other compatriot friends outside the class, who share the same characteristics.

For work networks, international students showed a preference towards working with English native speakers. International students' preference to create a relation, specifically work relation, with English native speakers stemmed from their motives of improving their language skills and performance.

My view is that I want to communicate with people who speak English, because I'm here to improve my English. If I'm going to my Iranian friends, then I will talk to them with Farsi, for this reason, I said working in the group of ISIS is good for me, because I speak to them in English (MR – 32: 10)

MR for example, prefers to communicate with English speakers and work with people who speak English in order to improve his English proficiency. This is stressed through his preferences to work in a mono-cultural group rather than working with people who share a similar language.

The grouping idea, personally, I like it, because we came into country, errr, you can have your friends from same country later, they are there in your home country, but you came into a place, where you want to improve your English for example, "boost up a little bit", the "fluency", you need to speak with a native speaker to..Yes, I might don't have a real problem in English, but I'm sure it is not perfect. And in order to be fluent, you need to speak the language (AT – 22: 39).

Students realise the benefits of speaking in the English language, not just to improving their English but also to be even "fluent" English speakers.

If I had another choice, I can again, with my friends, and probably with the British guys, because sometimes it is quite difficult for me to understand Chinese people, because of their accent [...] because it is easier to understand them (GD – 27: 17).

Working with English speakers was the second best option for international students after working with friends, who were normally co-nationals. Working with English speakers was perceived to be an advantage, because it is easier to understand and work with native speakers, compared to working with other international students, like Chinese students, whose English accent is difficult to understand, which makes students prefer not to work with them.

Because our common language is English, I think, naturally, I kind of, you know, people may be look to me to make sure everyone understands and we are all in the same page, and I'm probably taking the lead in researching our topic, just because its, it's much easier for me to communicate with people in English, and quickly get to the core heart of the subject (WS – 35: 22).

Being an English native speaker gives a privilege to its speakers, who gain a leading role through their language proficiency. This is noticed by what WS describes as how other international students in his group perceived him as being responsible to “make sure everyone understand” and “taking the lead” in talking and searching for the topic; also in being able to easily communicate with people in the English language because of his ability to “quickly get to the core heart of the subject”

WT, I choose WT, not just because we speak the same language, but because she has lots of same common things of me. I think we have the same value towards things, I think it would make it easier for us to work together, because we have the same value towards lots of things. I think one is of course a native speaker and another who just have similar background of me, easier to communicate and understands (CA – 25: 27).

Sharing the same language makes it easier for people to work together, because it is easier for them to communicate and understand each other. This is expressed by CA, who prefers to work with WT mainly because they share the same language, and because it would be “easier” for them to work together. CA also showed her preference to work with native speakers as “easier to communicate and understand”.

5.7.2. Culture

Culture was also confirmed in the second stage of research to be one of the main factors in creating co-national work and friendship networks. In most cases, culture was found to be crucial in building the friendship network, whereas the work network was not always built on a co-national basis.

Because the similarity we have, first, LS, has the same nationality, we met in the lecture, and after that we decided to work with each other (MR – 32: 1).

Being similar in terms of culture was also key in building the co-national work network. This is clear in MR's quotation, where he justifies working with LR because of being from the same country.

I think we are kind of closer, because we actually came from same place, I think so” (AV – 23: 10).

Compatriots do not just prefer to work in co-national groups, but to share all different types of relations, like friendship.

I know GS, because she is from the same place where I come from. We have a better relation. I mean all kind of relationship, friendship, work related and all kind of discussions we have (PR – 33: 15).

Co-national groups can “quickly” get to know each other and form their network faster than with mono-cultural groups because of the similar culture.

Same culture has an important role in the formation of the friendship network. This co-national friendship network is represented by sharing the social events and the festivals related to the country with co-national groups beyond the class boundaries.

Here in UK, most of the people I know are people from my country [...] All my social life is with people from my country, anything related to family or personal I discuss it with those people, because we have the same culture, we always together, we spend the time together in some festivals or so, our wives for example have a weekly gathering in one of the houses (AN – 21: 33).

The culture factor was found to be crucial in forming co-national work networks. Being comfortable, because of having the same culture, is one of the reasons making students prefer to work in co-national groups or with their “friends”, who are normally co-nationals.

Generally if you have the choice of choosing your group, you end working with your friends [...] Well, I don’t know, I have not been equally comfortable with somebody else as well, so (PR – 33: 50).

International students’ preference to work in co-national groups can be demonstrated through HP’s perspective.

If I walk into the class and said who would you like to work with, I will go directly to the English person, because the commonality something we have. (HP – 29: 19).

HP believes that having things in common, “commonality”, makes working with people of the same nationality his first option.

The different behaviour is also a problem to me! Some people have different behaviour and different culture. For example, you can’t accept some behaviour, because you don’t used to do this, but this is

accepted in others culture because this is how he used to do this thing. These cultural differences create conflicts sometimes. So that is why the Arab, we like to work with each other, because we do understand our culture and how to respect each other, where some people from different countries don't realise this cultural things. Maybe they see us different! And they might not like this. (AN – 21: 26).

AN, for example, prefers to work in co-national groups, where people “understand” and “respect” their cultural values, and hence avoid the “conflict” arising from the misunderstandings stemming from cultural differences.

I think so, it is interesting how in the society class, we were told which group we would be, and in another classes, we choose who wants to be in group with [...] I think it is a good way of working. It is more difficult, because you don't know the boundaries to reach the people, you don't know what their thoughts are in different things, and then the cultural differences on how you want to work to choose the film for instance, and it is quite interesting to try to manage everyone from different places around the world to choose one thing, I think it is more challenging to do that (HP – 29: 17).

On the other hand, cultural differences could make working in mono-cultural groups be perceived as a “challenging” task in a positive way, as HP stressed. This can be due to the difficulty of knowing the “boundaries to reach people”, where people from different cultures have different ways of thinking.

Because it is not only evolves your communication skills, or makes them better, but also, in the sense, you know, involves you listening to other people ideas, add to your knowledge, you take that on board, you use their way of thinking and the way they make sense of ideas and assignments, and problems, that helps you, I think, later on in other assignments. To maybe thinking different ways, just the way you are thinking, just because you've experienced the other ways other people might have for taking assignment (LS – 41: 16).

The different ways of thinking related to the different culture, can be beneficial for students, who see working in multicultural groups as an advantage that can “add to their knowledge” and improve their “communication skills” through communicating with people who have different perspectives and ways of tackling work-related problems.

5.7.3. Co-national Clusters

Co-national clusters were one of the main factors that had an impact on the network formation of international students. People who were from the same language/ culture had formed a cohesive

group that inhibited others from joining these groups, which was noticed through the seating segregation inside the classroom. This had an influence on the other cultural minorities in the classroom, forcing them to either form another network or to be isolated from the whole network. The impact of the co-national clusters in forming the network was found to impact on the role of other factors, such as group work and programme of study, which normally work as crucial factors in building their networks.

Having a large number of students from one country has an impact on the entire network, which seems to exclude other minority students (in terms of nationality). In this case, those who form the minority, tended to form a network because it is far easier for them to be in one network.

Because you can find they are from different countries, and usually they sit together with the same nationality, for me, it is hard to join them, you can see they sit together, they are in small group, and it is just hard for me to join them, I don't know what to say to them (even they have same language?) yeah (are they from the same programme?) no, they are in different programme (WL-34:15).

Co-national clusters distinguish themselves inside the classroom through the seating segregation, where co-nationals tend to “sit together”. This cohesive group gave others the feeling of exclusion, where they found it hard to join such groups, as WL stated.

FL, I'm not only seeing him in this class, I'm seeing him in Java class, [...] he sits mainly in the area with just people from same country, all there, so he does not really come to speak to anyone else. And I'm finding most of these classes, only one, two to three people from my country, so for me, going to a group of people of same nationality is difficult to integrate [...] Normally, because if there is one or two people of different countries, then it is easier to talk to them, because they are in their own too, but I know, there seems to be a lot of Chinese people in the classes that I'm in, and they know each other or get to know each other, and they go together all the time, it is difficult to get, go in there (HP- 29:15).

HP stressed the significant impact of having a large number of students from one country on the class network. He found it “difficult to integrate” with such a cohesive group, and would rather form a relation with people who are “on their own”, because it is “easier to talk to them” compared with those co-national clusters, who “go together all the time”. Sharing other common factors with FL, such as programme of study and working in the same group, were not enough for their work relation to evolve into a friendship relation because of the co-national cluster that FL belonged to.

FN and AA, they did their undergraduate study together, they knew each other before they came here, all their topics are same and they have things to talk about and share the memories and interests. So, it was difficult for me to be part of their group just like that. Especially they were not my working group. I think, for a new one to join a group that been already formed, is very difficult to build a relation with those old ones (HN – 28: 3).

Having cohesive co-national clusters, which were already formed, can also prevent some others from joining the group, even if they shared other common factors. In the case of HN, she shared language and the programme of study with FN and AA. However, because FN and AA were clustering in one group, HN could not join their group; she found it very difficult to be part of their group because they share many things: “*share the memories and interests*”, and she found herself as an intruder to that group.

Also RS has her own group from outside the class, who are from same country. Maybe, she did not feel that she needed to make a friend relation with those in the class (HN – 28: 6).

Co-national clusters, outside the classroom, were also found to be an inhibiting factor in building the network of international students inside the classroom. Both LR and HN described how the co-national cluster outside the classroom was the barrier for having a “social” relation with people in the classroom, which impacted on the evolution of the relation.

5.7.4. Same Programme of Study

Participants in this study were from different programmes of study. The research findings identified programme of study as an important factor in shaping the network of students in this study; this can be due to sharing more than one module, sharing the same schedule, having the same assignments, having the same course related problems and having the same future plans. Having the same programme was influential in creating the work network. This was because students shared more than one module, which allows for more discussion and questions to ask each other. Further, sharing the same schedules enabled students to easily find common time, hence work together in the same group. Having shared assignments that need to be discussed in groups was one of the main reasons to connect students of the same programme. This can be through helping each other in solving technical problems and discussing the different ways to solve their assignments.

Following the same programme was also important in building the friendship network through strengthening the work relationship. Students following the same programme had the chance to meet and communicate more often, which gave them the chance to know each other better and to create a closer relationship, even when they do not share the same language. On the other hand, studying different programmes was a barrier to forming a relation among students, even among co-national groups, which can be a result of not meeting each other as often as people following the same programme, and not having much in common, in terms of work-related problems.

People following the same programme spend more time together through discussing the shared modules and assignments, which encourages the friendship relation to be developed.

Well, for RN, he was for a while with me in the English course, but we were in two different classes, my relation with him was very superficial. But when we come to this module(programme) together, we started to talk more with different kind of communication tools, like email, telephone, and we help each other in the assignment. The relation is even evolved; we are friends in facebook now. Then he is now one of the closest friends, as we are most of the time together, so we get to know each other better, same for all those guys like HT, OM, AN (from same country) (AM-20:19).

Spending more time together was reflected in AM's excerpt, who describes his relation with RN as "superficial" before joining the same programme, although they were from the same country. However, their relation has developed into a friendship relation, because of being in the same programme and being together "most of the time together", where the strength of their relation is measured by the multiple use of communication tools.

AM, my relation with him at the beginning of the course was really weak, he is a bit quiet and shy person, which was a reason for me not to be a friend of him! But now, because we started to talk about projects, and we started to meet and share ideas and opinions, we are friends now (EA-26:18).

Because of sharing the same programme, EA's relationship with AM has developed from one which "at the beginning of the course was really weak". She had the chance to get to know him better through the discussions related to the common modules and projects they have. However, her first impression about him was negative, finding that he "is a bit quiet and shy person".

TA, I got to know him through the orientation, since we are of the same country, he invited me to events, and we became friends, so that is how we came into one group" (ZM – 37:9).

People following the same programme, who meet in the orientation week, can have a chance to form an early relationship. ZM shows how he became a friend with TA, who he met in the orientation week, and because they were from the same country. Their relation has evolved into a friendship relation, which formed the basis for the work relation later in the course.

With her (RS), it is quite a close relationship, because I spend time with her in other activities. I speak to her in another situations not just study [...] For example, let us go to have our dinner and take a coffee, something like that. (Is she from the same programme?) Yeah, she is doing information systems that is why (GD-27:9).

Sharing the same programme and working together can be the main factor in the formation of a friendship network. This is demonstrated by GD, who developed a friendship relation with RS through going out together and spending more time in “other activities” than study. However, they were from two different countries and speak different languages.

Yeah, because we are in the same module (programme of study), so we know each other very well, we are familiar with each other, I think we are all the same schedule, so it was easier for us to find common time for us to get together, I will spend more time with WS, BK and UJ, but most for the course work (CA-25:38).

People following the same programme can easily develop a relationship because they spend more time together, share the same schedule, and can “find common time” far easier than with others from different programmes. However, the relation might only be a work relation and does not develop into a friendship relation, as CA commented.

Being on the same programme of study encourages the formation of study groups to discuss the different problems they face in the course.

LS, she is in the same programme, but we did not work together, but we talk about the projects, we share module notes sometimes (EA -26: 6).

Even if not working together, they can discuss course work and projects, also share notes related to common modules.

Mostly, in the beginning we were talking about the programme, we found each other in more than one module, this creates more questions to ask each other, and more time we spend together. This increased our chances to get to know each other better [...] they are not working in the same group, but I got to

know them because we are of the same program of study, I see them in more than one class (AM – 20: 10).

Being on the same programme, meeting more often, and having the same worries about the different modules, “create more questions to ask each other” and spend “more time together”. Hence giving them a chance for their relation to develop.

MR, he is with me in two group assignments, so most of my time is with him, we discuss things related to course. He and LS, they are the most close to me, in term of course matters. Because we share, now three group assignments, so most of the time we are together (AN – 21: 8).

FN, I know her very well, because I have 4 or 5 classes with her this semester, (same programme?) yes, and I see her every day in the lectures. She sometimes help me with java classes because she programmes, so she helps me in that side, we are in one group together in this class, and another class, I do a lot group work with her (HP – 29: 7).

Working with people on the same programme creates a friendship relation, where they can spend more time together for the different assignments.

Yes, we work together, but communication most time is over the email! (Why?) I don't even know her programme, I know she is busy, we don't have the same programme, so we have, it is kind of difficult meeting, most time is over the internet, sending each other emails, yes (AV – 23: 11).

On the other hand, working with people on different programmes is difficult, where students cannot meet face-to-face and can have no time for their network to develop. Consequently, people on different programme of study created no relation, which leads to more isolates, hence a less cohesive network. Being of the same country, as expressed by AT in the following quotations would cause no difference.

“Those girls from my country, I don't know any of them. I don't know their names, to be honest (AT-22:13).

OA, he is also one of my compatriots, I don't have any relation with him. I only know his name, he might not know my name! I don't know, he seems to me to have his relation with AM, MA and RN, as he is from different programme of study. He is different from us, we are ISM. In the common module, we might see each other, but we don't have any kind of relation at all (AT-22:6).

5.7.5. Meeting Early in the Course and Network Formation Strategy

Meeting before the start of the course was found to be influential in building the network of international students. This was shown to be through a friend of a friend, meeting in the orientation week, meeting in the English summer school, or meeting through social networking sites. Meeting before the start of the course was found to impact on the creation of the friendship network, which formed the basis for building the work network.

There is another group, the lecturer asked us to form group but not to be from same country. Honestly, I did not know them before, but because RN was in the English course, he knows a Chinese girl, this girl introduced her friend then we worked together (AM – 20: 38).

A friend of a friend was found to also impact on the formation of the work network. AM has expressed how they formed a mono-cultural work group based on a friend of a friend recommendation.

OM, he is very close to me, not just a course, we meet outside and we go out sometimes, we just sit and joke outside the study things, with AT and HT. Those three, the level of relation is better than and AM, AM only in the course. But those three, we have a study and social relation [...] they are my friends, specially OM, because OM, AT and HT, we were together last year in the English course (AN – 21: 5).

Meeting in the English summer school was another factor that impacted on the formation of international students' networks. AN has formed a friendship relation with OM (same language), mainly because they met before the class in the English summer school. This friendship relation is reflected through having other activities beyond the class boundaries, as AN expressed "we just sit and joke outside the study things".

I did not know any of them at the beginning of the course, even AN, my relation with him was through OM, because they were together in the English course, I got to know him after we started the work in the chain management module, we worked together (AT – 22: 23).

Having the chance to meet before the start of the course was also the main factor for AT to form the work group with OM (both of the same country), who got to know him through a friend (who he also met before in the English summer school).

I got to know her here in UK, in the English course, when we were studying English, I used to see her with my friends, but she was in different class, there was two girls in my class who are friends of her, she

sometimes came and chat with us. [...] AA, also same as FN, she is working with me in Information modeling project, she is living in the same building too, just same as FN, we knew each other in the language course (EA – 26: 51).

Getting to know each other in the English summer school was also how EA got to know AA and FN. This was the base for the creation of their work network (by working in the same group), which then evolved into a friendship network.

When I first came, I did not know those guys at all, I got to know them in the induction week, we were talking about the course and so, any help or information in the course, as we need such info in the beginning, it was very helpful to me[...] honestly, the first thing connect us are people who are like us [...] Yes, I'm working with others; we chose to work together [...] honestly, because we knew each other before from the induction week (the students from my country) (AM – 20: 37).

Meeting in the induction week was identified as one of the factors relevant to the formation of the co-national friendship network, based on sharing the same programme of study, which leads to the building of the work network. AM shows how meeting in the orientation week has impacted on the formation of the co-national work network: “we chose to work together [...] honestly, because we knew each other before from the induction week”.

Before the class, when we were asked to choose the modules, we all together (in the orientation week?) yeah, yeah. We all sat together and chose the modules, and chat a lot, then we record each other's mobile phone (WT – 36: 5).

This was also noted by WT, where meeting in the orientation week was the reason for creating her co-national cluster, which formed both friendship and work networks.

Meeting through social networking tools was another way for students to get to know each other before the beginning of the course.

Since he is from the same country, before I come here, I was late to arrive here, so I was in touch with him, so how things are going on and so. (So you know him before?) yeah, before coming here, through social networking sites, on Orkut, I found him, like he is joining the same course, so since I was going to join in late, I was in touch with them, how are things going, and what I need to do. So that is how we met, and we became quite closer (PR – 33: 10).

GM, again, I met him in social networking sites before I come here, because he was in the same course, because I need to get in touch with somebody for the course, if I missed anything, I need to know what I need to do. (Did you choose them because they are from India?) No, because they are the only two in...in India, we use Orkut as a social networking site more than facebook, most of the people in Orkut are Indian, the thing is that more Indian use it, so u don't find others from other countries, or maybe Sri-Lankan use it, I think, (PR – 33: 14).

Knowing each other through SN tools had an impact on the formation of the co-national friendship network, which in turn created the work network. This is how PR got to know his co-national friends, who joined the same programme of study. Their relation has evolved and they became “quite closer”.

5.7.6. Time

Research findings suggested that the time factor played important role in international students' network formation. Time has found to be crucial in the evolution of the work network into a friendship network through spending more time together. This allows for self disclosure that is the basis for the friendship network (Peacock and Harrison, 2009). On the other hand, busyness, both in study or with other commitments (work or family) was a barrier for the formation of the networks or even for their evolution. Time management was one of the factors that shaped the work groups' formation.

Students were found to prefer to work with people who have the same schedule as themselves, where they can easily arrange time to meet. On the other hand, failure to find a suitable time for group meetings was a barrier for the formation of the network.

I got to know him specifically on April 2008 [...] I knew him at that time, because I was almost free that time, because I had the unconditional offer from this faculty, but for OM, he had the English course, he got the unconditional offer in the beginning of January, and from that time till the beginning of the course, he was almost free, he did not have a work stress, so we were meeting a lot, and going out a lot, had the chance to see each other more (AT – 22: 12).

The time factor is significant in building the relation and strengthening it. This is clearly expressed by AT, whose friendship relation with OM has developed because they had extra time together and more chances to go out together before of the beginning of the course and the “work stress” began.

Like in this group for example, we had a little friction initially, but it is okay [...] it is okay because everyone is kind of busy and we had to do something by ourselves, and it is okay (AV – 23: 17).

Work network formation can be affected by the time factor, where being busy can be the reason for conflict among group members. AV has explained that the reason for “friction” in her group was related to the busyness of the group members, which forced them to work on their own.

Busyness in the coursework and lectures can limit the work relation evolving into a friendship relationship.

I think, maybe, a friend, but because MK is very busy, so, she invited me to her house, but at that time we have not decided when, and then we never, I never go to her house, but most of the email or so are related to the coursework, yeah (CA – 25: 20).

CA seemed uncertain of the kind of relation she has with MK: “Maybe a friend”; but her relation appears to be only a work relation, which is reflected by the communication tool they use: “email”, and by the type of discussion they have: “related to the coursework”. Being busy was the factor for the friendship network to form, which can be built through going out beyond the classroom boundaries and visiting each other, for example.

We divided the work between us, because the main problem of the group work is the group meeting! And finding a time that suits all the members. Like for example, RN had another meeting with another group. When you suggest a time, he said, no, I have another group meeting! Same with the others. Finding a meeting time is very hard, especially when the number of the group member increases, finding time is getting harder [...] first thing is being punctual. for example if we agreed to meet at nine, I don't like to work with someone who comes at 9:30-10:00, for example, today, we supposed to have a meeting at nine, one of them came at 12:00pm!!!! This is a really waste of time, (AN – 21: 48).

Time was one of the factors to take into consideration when choosing group members. For example, students preferred to work with people who respected time by being punctual, as expressed by AN. They also preferred to work with people who have similar schedules in order to be able to easily arrange for the group meetings. On the other hand, being unable to find a suitable time to meet, could force students to work individually by dividing up the work, so everyone can do his/her part in their free time.

Emm, we have to agree, you know it is really not easy, to put four different people in a group, you definitely have some issues, you just try to agree and , because everyone is kind of busy, either doing something else, so we try to reach a compromise, in time, time to meet, sometimes we can't meet in person, so we send what we got to the other person to work with (AV – 23: 15).

Moreover, being assigned into a group can be problematic for students because of the time factor. This is shown by AV, who found working with people who do not have similar schedules is “really not easy”. This pushed them to “compromise” in order to arrange for time to meet. In the case of being unable to meet, the work had to be divided so everyone can do part of the work based on their free time.

Being busy with other commitments beyond the university life, such as with work or with family, can minimise students’ chances to strengthen their work relation.

My relation is a bit stronger with AM because we have more discussions about the problems we face in the modules. [...] and he is often there in the IC, because the others have their families and most of the time they are not in the IC, because I'm mostly in the IC. AM is mostly in the IC, so it is easy for me to find him. He is not married (AN – 21: 2).

I think it is more relation about work, because she is very busy, because her life is busy, with family, and these things, she has just time to study (GD – 27: 16).

People, who are married, for example, spend less time with their peers after classes. Furthermore, their social circle would be different from the people in the class, and they tend to spend more time with their families. Some students found it difficult to build a friendship relation with married students because they are not there, and it is easier to find others who are not married. For others, having a social relation with people in the class needs to be approved by their spouse. On the other hand, having fewer commitments allowed people in the class to spend more time together, which strengthened their relationship.

5.7.7. Learning Motives

Learning motives were found to be significant in creating international students’ networks. Research findings showed that learning motives had a clear impact on building the work network, which, in some cases, was the base to form the friendship network. There was a variance in learning motives among international students. The majority of international students were found to be

more achievement-oriented and aimed to attain higher levels of performance. In this case, students who showed more commitment towards their study formed a work network, regardless of their nationality. In fact, participants were found to prefer working in mono-cultural groups that share the same learning motives, which were more focused on having “better” results. On the other hand, having such learning motives proved to be a problem to forming a co-national work network. This was due to the tendency of some students to work in groups that they feel more “relaxed” and “having fun “in, instead of working in a stressed environment that only focused on performance.

Learning motives were identified to be more influenced by time. Initially, international students tended to form their work group based on co-national groups or on other factors (as discussed). But most of them stressed that their work network formation was influenced by the learning motives in the second semester, as they got to know each other and had the chance to know each others’ style of work, and who shared the same learning motives.

WH, we are not friends, I mean, just talk about the assignment, once or twice, he is not the type of person that I want to make friends with! He is quiet, I mean, we don’t have a lot of common, he is like, he is like- I don’t think so, but my first impression about him is he does not care about anything! He does not care! “okay, I want to do the assignment, and it would be okay if I pass, I will not pursue the best I can do”, I’m a kind of person that I will do things as best as I can (WT – 36: 9).

Being from the same country does not always bring people together, particularly when they have different learning motives. WT, for example, explains that having different learning motives with WH: “I’m a kind of person that I will do things as best as I can”, was the reason for preferring not to be a friend with him, although they were from the same country.

Because I want to improve my language and also I like to be serious in my work, I don’t like to work with people who are late for meetings, delay and so on, I also like to get to know another culture, not just have one group and stuck to it till the end (AN – 21: 46).

Being achievement oriented can be one of the factors that encourage the creation of mono-cultural work groups. SN has shown his preference to work with people from different cultures that helps him to improve his English. Apparently, learning motives are the reason for SN to prefer to work with people who have the same learning motive as himself, such as being “serious” and “punctual”, even if they were from a different “culture”.

I would work with ZJ, FL and WT, because they are quite hard working, it is like they have a proactive attitude (AZ – 24: 38).

Being “hard working” and having a similar “proactive attitude” would be the reason for AZ to work with ZL, FL and WT, who are from a different country to AZ.

Definitely would work with CA again, she has got a really interesting ideas about different things. She has got some really, she brings some different perspectives. She is quite an accomplished student, she had paper published in Taiwan, she definitely has interesting ideas, she is very diligent and hardworking as well, I definitely work with her (WS – 35: 26).

Having similar work orientation can be the reason for a successful experience of mono-cultural group work. This can also be the reason to continue working in mono-cultural groups the following semester. WS has maintained his interest in working with CA, who is from a different country, because she shares with him the same learning motives and attitudes to work: “*I definitely work with CA again*”.

(So if you had the choice? Who would you choose?) errrrm, not sure because, I can say, it won't be always people from my own country, because I like who will be useful, like 6110, it is a different kind of activity, than the 6400 video making. But I will look for somebody who is more comfortable with, because I'm not very comfortable with video, I will look for someone who is comfortable with video making. Familiar with video making, and for 6100, I will look for a person who is more comfortable with modeling and more aware of that subject. It is more from subject perspective (PR – 33:48).

Being highly committed to work and achieving high grades is one of the learning motives that shape students' work networks. PR, for example, prefers to choose students on a “subject” basis, rather than a country basis, that could help him to attain better grades.

If I walk into the class and said who would you like to work with, [...] if I knew anything about the group, I would probably pick the people who want to work the hardest. Because without knowing where they are coming from, I don't know the one who is working hard and another one is not interested. So straight away, I will go to those two (HP – 29: 40).

This is also stressed by HP, who would choose to work in mono-cultural groups, because they share the same learning motives with himself as they were “working the hardest”.

For me, I'm really very punctual, but people are not, which is really annoying me![...] I was working with a group of Chinese students, they all were unpunctual, I used to always arrive early and wait for them, they always come late and sometimes they don't come at all. Only those Chinese group,[...] (did you choose to work with them?) no, no, they just put me in that group [...] for me, I would choose AA and FN, I prefer to work with people I know, because I know how they think and they are hard working (EA – 26: 61).

On the other hand, some students prefer to work in a co-national group, who share the same learning motives: “good at learning and studying” and because they “get very well along”.

Working as group increases the relation, and sometimes it dissolves the relations! Really, because I might expect something from my group members, other person might expect something else. Like if you were friends, then you worked together, then you found people are not working, and they want you to do all the work, for example, this affect you relation with them and weaken it, but if you were working individually, your relation would still good! Another case is when you work with people for some time, then you liked their work, then build a good relation (AN-21:20).

Having different learning motives can cause conflict among group members, which could impact on their relation and “weaken it” as AN expressed. Whereas, having similar learning motives and attitudes towards work can improve the relation and make it “a good relation”.

“I would choose from different country and different background, because we can share more ideas and different opinions, for example, if you in a group, most of them of the same country, the opinions and view might be same, it is more like a disadvantage, because we have only one view and one opinion, so if the group contains a different person, country and different background, we can have opinions in many things, for example the perception in one country, for example like my country, if you have someone from same country, you know something or more information about your country, and sometimes our perceptions are different. And I think it is advantage if your group contain different people and different background (AZ – 24:20).

Being open minded and aiming to learn about the different cultures can be one of the learning motives behind students’ preferences to work in mono-cultural groups. AZ, for example, considers working in mono-cultural groups as an “advantage” that brings different “opinions” and “backgrounds” that enrich their learning experiences.

5.8. International Students' Network Evolution

In the first stage of this research, findings demonstrated that the work network was formed based on co-national relations. The second stage of findings enabled a better understanding of the network dynamics, where students were found to form their work network based on sharing the same learning motives, rather than on sharing the same language. The creation of preliminarily co-national networks was the base used to create the work network, which evolved into a friendship network over time. In the second set of findings, group make-up has impacted on forming a multicultural work network. However, co-national work networks were already formed for other modules. The work network that was based on sharing the same language was found to evolve into a friendship network. However, the work network that was based on the multicultural network was found not to evolve into a friendship network over time, because of various factors (as discussed earlier). Meanwhile, some multicultural work networks were found to evolve into friendship networks because of their sharing common factors.

Conducting the second stage of study was important to explore how the factors operate over time. The findings of this research about the main factors influencing network cohesion suggested a number of interventions to address specific issues around isolation and cohesion of the work network. The use of the interventions in the second stage helped in understanding how the factors operate to shape the network dynamics. One intervention that was proposed was to extend the group work to the end of the module, since finishing the group work before the end of the semester had a dramatic effect on network cohesion. Furthermore, a more intensive group work exercise was proposed, and setting up the groups on the basis of self-consciously mixing nationalities to break down the tendency of cliques to form based on sharing a common language.

Students tended to form their work network based on sharing the same language and the same programme factors. In the case of assigning them into groups based on mixing nationalities, students' work and friendship networks were separated, where they form their friendship network on a co-national basis. The make-up of the group has influenced the network evolution, where the whole network evolved in the form of patterns (Figure 5.1). Each pattern was found to go through a sequence of stages before reaching the final stage (work into friendship or vice versa). In each stage, students' relations are shaped by different factors. The role of these factors is different from one pattern to another. The same factor can be a connecting factor in one pattern (building a network), and a disconnecting factor in another. These factors are: same language, same group

work, or same programme of study. For the tutors to create an impact on such a network (in a multicultural classroom), they need to intervene in these evolution patterns.

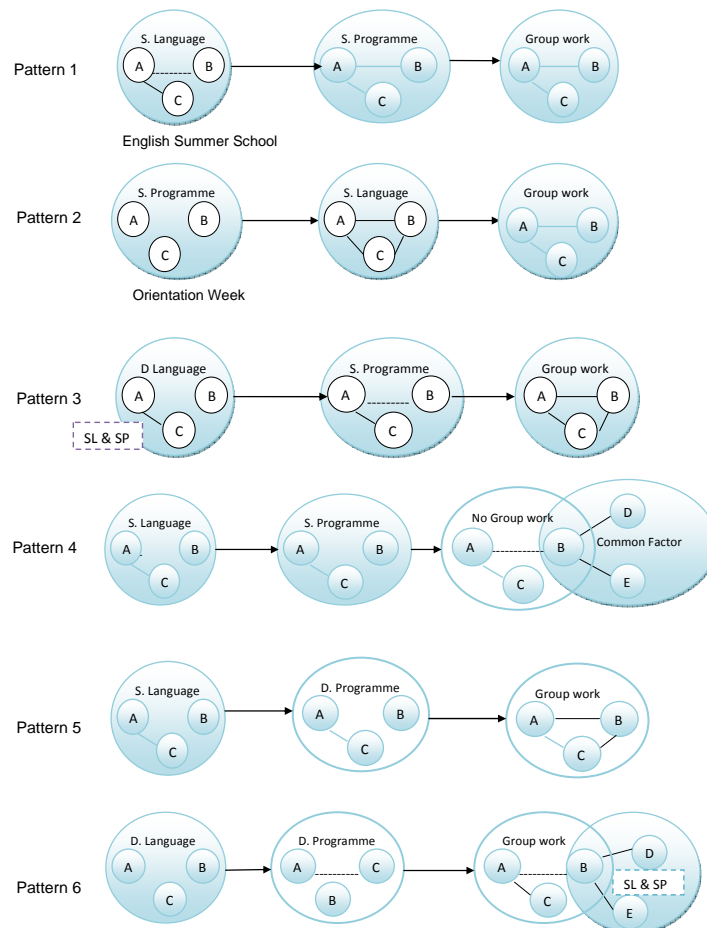


Figure 5. 1: Network Evolution patterns

5.9. Chapter Overview

This stage of research confirmed the findings of the first stage of research, which showed that international students have multiple types of networks in a multicultural classroom in a UK HE context. It was also shown that the international students formed the same types of networks as in the first stage, where the work and friendship networks were dominant in the classroom, whereas advice and personal support networks showed continuity with previous networks.

The cohesion of the network increased over time, this means that students' interaction increased over time. The drop in the number of isolated actors from 8 to zero was also an indication that the class network was connected throughout the semester. This could be related to the interventions having a positive impact on the students' networks. For example, mixing students in the group work was successful in minimising the number of isolated individuals in the class network, assuming that a more cohesive network is better for information transfer among people in the network, hence improve learning. Also having this type of assignment (film making) was useful in making the network more cohesive by the end of the semester.

In terms of network visibility, the performance of students in the class was compared to students' positions in the network. Students who were observed to be less vocal and who were not attending classes were still found to have a good position in the network (which confirms the previous findings). This means that people in the central position in the network might not be in a central position in terms of performance, attendance or being vocal (which appeared to be the tutor's or researcher's point of view only). People who were found to be central in the network were those who had the majority of their compatriots in the class. Hence, performance, attendance or participating in class discussions was not associated with centrality in the class social network. This might only be the case in this class where the majority were international students. However, this particular truth for this class, and these results, might be different if conducted in a different class of British students, for example.

SNA has only shown the evolution in one relation, where the qualitative data showed how the network evolved as group patterns with multiple relations. SNA was a good way to reveal the pattern of interaction among class members; however, it was not good enough to interpret these changes in the network, for example. Qualitative data were thus necessary to explain network evolution patterns and what the factors that shaped these patterns were. However, qualitative methods were not able to measure the change in network cohesion, which was achieved through the use of SNA. It can be concluded that both SNA and qualitative methods are important in fully understanding the network evolution in this specific context.

The factors shaping international students' networks were found to be similar to the first stage of the research. However, the second stage of the research enabled more understanding of how these factors work over time. As for the multicultural group work, the majority of students found working in a multicultural group beneficial; however, some of them preferred to work in a more stable

network, which is based on co-national relations. This was because of sharing many common factors, such as language and culture that make them feel more comfortable in the group work. However, this was found to change over time, where the role of language is less apparent than in the early stage of their course. Learning motives, for example, were found to be important in shaping international students' networks, where students were found to prefer working with other people who share the same motives as themselves, rather than the same language or culture factors. The relation of the findings of this research is compared to the previous studies findings in (section 7.4).

The findings in this stage have shed light on the importance of time as a factor shaping international students' networks. Studying the factors over time, showed that the role of the factors changes over time, where more emphasis can be on another factor over time. For example, co-national friendship groups were found to be important in building the work networks; however, the learning motives factor was found to be more important than the language factor over time. This was demonstrated through students' preference to work on a multicultural basis, in favour of having higher grades. A summary of the findings of the two stages of research is presented in the following chapter.

6. Summary of Factors Shaping the Network Dynamics of a Multicultural Classroom in a UK HE Context

The first stage of study was crucial in providing a descriptive model of factors that shaped international students' work and friendship networks. The first stage of findings in this research showed that students' networks (work and friendship) were formed based on co-national factors, such as language, culture, and co-national clusters; and other general factors, such as programme of study, meeting early in the course and time factors. The second stage of study has confirmed the previous findings at work and allowed for more time to better understand how these factors operate over time. The second stage of findings also showed that the role of these factors changes over time, which emphasises other factors such as learning motives, which showed that international students' networks were not always shaped by co-national factors.

International students' networks appeared to be in the shape of little pockets (patterns) that were forming and dissolving throughout the semester based on one of these factors. The work and friendship networks transformed from one into the other based on these factors (see above). The role of each factor has changed over time, where at some point it is a connecting factor/ a transforming factor, and at another a disconnecting factor. For example, in one pattern sharing the same language would be a connecting factor that creates a work network, which by time changes into a friendship network, whereas in another pattern sharing the same language would be a disconnecting factor. The main point is that the role of the factors changes over time.

A number of factors were found to shape the formation of international student's networks in a UK higher education context. How these factors operate differently according to the research context, is summarised in this chapter.

6.1. Language

Research findings showed that sharing the same language was an important factor in the formation of co-national networks (both work and friendship). The findings of this research also showed that students preferred to be in co-national groups, because sharing the same language makes it more comfortable and easier to understand and communicate with each other. Further, sharing the same language allows people to express themselves better and feel closer and less formal. Hence it is easier to build a bond and to foster the relation created.

Research findings also showed that language was an important factor because of the sense of similarity it can give, which stems from sharing the same language, which allows students to comfortably talk about common things related to their home countries. On the other hand, different languages were found to be a barrier in creating mono-cultural networks. This is related to the difficulty in understanding the various English accents of international students, which made it uncomfortable to communicate with them.

On the other hand, speaking with English native speakers was found to be a preference for international students. International students particularly preferred to work with English native speakers, in order to improve their language skills, fluency and performance. Working with English speakers was the second best option for international students after working with friends, because it was easier to understand and work with native speakers compared with other international students whose English accent was difficult to understand.

Previous studies have also stressed the importance of language in shaping international students network and showed that sharing the same language was a key factor in building the international students' networks (Volet and Ang, 1998; Harrison and Peacock, 2007; Ippolito, 2007; Brown, 2009a; Dunne, 2009; Harrison and Peacock, 2009; Montgomery, 2009; Peacock and Harrison, 2009; Tian and Lowe, 2009; Turner, 2009; Harrison and Peacock, 2010; Osmond and Roed, 2010). However, there were some differences in this research findings related to the differences in the context and focus of this research from the previous studies, where international students were in the majority (this is discussed in details in section 7.4.1)

6.2. Culture

Being culturally similar, in terms of country and religion, was found to be an important factor in creating co-national friendship networks, which can be the base for the creation of work networks. Having the same life style, way of thinking, values and attitudes creates a sense of "sameness" among international students, which led them to form co-national networks. Culture also helped them to be closer in a short time compared with building relationships with other nationalities. Sharing culture also strengthens their relation and enables a relation to evolve into another type of relation (friendship to work, or vice versa).

Meanwhile, the research showed that culture had a different role in the formation of work networks. In some cases, cultural differences were barriers to forming the mono-cultural working

groups, which were related to the way of thinking and understanding; also it was difficult to know the “boundaries to reach people” from different cultures. This led to the formation of co-national work networks. Whereas in other cases, working in mono-cultural groups was perceived to be beneficial because it added to students’ knowledge and extended their experience by mixing with other nationalities whose different way of thinking was beneficial. Sometimes the value of working in mixed groups was recognised, though the overwhelming preference was not to do so, where students were found to choose to work in co-national groups that stemmed from their feeling “unconfident” and “scared” to mix with other nationalities, especially at the beginning of their course.

Previous studies have also confirmed that culture was a key factor in the formation of the co-national work and friendship networks (Volet and Ang, 1998; Harrison and Peacock, 2007; Brown, 2009a; Dunne, 2009; Harrison and Peacock, 2009; Harrison and Peacock, 2010)(discussed in relation to this research findings in section 7.4.2).

6.3. Instrumental Support

Research findings showed that instrumental support was not an aim on its own to form a co-national network in the classroom. This is because international students were provided with academic and instrumental support through other established networks. These are pre-existing networks, co-national work and friendship networks, and mono-cultural networks. Research findings also showed that instrumental support was not perceived as important to building co-national networks; rather it arose later, from other networks. For example, pre-existing networks, represented by community clubs, were considered to be one of these networks providing students with instrumental help such as finding accommodation. The co-national friendship network was another network to provide academic and instrumental support through the mutual *assistance* related to everyday life, the organising of social events and through giving and seeking information and advice. Co-national networks (work and friendship networks) were represented by roommates found to be willing to help each other based on what knowledge they have. They provided academic and instrumental support related to everyday life. In the co-national work network, students were providing mutual support through sharing academic and general information, where people who were more knowledgeable and more experienced were the reference point for support.

The findings of this research also showed that mono-cultural groups had formed based on having the same condition and having something in common, such as mono-cultural groups that are based on common religion or roommates who have the same situation of living in a foreign country. Instrumental and academic support was also found to be provided through these mono-cultural groups.

6.4. Meeting Early in the Course and Network Formation Strategy

Meeting before the start of the course was found to be influential in building the networks of international students. This was shown to be through a friend of a friend, meeting in the orientation week, or meeting in the English summer school. However, this found to be less emphasised in the literature, where only one study found to shed light on the importance of this factor in shaping international students' networks Dunne (2009). Dunne's (2009) study found that knowing before was important in shaping home students' co-national friendship network, which was one of the barriers for the intercultural interaction.

Research findings showed that students who knew each other before the start of their course managed to form a friendship network that evolved into a work network or vice versa. Co-national friendship networks were formed based on a friend of a friend strategy because of sharing the same language and the same programme. Whereas meeting in the English summer school had an impact on forming mono-cultural networks. Meeting in the orientation week was also a key factor in building students' networks, which shaped the building of the work network that evolved into a friendship network. Friend of a friend has also influenced students' choice of work group, who tended to choose from people they or their friends already know.

Meeting before, in the English summer school, was also a factor that allowed the formation of the co-national friendship network. This network was developed through spending more time together and/or going out and having fun together, which strengthened their relations and makes them closer. The co-national friendship network that formed early in the course was the base for building the work network.

Meeting in the induction week was another factor that shaped students' networks. The co-national group was also formed in the induction week, which formed the basis for other networks (work and friendship) to be developed over time.

6.5. Same Programme of Study

Participants in this study were from different programmes of study. The research findings suggested that programme of study played an important role in shaping the networks of students in this study. This can be due to sharing more than one module, sharing the same schedule, having the same assignments, same course-related problems and same future career plans.

Having the same programme was influential in creating the work network. This was because students shared more than one module, which allowed for more discussion and questions to ask each other. Further, sharing the same schedules enabled students to easily find common time, hence work together in the same group. Having shared assignments that need to be discussed in groups was one of the main reasons to connect students following the same programme. This can be through helping each other in solving technical problems, and discussing the different ways to solve their assignments.

Sharing the same programme was also important in building the friendship network through strengthening the work relationship. Students on the same programme had the chance to meet and communicate more often, which gave them the chance to know each other better and to create a closer relationship, even when they do not share the same language.

Meanwhile, having different programmes was a barrier to forming a relation among students, even among co-national groups, which can be a result of not meeting each other as often as people on the same programme do, and not having much in common, in terms of work-related problems.

This factor found to be ignored in the previous studies, where no research was found to highlight the impact of programme of study in the network formation of international students, which could obviously related to the different focus of these studies and having students from a similar programme of study.

6.6. Learning Motives

Learning motives were found to be significant in creating international students' networks. Research findings showed that learning motives had a clear impact on building the work network, which, in some cases, was the base to form the friendship network. There was a variance in learning motives among international students. The majority of international students were found to be more achievement-oriented and aimed to attain higher performance. In this case, students who

showed more commitment towards their study formed a work network, regardless of their nationality. In fact, participants were found to prefer working in mono-cultural groups that share the same learning motives, which were more focused on having “better” results. On the other hand, having such learning motives proved to be a problem to forming a co-national work network. This was due to the tendency of some students to work in groups that they feel more “relaxed” and “having fun” in, instead of working in a stressed environment that only focused on performance.

Learning motives were identified to be more influenced by time. Initially, international students tended to form their work group based on co-national groups or on other factors (as discussed earlier). But most of them stressed that their work network formation was more influenced by the learning motives in the second semester, as they got to know each other and had the chance to know how each other worked and who shared the same learning motives.

Learning motive factor was also identified in the previous studies by showing that international studies were highly motivated and were harder workers compared to home students (Harrison and Peacock, 2007; Harrison and Peacock, 2009; Harrison and Peacock, 2010; Osmond and Roed, 2010). This has impacted on the formation of their networks, particularly the work network.

6.7. Co-national Clusters

Co-national clusters were one of the main factors that had an impact on the network formation of international students. People who have the same language/ culture had formed cohesive groups that inhibited others from joining these groups. This had an influence on the other cultural minorities in the classroom forcing them to be in the same network.

These co-national clusters were noticeable inside the classroom through sitting in co-national groups. The cohesive relation they had hindered others from becoming part of their co-national group.

These co-national clusters inhibited group members strengthening their relation, and worked as a “stumbling block” in the development of their work relation into a friendship relation. This is also reflected through the seating in the classroom based on co-national groups. Joining such a group can be difficult for other students to “integrate with”, which forces them to form their network with others who were a minority, in terms of culture/language. For some nationalities, which prefer to be in co-national groups, such as the Chinese, they tended to be isolated, in the case of not finding

their cultural peers in the classroom, hence building their co-national network with people outside the classroom.

The impact of the co-national clusters in forming the network was also extended to prevent other factors, such as group work and programme of study, from building the network. However, these factors (group work, programme of study) played an important role in forming the network among students who do not have co-national clusters in the classroom, because it was easier for them to integrate with each other, even if they did not share the same language.

There were also groups within these co-national clusters that prohibited other co-national peers from being part of these cohesive clusters. This was because such clusters had much in common, such as memories, same interests and same topics, which made joining an already -formed cluster difficult for other “new one” cultural peers to be part of these cohesive clusters.

Previous studies have also stressed the importance of conational clusters factor in shaping students networks in Dunne’s (2009) and Harrison and Peacock’s (2007; 2009). However, their studies were in different context and have focused on home students network.

6.8. Time

Research findings suggested that the time factor played an important role in international students’ network formation. Having more “free” time to go out together gave students opportunities to develop the friendship network, which, in some cases, was the base to form the work network.

On the other hand, busyness among the group members in the coursework and lectures prevented them having social relations beyond the class boundaries, which was a factor that hindered the building of friendship networks.

The time problem was also a factor for students’ preference to work with people they share the same schedule with because it is easier to arrange for time to meet. However, the difficulty in finding time to meet was a reason for students in one group to have a “friction” that force them to manage the group work individually by dividing the work or working via email in order to get the work done. Being punctual was one of the reasons for students to prefer to choose their group members in order not to waste their time. Outside of study, being busy because of having other commitments beyond the class, such as family commitments, limited the chances to socialise with people in the class. People who are married, for example, tended to have a different social circle

from the one in the classroom. They spend more time at home with their families in order to socialise with people outside the class. Meanwhile, having fewer commitments allowed people in the class to spend more time together, which strengthened their relationship.

The role of time factor found to be emphasised in Volet and Ang's (1998) and Ippolito's (2007) studies, who showed that time was one of the factors that inhibited international students from working in multicultural groups.

6.9. Chapter Overview

This chapter provided a summary of the factors shaping the network dynamics of international students from the findings of the two stages of research. In the next chapter, a discussion of the importance of the research findings in relation to previous studies findings is presented.

In this research, a number of factors were discovered to be shaping the network cohesiveness and creating a number of cliques in the network. Having a common factor creates a different relation that can form a weak tie that is useful for the network in the variety of information its individual bring into the network. Meanwhile, having more than one common factor creates a strong relation that could be based on multiplex relationship, which help the network to be more cohesive. So in order to make any change to the network you can change these factors, if the aim is to have more cohesive network, then common factors should be encouraged, whereas if the aim is to create more weak ties, other factors could come to play.

7. Discussion

7.1. Introduction

The current research aimed to study the networks among international students and the factors shaping the formation of these networks in a UK Higher Education (HE) context. Having discussed the findings in the previous chapters, this chapter draws out the significance of these research findings by relating them to the relevant literature, both in terms of theoretical conceptualisations and empirical findings. Much of the previous literature has a different empirical context, where it focused on how to encourage the interaction between home and international students, where the former are a majority. Most of these studies were of undergraduates. The focus of these studies was often on one type of network, either a learning or friendship network. Many studies were conducted in the UK, but also in Ireland, Australia and America, where many aspects of the cultural and educational context are likely to be different. Often in these studies the majority of international students were Chinese, whereas nowadays the international student body has become increasingly diverse. Although certain features of the context in which this study was conducted differ, sometimes significantly, from previous studies and this should not be forgotten, there are still many conceptual and empirical comparisons to draw out to establish the significance of the current research's findings. The sections in the chapter are ordered based on the research questions.

7.2. What Types of Networks do International Students Form in a UK Higher Education Context?

Haythornthwaite's studies of the types of networks in the university classroom have stressed the idea of multiple networks, and specifically identified work, friendship, advice and personal support networks (Haythornthwaite, 2008). The current study confirms Haythornthwaite's claim for the existence of multiple networks in the classroom. In addition to confirming the usefulness of this conceptualisation, this study provides an explanation of the types of networks in a multicultural classroom, through differentiating the work/study-related and friendship networks and how these networks evolve over time. However, Haythornthwaite's (2008) study did not focus on the cultural differences aspect, since her research was conducted in a culturally homogenous class, where the cultural aspect was not identified as important in the research findings, which is an aspect addressed in the current study.

The findings in this research showed that a multicultural class creates rather different types of networks compared to a culturally homogeneous one as studied by Haythornthwaite (2002a; 2008). The findings showed that work and friendship networks were the main networks created in a multicultural classroom. Meanwhile, advice and personal support networks were not explicitly apparent in the classroom; rather it showed continuity with pre-existing networks. This implies that studying the network dynamics in a multicultural context is more complex than might be first assumed, where by looking at a different context showed that the network types were rather different. Consequently, the conceptualisation of the class as containing different types of networks seems to be confirmed as a useful way of examining classroom behaviour. Furthermore, the approach avoids the trap of only focusing on the friendship network by studying the different types of networks international students build in this specific context. Four types of network were found, though rather different to what Haythornthwaite (2008) suggests, revealing the importance of certain aspects of the context, specifically the multicultural context in UK higher education.

Few previous studies were found to investigate international students' networks (Bochner et al., 1977; Bochner et al., 1985; Furnham and Alibhai, 1985); these have tended to focus only on one type of network, the friendship network, and showed the friendship patterns that "overseas" students were believed to form in a multicultural context. For example, Bochner's (1977) study was in a different context (American university) from this research context (UK HE). Studies on international students' networks have either studied the friendship network, believing in its role in students' adjustments (Ying, 2002; Brown, 2009a), or the work network, through studying the inter-cultural interaction in group work (Volet and Ang, 1998; Ippolito, 2007; Kimmel and Volet, 2010). In a similar cultural context to this research, Brown (2009a) and Montgomery and McDowell (2009) have only examined the friendship network and its role in international students' adjustment; however, Montgomery and McDowell's (2009) study has focused on international students' networks outside the classroom. Montgomery and McDowell (2009) found that international students build their social network with other international students, in which they manage to learn and live in the host country (UK). Thus, this study extends Montgomery and McDowell's (2009) work by examining the different types of networks international students build within the classroom and how this shapes other networks outside the classroom. This study has shown that the main networks that international students build in the classroom are work-related and friendship networks, whereas advice and support networks stem from pre-existing networks beyond the classroom boundaries. Previous studies have tended to focus on just some of the

networks in the classroom, which implies a failure to build a holistic understanding of other networks that might be developed in and out of the classroom. This research also shows that these networks have different development patterns; some might be primarily focused in the classroom, whereas others might not. The concept of latent ties was also found to apply between newcomers (new students) and old timers (experienced students who have been living in the UK for quite some time) in their network.

7.3. What are the Characteristics of these Networks?

7.3.1. Legitimate Peripheral Participation in a Multicultural Classroom in a UK HE Context

Community of Practice (CoP) has been adopted as a theoretical framework in this study. In particular, it was decided to apply the Legitimate Peripheral Participation (LPP) concept. LPP theory describes the dynamics of novice individuals (who are in a peripheral position of the network), who legitimately move into the central position of the network through interacting with each other and with experienced individuals in the network. However, LPP is only one aspect of the CoP model, which originally focused on informal learning settings (Wenger, 1998; Wenger, 1999), and there might be other learning theories that could have been applied in this research. However, LPP is a key theory in describing the learning process (Lave and Wenger, 1991).

The first stage of findings revealed that an international students' class did not show LPP (Lave and Wenger, 1991). Because much of the learning in a community of practice is said to occur through peripheral participants interacting with each other, one would expect an important role for the teacher, as an old hand, in particular networks. The findings of this research showed that visible classroom dynamics were different from the reported network (the network that was reported by student through the SN questionnaire). Essentially, one would expect students who attend every class and are vocal in class discussion would occupy a central position in the network, and those who do not attend classes are assumed to be isolates, having few or no connections. On the contrary, however, in this research the findings showed that students who were in the centre of the network seemed not to be central in terms of attendance and participation in the class discussions. In addition, in term of performance, the findings revealed that those who were in the central position did not perform the best in the class. Furthermore, the centrality measure of the class showed no particular student in the central position of the network: rather, the central position

varied over time. This suggests that the learning network was relatively invisible in the classroom, which is not as expected in LPP.

Rather than a strongly cohesive network as usually pictured in community of practice writing, our research found that there were a number of fragmented groups. It was also found that the work, friendship and support networks were rather different in shape, the latter mostly linking to people beyond the classroom. Implicitly within community of practice theory, one senses that the networks are expected to converge. Again, in our research context there were a significant number of isolates.

The changes adopted in the teaching of the class in the second year had an effect on the cohesion of the learning network, and the number of isolates fell compared to the first stage. However, the visible network continued not to reflect the reported network (the network that was reported by student through the SN questionnaire), rather it confirmed the first stage's findings that the learning network in a multicultural classroom was invisible. This might be related to other factors, such as the differences in learning and teaching styles of international students, where they tend to highly respect the tutor and fear asking questions, which also can be related to language and cultural issues (as discussed earlier in the factors section). However, this needs to be further explored in future research.

On the other hand, some types of international students' networks, specifically advice and instrumental support networks, showed some features of LPP, where old timers were represented by experienced students who had experience in living and studying in the UK; those were found to be in a central position in these networks. As for the newcomers, who were represented by newly arrived students, they were found to interact with each other and with experienced individuals in order to move into the legitimate central position of the network. In this instance, they will be in a position that provides help and advice to other newcomers.

To summarise, looking in simple terms at the LPP showed that at first it did not seem to be there, but through focusing and looking in more depth, it appeared to be a recognisable process within the smaller groups. The findings of this research showed that LPP theory might be applicable to this context if examined in a slightly different way to what it is usually assumed through the expert and novice relationship. Consequently, LPP theory could be extended to examine the dynamic of learning that happens in smaller groups within the whole learning network, rather than just simply examining its applicability to the entire network.

7.3.2. Considering a Multicultural Classroom as an Example of Community of Practice

International students' networks could be interpreted using the CoP model if seen from a broad view, through their entire networks. Figures 7.1 and 7.2 (below) explain how this might be interpreted. In Figure 7.1, *A*, *B* and *C* represent individuals in a network who share co-national factors (e.g. similar language and culture). These individuals do not necessarily know each other before coming to the UK. The main connecting factor between these three individuals is their initial latent tie (Haythornthwaite, 2002b), which is based on sharing language, culture and studying in the same programme factors. Individual *B* is considered to be an old-timer, who occupies a central position of the network because of his/her experience in studying and living in the UK, whereas *A* is a newcomer to the learning network, who gets to know *B* either directly (knows before) or through a friend of a friend. *A* gains the necessary knowledge and experience over time, through interacting with *B* and with other individuals in the learning network. Essentially, this interaction is the key to moving towards the centre of the network over time, together with interaction with people in the centre of the network and with other peripheral individuals. The position of individuals in the network is continuously changing, where participation is key. For example, *A* will be in a position where he/she will be of assistance to other newcomers, because of the experience he/she has gained through interacting with people in his/her class, the tutor and his/her pre-existing network. Defining the novice and expert here was based on the experience of living and studying in a foreign country (UK).

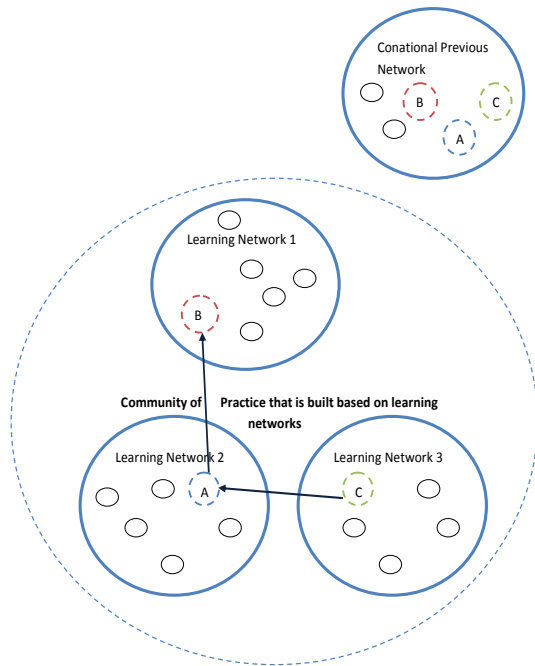


Figure 7. 1: International Students’ Networks: A Community of Practice Model

Figure 7.2 also demonstrates what is described in Figure 7.1, which shows the network of international students as a nested CoP, where every individual is in the central position of the community (due to of the experience they gained), and in the peripheral position based on the knowledge they already have. Each circle in one side (e.g. a, b c d have similar language, where e, f, j, h and I have another language) identifies a different language, and co-national networks are the base of the CoP model.

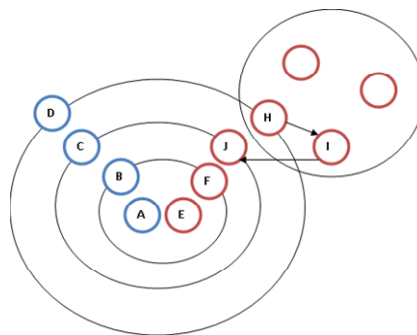


Figure 7. 2: International Students' Network Dynamics: A CoP Model

As a summary, although LPP does not seem to be a convincing framework for analysing whole classroom learning, it seems to offer theoretical resources for analysing the advice and support network of international students, where experience is linked to the experience of living and studying in the UK. However, this seemed to be based on a co-national network.

7.4. What are the Factors Shaping International Students' Networks in a UK HE Context?

Previous studies have shown that in a multicultural classroom, students tend to build their social networks based on co-national groups. The main networks that have been investigated in the literature were work and friendship networks, where different factors were found to shape each of these networks. This study, however, provides a model of the factors shaping the formation of different types of networks in a multicultural classroom, namely work and friendship. The findings of this study confirm some of these factors and extend the previous studies by providing an explanation of how these factors operate over time, which has not been addressed in previous research. This will be discussed in detail in the following sections.

7.4.1. Language

This research showed that sharing the same language is an important factor in the formation of co-national networks (work and friendship). This finding is consistent with previous studies (Volet and Ang, 1998; Harrison and Peacock, 2007; Ippolito, 2007; Brown, 2009a; Dunne, 2009; Harrison and Peacock, 2009; Montgomery, 2009; Peacock and Harrison, 2009; Tian and Lowe, 2009; Turner, 2009; Harrison and Peacock, 2010; Osmond and Roed, 2010), which also showed that sharing the same language was a key factor in the formation of the international students' networks. However, some differences in the role of the language as a factor in shaping the intercultural interactions were highlighted because the context and focus of this research differ from the previous studies, where international students were in the majority.

The findings of this research showed that international students preferred to be in co-national groups, because sharing the same language makes it easier to understand and feel more comfortable communicating with each other. This resonates with both Volet and Ang's (1998) and Brown's (2009a) findings, who identified language as a fundamental factor in forming the co-national networks of international students. Brown's work has shown that language was a key

factor because it was stressful and tiring for international students to communicate in English. This also can be noticed in Volet and Ang's (1998) study, who stressed the fact that a shared language makes it easier for international students to communicate and to understand each other, which makes it easier to form close relations (Volet and Ang, 1998). Being more comfortable in communicating using the native language was also identified by Osmond and Roed's (2010) study, who confirmed that language has a crucial role in the co-national groups' formation. The findings of this research are consistent with previous findings (Volet and Ang, 1998; Brown, 2009a; Osmond and Roed, 2010). The findings of this study also add to previous findings on the role of language in allowing people to express themselves better and feel closer and less formal, which suggests that their mastery of the language enables more nuanced and informal uses of language, which allows friendly relations to be expressed and the relation created to be fostered.

The findings from this study also showed that language is an important factor, which creates the sense of similarity and allows students to talk comfortably about common issues related to their home countries. This finding also resonates with Brown's (2009) findings, where she found that international students preferred to communicate in their native language, because it connects them with their home. Moreover, using a different language is considered as a barrier in creating cross-cultural networks, mainly among international students themselves. This is related to the difficulty in understanding the various English accents of international students, which makes it uncomfortable to communicate. This finding is compatible with previous findings (Volet and Ang, 1998; Ippolito, 2007; Tian and Lowe, 2009). However, these previous studies have investigated the language role from a different perspective to this research. Both Volet and Ang's (1998) and Ippolito's (2007) studies, for example, were investigating the factors impacting on the cross-cultural interaction between home and international students, whereas Tian and Lowe (2009) have studied the factors impacting on Chinese students' integration in a UK university. The findings of this research reflect the relation between international students themselves and the factors shaping their network formation, in order to better understand how international students build their networks, which would contribute to the internationalisation agenda.

Furthermore, the findings of this study showed that international students preferred to work with native English speakers. However, there seems some discrepancy in the literature regarding this finding. Working with English speakers was the second best option for international students after working with their co-national friends, because it was easier to understand and work with native speakers compared with other international students whose English accent was difficult to

understand (as mentioned earlier). This was also found to improve their language skills, fluency and performance. This result agrees implicitly with Turner's findings (2009), in that international students tended to give home students privileged treatment through accepting them to be in a leadership position, which makes them control the classroom discussions (Turner, 2009). However, this disagrees with some previous findings (Brown, 2009a; Osmond and Roed, 2010), where they showed that the English language was a barrier for creating cross-cultural networks among home and international students. Brown's (2009a) study has shown that international students preferred to be in co-national groups because of their "anxiety and shame" of speaking "poor" English. This was also confirmed by (Osmond and Roed, 2010), who found that poor English skills were a reason for international students' introversion which led them to prefer to work with people of the same ethnic background (Osmond and Roed, 2010).

The findings from this study showed that international students' preference to work with home students was different from previous studies, which focused on the home students' perspective in the multicultural interaction (Harrison and Peacock, 2007; Dunne, 2009; Harrison and Peacock, 2009; Peacock and Harrison, 2009; Harrison and Peacock, 2010; Osmond and Roed, 2010). Harrison and Peacock (2007; 2009; 2010) and Peacock and Harrison (2009) showed that home students find language a key barrier for working in multicultural groups. This was related to accent differences of international students, which requires home students to speak slowly in order to make their English more clearly understandable. Being "mindful" and avoiding specific sentences, idioms, and "ethnocentric cultural references" made home students feel unsatisfied with the multicultural interaction (Harrison and Peacock, 2009: 495). Osmond and Roed (2010) also showed that home students felt "frustrated" communicating with international students, because this requires more time to explain things to international students. Furthermore, home students were conscious of wishing not to be misunderstood or cause offence to the international students, which was another factor for home students to avoid communicating with international students (Osmond and Roed, 2010). The same point was raised by Dunne (2009), who also identified language as a barrier for the intercultural interaction because home students were anxious and felt less comfortable communicating with international students, because of their worries of being misunderstood. Dunne (2009) also showed that home students felt "fake" and "superficial" when communicating with international students, because they needed to adjust their communication style, speed, use of slang and humour that they perceived to be compromising their contributions (Dunne, 2009: 234). Moreover, home students believe that communicating with international

students needs more effort; also it is less rewarding and more demanding. Consequently, home students would be unsatisfied with the quality of interaction; hence they tended to build their networks with their own cultural peers (Dunne, 2009). This perspective of home students considering language as a significant barrier to building a cross-cultural relation with international students was not clearly revealed in the findings of this research. This is related to the difference between the current study and previous studies. In the previous studies the majority of students were home students, and they seemed to have a choice about integrating with international students, whereas in this study the majority of the students were international. Nonetheless, the findings of this research showed a tendency towards building relationships with home students. This could also be related to different factors, such as age, where the majority of the previous studies focused on undergraduate students, who also perceived age to be culturally significant (Harrison and Peacock, 2007; Dunne, 2009; Harrison and Peacock, 2009; Peacock and Harrison, 2009; Harrison and Peacock, 2010). This finding, however, is also linked to Montgomery's (2009) and Ippolito's (2007) findings that identified language as not the main problem for cross-cultural interaction, which was identified in (Volet and Ang, 1998). Montgomery's (2009) study stressed that international students' English competence was perceived to be good enough for the group work. Nevertheless, she found some cases where language was a barrier for group work success (Montgomery, 2009). Ippolito (2007) also highlighted how language proficiency can be compromised, in favour of good performance, through working with highly committed international students (Ippolito, 2007). Again, this was confirmed in this study, where there were successful incidents in both stages of the study of intercultural interaction based on sharing the learning motives.

There were some factors related to language that were identified in the previous studies but not found in this study, such as inequality of contribution (Ippolito, 2007; Turner, 2009), being silent in the classroom (Tian and Lowe, 2009), and the anxiety of intercultural communication (Harrison and Peacock, 2007; Brown, 2009a; Dunne, 2009; Harrison and Peacock, 2010). This might be related to the different focus of this research on the factors shaping the network formation of international students, whereas most other studies focused on the factors for intercultural interaction among home and international students. Furthermore, home students were in a minority, which shows that the number of students is key in the research findings.

7.4.2. Culture

The findings of this study identified culture as another factor that has an impact on the formation of international students' networks. Previous research found culture a key factor in the formation of the co-national work and friendship networks (Volet and Ang, 1998; Harrison and Peacock, 2007; Brown, 2009a; Dunne, 2009; Harrison and Peacock, 2009; Harrison and Peacock, 2010). Being culturally similar, in terms of country and religion, was found in the current study to be an important factor in creating co-national friendship networks, which can be the base for the creation of work networks. Same life-style, way of thinking, values and attitudes create a sense of "sameness" among international students, which led them to form co-national networks. The findings of this study also confirm Brown's (2009) findings, where she highlighted the role of culture in creating support networks that help international students to adjust into a new country. According to Brown's (2009a) findings, international students consider being culturally similar, in terms of country and religion, as an advantage, because of the shared knowledge that stems from their shared culture. They also share the same way of thinking and understanding of cultural values and behaviours, having the same sense of humour and sharing interests, food, sport, festivals and religion (Brown, 2009a). However, both Brown (2009a) and Volet and Ang (1998) have discussed the role of culture from different perspectives. Brown's (2009a) study has exclusively discussed the friendship network formation and the role of culture on international students' adjustment, but did not discuss how culture impacted on the formation of other networks, such as the work network, which this study has investigated. Volet and Ang (1998) discussed the cultural factors in the light of their impact on the formation of intercultural group work and did not discuss the network beyond the classroom, as this research did through focusing on the role of culture in shaping international students' networks formation.

Though taking a different angle to this research, Harrison and Peacock's (2007; 2009; 2009; 2010) and Dunne's (2009) findings were compatible with the findings of this research, where they stressed the importance of culture in forming the co-national networks among home students. Similar to the findings of this research, they found that home students consider culture as an indication of their identity (Harrison and Peacock, 2007). However, culture was a barrier for international students to form friendship networks with home students, because of their unawareness of such "specific sub-cultural artefacts" and the language related to it. Dunne's (2009) findings indicated that cultural similarities make communication easier with cultural peers, which made them feel more secure (as discussed earlier in the language factor section).

The current research findings add to the previous argument about the role of culture by pointing to the way it helps international students become closer in a short time compared to building relationships with other nationalities. Sharing the same culture also strengthens their relations and enables a relation to evolve into another type of relation (friendship to work, or vice versa). Furthermore, the current study showed that culture had a different role in the formation of work networks. In some cases, cultural difference was a barrier to forming multicultural working groups, which was related to the way of thinking, understanding and the difficulty of knowing the “boundaries to reach people” from different cultures. This led to the formation of co-national work networks. Nonetheless, in other cases, working in multicultural groups was perceived to be beneficial because it added to students’ knowledge and extended their experience by mixing with other nationalities whose different way of thinking was beneficial. However students’ natural choice of forming the work groups was found to be based on co-nationals factors, which stemmed from their feeling of being “unconfident” and “scared” to mix with other nationalities, especially at the beginning of their course.

7.4.3. Instrumental Support

This study showed that instrumental support was not a motivator on its own to form a co-national network. This is because international students were provided with academic and instrumental support through other established networks. These are pre-existing networks, co-national work and friendship networks, and mono-cultural networks. This opposes Brown’s (2009) findings, who showed that instrumental support was one of the factors in forming co-national networks that provided international students with support in everyday life to help them adjust in the new culture (Brown, 2009). In contrast, this research showed that instrumental support was not perceived as important to building co-national networks; rather it arose, later, from other networks. For example, pre-existing networks, represented by community clubs, were considered to be one of these networks providing students with instrumental help, such as finding accommodation. The co-national friendship network was another network providing academic and instrumental support through the mutual *assistance* related to everyday life, the organising of social events, and through giving and seeking information and advice. Co-national networks (work and friendship networks) were represented by roommates found to be willing to help each other based on what knowledge they have. They provided academic and instrumental support related to everyday life. In the co-national work network, students provided mutual support through sharing

academic and general information, where people who were more knowledgeable and more experienced were the reference point of support.

The findings from this research also showed that mono-cultural groups had formed based on having the same condition and sharing common values, such as mono-cultural groups that are based on a common religion or roommates who have the same situation of living in a foreign country. Instrumental and academic support was also found to be provided through these mono-cultural groups. This was not identified in Brown's (2009) findings, who only stressed the formation of co-national friendship networks and the role of instrumental support in forming these networks. According to Brown (2009), the forming of these co-national groups that provided students with instrumental support was related to the "unforthcoming" host culture, which might also be related to a cultural difference (Brown, 2009).

7.4.4. Meeting Early in the Course and Network Formation Strategy

The findings of this research have identified the role of meeting before the start of the course to be significant in international students' network formation. This found to be through several ways: meeting through a friend of a friend, meeting in the orientation week, meeting in the English summer school, or meeting through social networking sites. Meeting before the start of the course has proved important in shaping the friendship network of international students, which in turn forms the basis for building the work network.

Co-national friendship networks were formed based on a friend of a friend strategy, because of sharing the same language and the same programme. Friend of a friend has also influenced students' choice of group work, where they were found to choose from people they, or their friends, already know.

Meeting in the orientation week was also a key factor in building students' networks, which shaped the building of the work network that evolved into the friendship network that was not necessarily co-national. The co-national group was also formed in the induction week, which formed the basis for other networks, such as work and friendship networks.

Meeting in the English summer school was also a factor that allowed the formation of both co-national and mono-cultural networks, which in turn shape the formation of friendship and work networks. The co-national friendship network was found to be in all cases based on weak ties, which evolved into work, or friendship networks based on sharing other factors (as previously

discussed), which creates multiplex networks. This network was developed through spending more time together, going out and having fun together, which strengthens their relationships and makes them closer.

Meeting through social networking (SN) services was another way for students to get to know each other before the beginning of the course. Knowing each other through SN services was significantly important in building the co-national friendship network, which in turn affected the building of the work network.

There is little in the literature that sheds light on the importance of this factor in shaping international students' networks. The only research that mentioned the impact of previous acquaintance in the formation of friendship networks was by Dunne (2009), who highlighted the role of knowing before in building home students' co-national friendships, which was one of the barriers for the intercultural interaction. His finding of the strategy that home students adopt in building their friendship networks, which was through a friend of a friend strategy "referral system" (Dunne, 2009: 229), was also highlighted in this research as important in shaping both the friendship and the work networks of international students too.

7.4.5. Same Programme of Study

Following the same programme of study was identified as one of the important factors found to shape international students' networks. This was particularly significant in creating co-national work networks, which evolve into friendship networks. Participants in this study were from different programmes of study. The findings of this research suggested that programme of study played an important role in shaping the network of students in this study; this can be due to sharing more than one module, sharing the same schedule, having the same assignments, same course-related problems and same future plans. However, different programmes of study were found to be a barrier for network formation, even among co-national groups. None of the previous research has highlighted the impact of programme of study in the network formation of international students, which can be obviously related to their focus on students of the same programme of study.

7.4.6. Learning Motives and Work Orientation

Learning motivation was found to be the base for students' work orientation, which was found to be significant in the formation of their networks. The findings of this research showed that the majority of international students were found to be more achievement-oriented and aiming to

attain higher performance. This echoes previous studies, which have identified the learning motives of international students as being more motivated and being harder workers compared to home students (Harrison and Peacock, 2007; Harrison and Peacock, 2009; Harrison and Peacock, 2010; Osmond and Roed, 2010). However, Harrison and Peacock (2009) showed that international students' learning motives were also influenced by their age, being normally older and more mature than home students. This finding was not explicitly seen in this study.

Learning motives were found to be particularly important in building the work network, which, in some cases, was the base used to form the friendship network. This work network was clearly shaped by the learning motive factor, which led to the building of cross cultural work networks. This finding resonates with Harrison and Peacock's (2007; 2010) and Ippolito's (2007) research findings. Harrison and Peacock (2007; 2010) showed that intercultural interaction can only occur when both groups (home and international students) were highly motivated towards their work. Furthermore, they showed that it was unlikely to have an intercultural interaction in cases where there were differences in students' work orientation (Harrison and Peacock, 2009), which can be at risk if one group had low attitudes towards work and found it "academically intimidating", where the other group had high attitudes towards their work (Harrison and Peacock, 2009). Ippolito (2007) also highlighted that some language related problems can be compromised in favour of good performance, through working with highly committed international students.

Learning motives were also shown to have an impact on the formation of co-national work networks. This was due to the tendency of some students to work in groups where they feel more "relaxed" and were "having fun", where they share the same language and culture (as discussed earlier), rather than working in a stressful environment that only focused on performance. This has also been identified in previous studies (Harrison and Peacock, 2007; Dunne, 2009), where it was found that home students preferred to work in co-national groups, which made them feel more relaxed compared to working with international students (because of the different barriers, such as language and culture, as discussed earlier).

Learning motives were also identified to be more influenced by time, where international students tended to form their work group based on co-national groups at the beginning of the semester. This was found to change in the second semester, where learning motives became more influential in shaping the work network as students got to know each other's work style and hence, by then, have identified the students who have the same learning motives as themselves. This disputes previous

research (Summers and Volet, 2008; Turner, 2009; Kimmel and Volet, 2010), which showed that students' attitudes towards working in multicultural groups did not change over time.

7.4.7. Co-national Clusters

Having a large number of students from one country/ region led to the formation of co-national clusters in the classroom. These clusters were found to significantly affect the formation of international students' networks, which was related to the strong ties they form. This cohesive network was found to inhibit any "outsider" from joining these co-national clusters (cohesive cliques), forcing other cultural minorities in the classroom to form their own networks and be isolated from these clusters. This finding is consistent with both Dunne's (2009) and Harrison and Peacock's (2007; 2009) research findings, which showed the role of these co-national clusters in inhibiting multicultural interaction. Dunne's (2009) findings identified the forming of co-national clusters as a barrier to the interaction among home and international students, as home students reported. This was manifested through the isolation of international students from home students, who managed their social and academic needs through keeping in contact with people within these clusters. Harrison and Peacock's (2007; 2009) findings have, more explicitly, shown the fear and worry that home students have towards these co-national clusters, such as being "swamped" (Peacock and Harrison, 2009: 492), where they gave home students the feeling of being excluded and were perceived to be "intimidating", "annoying" and "don't integrate quite well" (Harrison and Peacock, 2007: 4). However, the current research findings do not totally confirm Harrison and Peacock's (2007; 2009) findings, because the research focus is more on international students, and the number of home students in this research was much fewer than in Harrison and Peacock's (2007; 2009) research group, which indicates that the number of participants and their nationalities can significantly impact on the research findings.

The findings of this research have also shown the role of these co-national clusters in inhibiting the development of students' work relation into a friendship relation by stopping the role of some factors, such as group work and programme of study, from building the network. However these factors have been connecting factors among students who do not have co-national clusters in the classroom. In addition, being unable to find a co-national cluster within the classroom has pushed those who prefer to be in co-national groups, such as Chinese students, to be isolated from the classroom network and tending towards building their own co-national network within their co-national groups outside the classroom. Furthermore, these co-national clusters have pushed other

cultural minorities to form their own networks, due to the feeling of being excluded that these co-national clusters imply. These findings were not identified before in the literature to have an impact on international students' network formation.

7.4.8. Time

The findings of this study suggested that the time factor played an important role in international students' network formation. This had an impact on students' preferences in forming co-national work groups, because it was easier, and faster to work with people with the same culture/language (as discussed earlier). The findings of this research also showed the students' tendency to work based on their programme of study because it was easier to arrange time to meet with people having the same schedule. However, the difficulty in finding suitable time for group meetings was a reason for conflict among group members that forced them to manage the group work individually. This finding is compatible with Volet and Ang (1998) and Ippolito (2007), who showed that time, was one of the factors that inhibited international students from working in multicultural groups. According to Volet and Ang (1998), finding a suitable time for the groups to meet was a barrier for the intercultural interaction. This was behind the international students' preference to work in co-national groups, or work individually by dividing up the work, in the case of being forced to work in multicultural groups (Volet and Ang, 1998). Ippolito (2007) also identified time to be a barrier when working in multicultural groups, because it takes more time to get to know each other due to the different language and culture, where students felt they could use that time more effectively to do the assignment.

The time factor has not only influenced the co-national group work, but also had an important role in strengthening the work network into a friendship relation. It was found, in this research, that students who had other commitments beyond the classroom, such as family commitments, did not have time to socialise with people in the class. By contrast, students who had few commitments outside the classroom were able to spend more time together, which strengthen their relationships.

7.4.9. Summary

In studying the factors shaping the formation of international students' networks, the findings of this research were in line with findings from previous research, by showing that international students prefer to be in co-national groups; however, this might change over time based on other factors.

As found in previous studies, this research also showed that language was found to be a particularly important factor in shaping international students' networks. This study has also extended previous studies by explaining the key role that language plays in helping students to freely express themselves through feeling closer and less formal. The findings of this study also confirmed previous findings by showing that language creates a sense of similarity that allows students to talk comfortably about common issues related to their home countries. This study also showed that international students' preference to work with home students was opposite to previous findings, which reflected the home students' perspective in working in multicultural groups. This might be related to the different focus of this research on the factors shaping the network formation of international students, whereas most of the other studies have focused on the factors for intercultural interaction among home and international students. Furthermore, in this study, home students were a minority, which shows that the number of students is key to the research findings.

The findings of this study confirmed that cultural similarity and co-national clusters were important factors in shaping international students' networks. Previous studies have mainly focused on the role of culture in shaping one type of network rather than discussing how culture impacted on the formation of other types of networks. Some other previous studies have also focused on the role of culture on the networks inside the classroom. However, the study reported in this thesis differs from previous studies in addressing the network beyond the classroom and examining the role of culture in shaping international students' networks formation.

The findings of this research have identified the important role that the time factor played in shaping international students' networks, including knowing each other before the beginning of the course. This type of acquaintance was found to be significant in building international students' networks, which was identified through several ways; these are: meeting through a friend of a friend, meeting in the orientation week, meeting in the English summer school, or meeting through social networking sites. Not many studies have been found to shed light on the importance of this factor in shaping international students' networks, which is considered to be one of the findings that this research has added to previous studies.

The learning motive was found to be an important factor that was identified to be more influential over time. Unlike previous research findings, the learning factor was particularly important in building the work network that was not necessarily on a co-national basis, which, in some cases, was the base used to form the friendship network. This is a new finding that elucidates the

importance of studying the network factors over time, and shows how the role of some factors change over time.

7.5. International Students' Network Evolution: How do these Networks Evolve over a Semester?

Previous research in internationalisation shows a gap in the research investigating the social network dynamics (how the network changes over time) of international students, which was explored in this research. The findings of this research shed light on the role that time plays in the factors shaping the network dynamics in a multicultural classroom context.

From a theoretical perspective, social network theory describes the interaction patterns among individuals in the network from a whole network point of view. This is based on the connections among individuals in the network; the more relations an individual has with others in the network, the more central position he/she has. The process of building relations among individuals in the network determines the network dynamics through the movements of actors across peripheral and central positions of the network, hence shaping the cohesion of the entire network (de Laat et al., 2007; Haythornthwaite, 2008). Communities of practice also describe the evolution of the community as a whole. This can be through the interaction among people in the peripheral position and how those people move to the central position of the community by their participation in the community and acquiring the necessary knowledge. In this research, however, in a multicultural classroom, the findings showed different patterns from what is normally described in CoP or SN theories. International students' networks were found to evolve in the shape of small pockets that were constantly changing over time. The findings of this research illustrated that the learning network evolves in the form of clusters that comprise of small groups of individuals in the form of small pockets / patterns. Each of these clusters was connected through sharing a common factor. Several factors were found to shape these clusters, namely language/ culture and same programme of study/ time. These clusters were found to be formed and dissolved over time based on sharing one of these factors. The role of these factors was found to be different in each cluster; for example, in one cluster, sharing the same language was the main connecting factor that brought those individuals together, while in another cluster having the same language was not important; rather, another factor was found to be shaping that cluster (Figure 7.3).

In the first stage of this research, the findings demonstrated the work network was formed based on co-national relations. This, however, changed over time, where students were found to form their work network based on sharing the same learning motives, rather than on sharing the same language. The creation of preliminarily co-national networks was the base used to create the work network, which evolved into a friendship network over time. In the second set of findings, the group make-up has impacted on forming a multicultural work network. However, a co-national work network was already formed for other modules. The work network that was based on sharing the same language was found to evolve into a friendship network. However, the work network that was based on the multicultural network was found not to evolve into a friendship network over time, because of other factors (as discussed earlier). Meanwhile, some multicultural work networks were found to evolve into friendship networks because of sharing common factors.

Conducting the second stage of study was important to exploring how the factors operate over time. The findings of this research about the main factors influencing network cohesion suggested a number of interventions to address specific issues around isolation and cohesion of the work network. The use of the interventions in the second stage helped in understanding how the factors operate to shape the network dynamics. One intervention that was proposed was to extend the group work to the end of the module, since finishing the group work before the end of the semester had a remarkable effect on network cohesion. Furthermore, a more intensive group work exercise was proposed, and setting up the groups on the basis of self consciously mixing nationalities to break down the tendency of cliques to form based on common language.

Students tended to form their work network based on sharing the same language and the same programme factors. In the case of assigning them into groups based on mixing nationalities, students' work and friendship networks were separated, where they form their friendship network on a co-national basis. The make-up of the group has influenced the network evolution, where the whole network evolved in the form of patterns. Each pattern was found to go through a sequence of stages before reaching the final stage (work into friendship or vice versa). In each stage, the students' relation is shaped by different factors. The role of these factors is different from one pattern to another. The same factor can be a connecting factor in one pattern (building a network), and a disconnecting factor in another. These factors are the same language, same group work, or same programme of study. For the tutors to create an impact on such a network (multicultural classroom), they need to intervene in these evolution patterns.

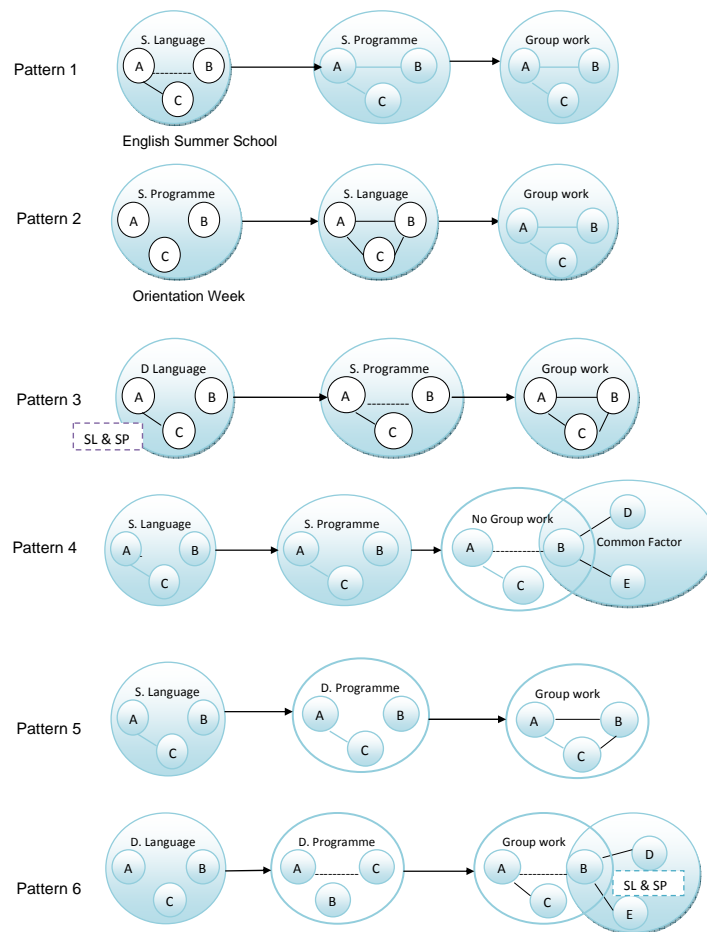


Figure 7. 3: Network Evolution patterns

7.6. What is a Suitable Package of Methods for Collecting Social Network Data in a Multicultural Classroom UK Higher Education context?

This research provides a new package of methods to be used in collecting Social Network (SN) data from a multicultural classroom context. None of the previous studies have explored mixing Social Network Analysis (SNA) and qualitative methods in collecting SN data in a multicultural context. This is considered to be an effective way of collecting data to provide a holistic picture of the network dynamics and the factors shaping this network. It is also crucial in opening a new direction of research and answering different research questions. For example, previous research, which was primarily conducted by using only qualitative methods, was unsuccessful in examining the multiple network concept, or showing how these networks change over time that have been some of the

findings of this research. On the other hand, previous studies that have been conducted using only quantitative methods were unable to provide an explanation of the “story” of the factors shaping the network formation in a multicultural classroom context. Consequently, using mixed methods expands on the perspective of those who have used only one method, either qualitative or quantitative.

In this research, questionnaires did provide some basic network data and the positions of individuals in the network, and how this evolved over time. However, completing questionnaires is also intrusive and makes considerable demands on the time of those being studied. The questions that could be answered from social network data were also restrictive. This led us to employ the mixed methods approach to data collection. Observation revealed some problems with the questionnaire data, e.g. students newly arrived in a class do not know each other’s names. Therefore, photographs were added to the questionnaire. Also an attempt was made to use photographs of the class to sample some aspects of the network, and gather data more frequently than would be practical with a questionnaire. Observations were also used to explore network characteristics and to identify isolates. The questionnaire findings were enhanced from these sources, but were still far from offering a complete picture. Clearly it was not possible to observe every change in the students’ network, especially as in a learning group many changes happen outside the class. Observation was also experienced by the researcher as intrusive and felt to be partly subjective. Interviews were conducted to fill in gaps and discover “the story” of the factors shaping the network. Mixed methods in this research context is considered to be important because of the dynamic character of the network and lack of mutual knowledge between participants particularly at the beginning of the module, which meant that using social network questionnaires alone gave an incomplete picture. Therefore, using this package of methods can be useful in collecting SN data in similar dynamic fields.

7.7. Chapter Overview

This chapter has discussed the importance of the current research findings compared to previous research. Based on the research questions, the chapter began by discussing the main networks international students build in a UK HE context. This is then followed by showing the applicability of LPP theory in a multicultural context. The factors shaping international students’ networks, and how these operate over time, were then highlighted. This is followed by comparing the methodological findings to the methods used in previous studies.

LPP was not useful in describing the multicultural classroom if considered from a whole network perspective, since the networks of international students were not cohesive, were invisible, and evolved in the form of little pockets that were shaped by different factors. However, LPP could be applicable in describing specific networks; namely advice and support networks, if looked at in a slightly different way than is normally depicted in CoP writing. This could be by going deeper and studying the smaller groups within the entire network.

Sharing the same language, culture and programme of study were important in shaping the work and friendship networks; however, this changed over time. Co-national groups were formed early in the course, but these also changed over time, where other factors, such as learning motives, were important in shaping the international work and friendship networks. In social network terms, this research showed a number of factors that shaped the network cohesiveness by creating number of cliques in the network. weak ties were created first by having one common factor. The relation created from a weak tie is important to the network because of the variety of resources (e.g. information) its individual brings into the network. Meanwhile, strong ties are created from having more than one common factor, which build a multiplex relationship that helps the network to be more cohesive. consequently, in order to make any change into the network, changes can be made on these factors, if the aim is to have more cohesive network, then common factors should be encouraged, whereas if the aim is to create more weak ties, other factors could come to play.

Mixed methods in data collection were useful in exploring other aspects of the network and opened up a new direction of research such as how the factors operate over time. Furthermore, they provide a comprehensive model of factors that shape the network dynamics of international students and how these factors operate over time.

The next chapter concludes this thesis, where the research contribution, implications and recommendations for future research are discussed.

8. Conclusion

8.1. Introduction

Having discussed the research findings of this study compared to previous studies in the previous chapter, this chapter brings the work of this research together. First, a summary of the main research findings is presented to explore how the research questions were met in this research. The following section is a discussion of the research contributions to the body of knowledge and theory. The implications of this research for people interested in the network dynamics of international students in UK HE are then explored. Finally, the limitations and possible directions for further research are presented.

8.2. Research Summary

The overarching aim of this research was to study the network dynamics of a multicultural classroom and the factors shaping the networks' formation and evolution in a UK HE context. In order to fulfil the aim of this research mixed methods; namely: social network analysis (SNA) and qualitative methods were employed.

Chapter 1 provided the background of the research based on the research problem addressed in this thesis: the factors shaping the network dynamic of a multicultural classroom in a UK HE context. The chapter introduced the social view of learning as being increasingly significant, and how adopting such view on learning would be particularly applicable to the multicultural contexts that have increasingly appeared in higher education as the result of internationalisation. It was explained that the research sought to explore four research questions, in order to investigate this research problem. First, the types and characteristics of the networks international students create in a UK HE context were examined. An investigation of how these networks develop over time and what factors shape these networks were also to be explored. The implications of the study to benefit stakeholders in internationalisation, such as policy makers, institutions and tutors by informing action to design more effective programmes that better utilise cultural diversity, hence increasing the level of interaction among home and international students to fulfil the internationalisation aims.

Chapter 2 provided a review of the literature, and set out the theoretical framework of the study by building on two perspective on the social nature of learning; namely communities of practice theory, focusing on Lave and Wenger's (1991) LPP theory, and Haythornthwaite's (2005) use of

social network theory to examine what theoretical framework an international classroom follows, either a community of practice or a social network. The chapter reviewed the main concepts of learning, community and learning communities, and also stressed the differences between these two theories in their conceptualisation of social learning. As the context of the research, internationalisation in its two perspectives was then discussed to build a case for the implications of this research. The first view focussed on the problem that international students have of adjusting to unfamiliar modes of learning (Brown, 2009a), where support network was assumed to be important in minimising students problems related to adjustment into new country, whereas the other view has stressed on the advantages of the cultural diversity in classes to help students to acquire multicultural skills that help them to work and live in a global world. Both of these perspectives have emphasised the social view of learning and the importance of studying the network dynamic of a multicultural classroom. Moreover, the chapter reviewed the previous studies on the factors shaping the network dynamics of international students as the basis for undertaking further research in these areas.

Chapter 3 introduced the methodological approach of the study. Integrating social network analysis (SNA) and qualitative methods (interviews and observations) was explained and justified. In such a dynamic research context with the rapidly changing character of the network and lack of mutual knowledge between participants particularly at the beginning of the module meant that using social network questionnaires alone gave an incomplete picture. However, using social network analysis was helpful to quantitatively describe the different positions individuals had in the learning network, and how this changed over time. Interviews and observation provided data that increased understanding of the nature of the evolution of networks. Triangulation of methods in studying social networks showed to be efficient in fully understand the research questions and provide a better understanding of the research problem where combining methods was useful in overcoming some of the limitations of each specific method.

Chapters 4, 5 and 6 provided the research findings across the two stages of the study. Chapter 7 then discussed the relevance of the research findings by comparing them with the previous studies. The chapter explained each finding according to the research questions proposed in chapter one.

The following sections summarise the findings for each of the research questions posed in the study.

What Types of Networks do International Students build in a UK Higher Education Context?

This study has demonstrated the existence of multiple networks as a useful theoretical concept to study the networks in a multicultural context. Furthermore, this study provided an explanation of the types of network in a multicultural classroom, through differentiating the work/study-related and friendship networks, and showing how these networks evolve over time. Based on the first stage findings, international students built work, friendship, advice, personal and instrumental support networks. Only work and friendship networks were present in the classroom, whereas course-related and general information networks were embedded within these networks. Both personal support and advice networks have shown continuity with pre-existing networks. The same types of networks were revealed by the second stage of findings, which is considered as a confirmation of the first stage's findings.

What are the Characteristics of these Networks?

Network visibility showed disparity between the network reported by students and the one visible in the classroom. Findings showed that the network visible in the classroom was not the same as that reported by students. In some networks (e.g. information), the lecturer may assume he or she is central, and that those that attend and participate in class most are central learners. This did not appear to be the case in this class; students who were in the centre of the network seemed to be not central in terms of attendance and participation in the class discussions. Furthermore, findings revealed that those who were in the central position did not perform the best in the class. However, visibility of network might be related to the inaccuracy issue related to SNS, which calls for more research to be conducted to better study this issue.

How do these Networks evolve Over Time?

The research findings reported in this thesis showed that work and friendship networks were rather different in shape in both stages of study. In the first stage of study, the work network was not dense throughout the semester and some individuals were still isolates by the end of the semester. The cohesion of the friendship network, on the other hand, had steadily increased over time and no isolates were present at the end of the semester. However, the second stage of research findings showed a different result, which was mainly due to the use of some interventions (which is beyond the scope of this research). The work network cohesion has steadily increased over time

and the number of isolates had fallen to none at week three of the semester. The use of the intervention had no impact on the friendship network, where some isolates were still present in the network by the end of the semester. This means not all the people who shared a work network shared a friendship network.

What are the Factors Shaping the Dynamics of International Students' Networks in a UK HE Context?

The first stage of study was crucial in providing a descriptive model of factors that shaped international students' work and friendship networks. The first stage of findings in this research showed that students' networks (work and friendship) were formed based on co-national factors, such as language, culture, co-national clusters; and other general factors, such as programme of study, meeting early in the course and time factors. The second stage of study has confirmed the previous findings at work and allowed for more time to better understand how these factors operate over time. The second stage of findings also showed that the role of these factors changes over time, which gives emphasis to other factors such as learning motives, which shaped international students' networks that were not based on co-national factors.

International students' networks appeared to be in the shape of little pockets (patterns) that were forming and dissolving throughout the semester based on one of these factors. Work and friendship networks were transforming one into the other based on similar factors to some of those above. The role of each factor has changed over time, where at some point it is a connecting factor/ a transforming factor and at another a disconnecting factor. For example, in one pattern sharing the same language would be a connecting factor that creates a work network, which in time changes into friendship network; whereas in another pattern sharing the same language would be a disconnecting factor. The main point is that the role of these factors changes over time.

A number of factors were found to shape the formation of international student's networks in a UK higher education context. How these factors operate differently according to the research context is summarised in the following sections.

The Factors Shaping the Dynamics of International Students' Networks

In the first stage of findings, international students were found to form their friendship network based on co-national groups, because of sharing the same language and culture factors that made them more comfortable in communicating with each other, and because of having much in common

that kept them connected with their home countries. Co-national clusters were formed based on sharing the same language and culture factors, which made it a barrier for others to join these strongly connected networks. The friendship network in some cases shaped the work network, which also was found to be shaped based on sharing the same programme of study factor. Sharing programme of study is also related to the time factor, where in this case, it was easier for students to find common time to discuss their assignments and to discuss the modules they had in common. The role of these factors changed over time, where findings showed that other factors such as the learning motive was emphasised. Sharing learning motives shaped the work network in the second semester.

The second stage of findings tested and confirmed the findings of the first stage of research. The findings showed that similar factors to those found in the first stage of research, shaped international students' networks. The second stage of research was also successful in providing a better understanding of how these factors worked over time. The language and culture factors were the main factors to connect students because they made them feel more comfortable in the group work. However, this was found to change over time, where the role of language is less apparent than in the early stage of their course. Learning motives, for example, were found to be important in shaping international students' networks, where students were found to prefer working with other people who shared with them the same motive rather than the same language or culture factors. The findings in the second stage have shed light on the importance of time on the factors shaping international students' networks. Studying the factors over time, showed that the role of the factors changes over time, where more emphasis can be on other factors. For example, co-national friendship groups were found to be important in building the work networks; however, the learning motives factor was found to be more important than the language factor over time. This was demonstrated through students' preference to work on a multicultural basis, in favour of having higher grades.

What is a Suitable Package of Methods to Study the Factors Shaping the Network Dynamics of International Students in a UK HE Context?

During the first stage of study, an attempt was made to develop a package of methods for collecting social network data in a dynamic educational context, where international students were a majority. Hence, both qualitative methods and SNA were combined in this study, where this was constantly improved throughout the first stage of findings. The second stage of findings enabled the

researcher to test the package in another round of research. This showed the effectiveness of applying a mixed methods approach in collecting richer data from such a dynamic context, compared to the data normally collected using SN in its own. Furthermore, mixed methods were successful in providing a holistic picture and deepening our understanding of the research problem. They also helped to answer different types of questions that could not be answered using only one method.

8.3. Research Contribution

Theorists have begun to stress the social nature of learning, such as Vygotsky (1978) in social constructivism theory, Lave and Wenger (1991) in situated learning theory and Haythornthwaite (2005; 2008) in social network theory. These theories emphasise the importance of the context to learning, where learning is considered to be a “situated activity” in a social environment (Lave and Chaiklin, 1993). Two of the most important bodies of thinking about social learning in the last few years have been CoP theory and SN analysis. Both of these theoretical perspectives were investigated in this research.

SN theory is one of the main theories in understanding the social nature of learning, and it has been widely used in educational contexts, particularly in online learning. In this research, SN theory was used in a face-to-face classroom context to investigate the network evolution patterns of a multicultural classroom. Most recent studies have been found to focus on applying the SN perspective online. However, it remains important to investigate face-to-face learning since it arguably remains the most important way people learn, at least in formal education. This study adds to previous knowledge by being one of the few recent studies to apply SN theory in a face-to-face classroom context, particularly a multicultural classroom.

The current study has reinforced the importance of adopting the concept of multiple networks as proposed by Haythornthwaite (2005, 2008). It has also extended previous knowledge by identifying the importance of context in investigating the types of networks, where different contexts could reveal different types of networks. More specifically, this study contributes to previous knowledge by describing the types of social networks that international students build in UK HE, showing that international students construct rather different social networks compared to the networks built by a mono-cultural group. This suggests that a multicultural classroom would have different types of networks compared to mono-cultural classrooms. This, in turn, would suggest new questions for researchers to ask when investigating the networks of a multicultural

classroom, such as what types of networks a multicultural classroom has, what factors shape each network, and how these networks change over time. This was only one study in one context, which suggests the need to explore this further in future research instead of simply just focusing on one network, as researchers have tended to do in the study of internationalisation (e.g. Brown's (2009a) study).

Another contribution of this study for researchers of social networks is in terms of studying network dynamics. There seems to have been little done in previous research on studying the network over time (Spiliopoulou, 2011); and most of what there has been is purely quantitative (Snijders, 2001). This study extends previous knowledge by providing another angle on studying the social networks over time, using a mixed methods approach. Taking an approach that focuses on change over time has helped to show that combining qualitative methods with social network analysis is successful in providing a better understanding and a more holistic picture of the network evolution.

Another significant theory in understanding the social nature of learning is CoP theory, which has been very widely cited in the literature of all types of education, particularly in HE, where it has been applied in many ways. In this research, only one aspect of CoP theory was explored; namely the concept of LPP. LPP is considered to be an important theory in learning where learning is seen as an active social process. LPP provides an explanation of how novice members of the community (newcomers), interact with experts (old-timers), who have the central position of the community. The social interaction, among *newcomers* and *old-timers*, is key in acquiring knowledge and enabling legitimately moving to the central position of the network. This study contributes to the body of theory by suggesting a new angle on how to apply LPP in a learning context. Being a very influential model in thinking about social aspects of learning did not make LPP as useful as might have been assumed. This research showed that applying LPP, particularly as a theoretical framework, was not very useful in a multicultural context if it simply looked at just the expert and novice relationship, where there are always experts in every network. However, it did show that LPP can be a useful concept for looking at the learning process if interpreted in a slightly different way. LPP is applicable within the smaller process that happened in many subgroups even if it is not happening in the main group. This is particularly applicable to this research context, the multicultural context, where LPP was apparent within smaller co-national groups within the entire network. Thus in contexts of quite fragmented networks, LPP can operate, but in a more complex way than often understood. This helps us understand CoP theory in a more complex way, not just as

a simple theory of learning always being through expert-novice interchanges, but rather through the range of processes apparent in a small group.

Another contribution of this research was combining these two theoretical perspectives in one study, which was found to be beneficial in many ways. Looking at social networks in a multicultural classroom was found to be useful in understanding the network dynamics. SN theory was also important in explaining the applicability of LPP to this research context. This was revealed through the cohesion and centrality measures, which showed the patterns of interaction among students. Using SN with the concept of LPP is demonstrated in this study to be a useful approach.

Social network theory was also important in investigating the visibility of international students' networks, which was one of the research findings found not to have been addressed before in previous studies. This could be related to the fact that previous studies have not deployed social network theory in their research, where some researchers has conducted their research based on purely qualitative methods only (e.g. Brown's (2009) research), which is considered to be one of the main contributions of the current study.

In terms of empirical contributions, this study has contributed to existing knowledge by providing a fuller picture of international students' networks, particularly what factors shape the formation and the evolution of their networks. Some of these factors were a confirmation of previous studies' findings. However, this research has also provided other factors that shaped the network dynamics of international students and showed how they operate over time. In the context of internationalisation, this research has confirmed previous findings about the factors shaping international students' networks in a different context. Most previous studies have focused on the issue of integration of home with international students; in this study, the context was where international students were the majority. Some factors were confirmed from previous studies to be important in shaping the international students' networks, such as language and culture. However, having investigated these factors over time showed that their role has changed over time, where other factors appeared to be more significant, such as learning motives, than simply language and culture factors. This study has also expanded our understanding of how these factors operate differently in the research context.

This research has also extended previous research findings by providing an explanation of the network dynamics of international students and how they change over time, where previous studies have tended to look at static cases of students networks. This can be particularly important

in better understanding the formation of co-national networks early in the course. Having explored the factors shaping international students' networks over time, the findings of this research opposed previous studies by showing that the role of some factors, such as language in building co-national networks, changes over time, which indicates that the persistent lack of interaction among home and international students could be related to the fact that the previous findings focused on static factors rather than on their evolution. In summary, this research contributes to previous knowledge by opening up a new direction of research that investigates the dynamics of students' networks.

8.3.1. Methodological Contribution

This study has contributed methodologically to existing thinking about research practice, through developing and testing a package of methods for collecting SN data in an educational context, where international students are the majority. In this research, applying social network analysis was not sufficient to capture the class dynamics because the network was just forming and was in constant evolution throughout the study. Furthermore, SNA does not provide sufficient explanation of why the network changes. Consequently, SNA was combined with qualitative methods. This was shown to be an effective methodological approach and enabled an understanding of the different aspects of students' social network evolution. It also helped in overcoming the weaknesses of each particular method. No previous studies were found that applied the same package of methods, particularly mixing SNA with qualitative methods, to collecting SN data in a multicultural classroom. Previous studies of education often take either a qualitative interview, ethnographic-based approach, or are based on questionnaires with larger populations. Therefore, the current study contributes to research practice by suggesting adopting a mixed methods approach in collecting SN data from dynamic contexts, such as the current research context. This is considered to be one of the main contributions of the study that is suggested as a model for other social network research in education or any similarly dynamic field.

8.4. Implications of the Research for Practice

Understanding the social network dynamics of a multicultural classroom and the factors shaping these networks is potentially beneficial for informing policy and action. This section explores the significance of the research findings for policy makers and institutions, and for individual tutors.

8.4.1. Implications for Policy Makers

The findings of this research showed that international students create multiple networks in the classroom; these are work and friendship networks. It was also found that the work network, in most cases, was created based on a friendship network. Policy makers in internationalisation, who are supposed to plan for and fund internationalisation projects, can take this finding into consideration by putting in place plans that suggest extending the duration of the orientation week to one month instead of one week, for example. This would give students more opportunity to meet and get to know each other, and time to build a friendship network that could be transformed into a work network over time.

The model of factors shaping international students' networks is another finding that could inform policy makers' action. Indeed, this can be beneficial in terms of funding home students, for example, to develop cultural understanding before they start their undergraduate study. This can be by developing and funding projects that send home students abroad and allow them to mix with other nationalities, to better understand the language and cultural differences. Furthermore, the feeling of living in a different country would make home students more aware of the challenges that might face international students in the UK. Furthermore, policy makers in internationalisation could start their plans in high school to help students learn about different cultures, how to respect their differences, the values they have, and how being different does not mean being at a disadvantage. Policy makers can also put some plans in place to popularise cultural awareness and educate the public of its importance in different aspects, such as economically and culturally, through the media (TV, SNS, etc).

Policy makers could also provide the funding for staff training programmes. This also can be done through sending staff abroad to learn about the different teaching and learning styles, and better understand the international students in their home countries. It would also be important for policy makers to support this kind of research, where the results can be beneficial to institutions and tutors.

The findings of this research have highlighted the importance of time in shaping the dynamics of international students' networks. Obviously, the current plans for internationalisation are based on recommendations from studies that had looked at students' network in a static way. Policy makers could apply the findings on the network dynamics by designing for internationalisation plans that

can be applicable over time. One suggestion to do this is by redesigning the courses, in a way that increases the time students are together, hence fostering more integration.

8.4.2. Implications for Institutions

The model of factors produced in this study can be beneficial for informing HE institutions' actions, particularly for those who have large numbers of international students. One of these actions could be organising social activities to welcome students as soon as they arrive in the UK. It is also important to include home students in such activities to avoid increasing the division between home and international students. Such activities can be useful in giving students time to get to know each other in a less stressful environment before the start of their course (when they are busy with the assignments and coursework). Meeting in a social context, before the start of the course, can also give students time to understand the multicultural differences, and hence to bridge the cultural gap between them, and discover the similarities they have in common. Institutions could also suggest accommodating students based on their programme of study, which would guarantee the cultural mix of students. As been found in this study, sharing the same accommodation can have an important role for students in getting to know each other in an informal context, and have more time to spend together, hence enabling them to better understand the cultural differences. Since one of the study's findings was the importance of programme of study, such initiatives probably work best at the programme level.

Moreover, these institutions could also have a crucial role in providing informal sessions for all students on the importance of the interaction for both home and international students, and its impact on their academic and cultural aspects. Some workshops that join students with staff (from the entire university) could also be organised during the orientation week. In these workshops, both staff and students could be engaged in discussions about the differences in learning and teaching styles. Indeed, these discussions could be an active process of re-negotiating what classroom organisation and group work rules should be, which in turn, would help students to adapt quickly to the education system before they start their course. The findings showed that international students prefer to be in co-national groups because they connected them with their home countries. Based on this finding, institutions could plan for workshops for staff teaching international students to learn the basic communication keywords for each country, such as greetings and the like, which in turn could help international students to feel more at home and integrate better into the classroom.

8.4.3. Implications for Tutors

The model of factors could also be applicable, in various ways, for tutors teaching international students. One of these ways could be through adopting changes in the curriculum design in a way that supports intercultural learning by providing international students with a chance to reflect on their learning experience as a specific topic within the course. The management of the group work, and the type and content of assignments, are some of the aspects of the curriculum that tutors could change. For example, tutors could incorporate an international aspect into the assignment that draws on international students' cultural knowledge. Hence, multicultural interaction is encouraged and perceived to be worthwhile because it feeds into the assignment. Tutors can also encourage students to mix through assessment criteria, where in the case of self choice of groups, a credit could be given to groups that form based on a multicultural mix. Changing the type of assignments, to include other forms, such as using visual types, can be useful for international students to engage in group work, since such types of assignment have other aspects and not just focus on language proficiency, as is the case in writing essays.

Monitoring integration into the class is another way that tutors could benefit from the model of factors. Essentially, this could be done through encouraging a continuous interaction among students from all nationalities through classroom discussions, for example. Tutors can also create un-assessed activities in each lecture, where students are paired based on mixing nationalities to discuss how specific issues (based the topic of the lecture) are treated in different countries. In fact, this will help students to better understand the problem, where the different skills and cultural background the individual has can be beneficial when combined in one group. In this case, the tutor could help to make the network more visible, where the findings of this research showed that the network was currently invisible in the classroom. However, this needs to be explored further.

Tutors can also benefit from the model of factors and how it changes over time through the tutor creating mixed groups, particularly early in the course, where some students were found to be isolates because of not being brave enough to approach other students. Based on the model of factors, tutors could create mixed groups based on the common factors they have, which was found in this research as not always based on co-national factors. This could create a successful working environment. In order to guarantee "healthy" work groups, tutors could include assessment criteria that allow students to evaluate each other's work within the group; hence, every aspect of the group

work can be fairer, and every member can participate equally towards accomplishing the assignment.

8.5. Research Limitations and Future Research

Inevitably in a PhD study, lack of resources limited the scope of what research can be undertaken. Such limitations need to be acknowledged, but can in turn suggest directions for further research. While the research was successful in studying the social network dynamics of international students and the factors shaping the formation of these networks in a specific UK higher education context, limits were the lack of time and the limited context within which it was conducted. The time limitation was one major issue that had an impact on the findings of this research. This research has only investigated the perspective of one classroom, where international students were the majority. The findings of the research could be related to the discipline studied by the students that this research was conducted on, because international students are normally the majority in such disciplines (management and information systems). It would be interesting to compare two classes from different disciplines where the majority is UK students, and international students are a minority. This is particularly important because of the fact that home students have a very different perspective and there would be different factors shaping their networks, as reflected in the literature (Harrison and Peacock, 2007; Dunne, 2009; Harrison and Peacock, 2009; Peacock and Harrison, 2009). In fact, home students have different learning motives and attitudes compared to the ones of international students, who are normally also older and often married and thus more responsible students. It would also be interesting to investigate the international students' network dynamics looking at differences between national or regional groups, since the international students' body is heterogeneous. The precise make-up of this class studied may have been significant: e.g. the fact that the majority were Indian and Chinese students. If it had been other nationalities the findings might be different; therefore there is a need to study classes with a different make-up

Furthermore, this research has the limitation of focusing on international students at the postgraduate level. It would be beneficial to study international students' networks at the undergraduate level and see if their network dynamics were shaped by the same factors that shaped students at the Master's level. It would enable a comparison to be made between the two studies and see if the level makes any difference.

This study was conducted at a specific institution at a particular time. It could produce different findings if conducted at other institutions where the internationalisation strategies and the number of international students were different. This study was also conducted in one country, where it could be conducted in other countries that implement internationalisation strategies in their HE institutions, such as the USA, Canada, or Australia. This could be significantly different, and could also provide a case for comparison with the current study, to investigate the differences between countries. Also, any study takes place in a wider national context. Given the changes to UK government policy, e.g. towards student visas, and also its whole rhetoric about international students, these could have an impact on how classroom dynamics work.

The perspective of the academic staff could be another direction of research that could be explored further. Understanding how academic staff perceives the issue of multicultural learning could be beneficial in building a holistic model that reflects the perspective of those involved in the teaching and learning process. This could also be important in designing for more successful group work that is based on the similarities rather than the differences.

Some issues related to qualitative data were considered as limitation for this research, such as the subjectivity of the researcher. However, all attempts were made to be transparent and to reflect the participants' accounts of the research problem. The generalisability of the research findings could be considered as a limitation in this research. However, the research findings can be considered applicable to similar research contexts. This applies in both the qualitative findings and the SN findings. The SN data, for instance, were insufficient to support testing of the results for significance (due to class size). These findings must therefore be treated with caution, and so future research might try to collect more data from different courses. Moreover, some theoretical findings, such as how to look at LPP, can be tested in other contexts. Also adopting the conceptualisation of multiple methods could be useful in other contexts.

Applying a mixed methods approach in studying social networks was found to be effective in providing a fuller picture and overcoming some of the limitations of each specific method. Having developed a package of methods to collect SN data was successful in providing a better understanding of the main forces shaping international students' networks and their evolution. However, the research findings showed that no package of research tools can be comprehensive. There remained some gaps about the relations that isolated students have in this network, for example. Other methods such as grounded theory could be applied.

The visibility of the network needs to be explored further; for example, why students who were central in the learning network were not visible in the classroom. What factors, e.g. respect of tutor, being too shy to ask/ answer questions, participation in the classroom discussions, were related to language and cultural issues. Tutors could, for example, distribute a simple survey at the start of the course to help understand this issue further (e.g. what prevents students from participating in the classroom; this was also discussed earlier in the implications section).

Another issue is related to the evolution of the network, and how the role of the factors changes over time. Since this research reflects the findings of just one case, more studies need to be undertaken in the future to confirm/refute the findings of this research. Researchers could adopt the same package of methods suggested in this research, as a useful way to further investigate this issue in future, in similar dynamic contexts.

8.6. Closing Remarks

In the first semester, okay this is from my country, I will work with him, I will interact with him more. But now I know both of them, I will take a call not on a basis of the country, but on the basis of how good a person is in terms of how he works and whether it would be fun to be with (SM-follow-up interview).

In this excerpt, SM demonstrates how his learning motives were the main driver for preferring to work with people who would help him to get better results, but not on a co-national basis. In fact, this is different to what was previously claimed about international students' preference to work in co-national groups. However, his preference is premised on first getting to know both individuals. The research here has identified time as a critical element to understanding social networks. The quotation illustrates the complexity of this area, and the importance of further investigating the role of students' social networks in learning.

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Appendices

Appendix 1: Information Sheet

1. Research Project Title:

“An Exploration of Network Changes Arising from the Use of Social Bookmarking in Learning Communities”

2. Invitation paragraph

You are being invited to take part in a research project. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part. Thank you for reading this.

3. What is the project’s purpose?

The aim of this project is to study the effect of using a social bookmarking tool on the network of a learning group over time.

This impact would be measured in terms of the change on their personal ties (strong and weak ties) and also on network cohesion to find its impact on making them a learning community.

It will also study the impact on their communication behaviour and how this may change from one communication tool to another such as (email, mobile, facebook, etc.).

Investigate the impact of using social bookmarking on user’s collaboration and knowledge sharing.

4. Why have I been chosen?

You have been chosen to participate in this study as you are a member of a learning group.

5. Do I have to take part?

Taking part in this study is totally optional, so you have the choice to participate or not in this project. There will be no effect on your grades/ marks whether or not you participate in this study.

You also have the right to withdraw from participation in the project any time you wish and this also will have no effect on your grades/ marks of this Module. In the case of accepting participation in this study you will be asked to sign a consent form.

6. What will happen to me if I take part?

All that is required of you to participate is to fill in these questionnaires and answer interview questions where you need to provide your email in order to enable us to interpret data collected across the module as a whole. You will be asked to complete the questionnaires three to four times in which you will answer the same questions that may take up to 15 minutes each time. Based on the analysis, some participants will be interviewed. And this may take up to 20 minutes each time.

The questions you need to answer in the questionnaire are about your social network (indicate who you know or not in the class, and what communication tool you use in contacting those people).

In the interviews, participants will be asked about the current use of social bookmarking tools and their preferences of a tool to better communicate and share.

7. Will I be recorded, and how will the recorded media be used?

The interviews will be recorded. Photos will be taken in the class and will only be used as a research tool for collecting social network data. Neither of these pieces of material will be used in any other way without your written permission. Also their use will be restricted to the researchers in this project. All data collected will be destroyed upon completion of the project in an appropriate and secure way and none of the data might be retrieved by other parties.

8. What do I have to do?

You just need to fill these questionnaires and answer interviews questions.

9. What are the possible disadvantages and risks of taking part?

There will be no risk or disadvantage of taking part of this research also no restrictions or any changes in your lifestyle.

10. What are the possible benefits of taking part?

There will be no direct material benefit for your participation. However you will have a sense of your network and the role each student plays in your learning group which can help you in understanding the interaction patterns among students in their learning groups.

11. What if something goes wrong?

You can contact my supervisors Dr. Andrew Cox a.m.cox@shef.ac.uk or Prof. Steve Whittaker s.whittaker@shef.ac.uk for any complaints you may have. However you may contact the University Registrar and Secretary if you feel you have any complaints that have not been handled to your satisfaction.

12. Will my taking part in this project be kept confidential?

All the data collected will be anonymised, including the names of all students and any other information students may recognized.

13. What will happen to the results of the research project?

The data may appear in presentations and journal articles in social network diagrams that display individuals as nodes in a network and no real name will be attached to the individual node (each individual will be presented as a node, see figure 1.)

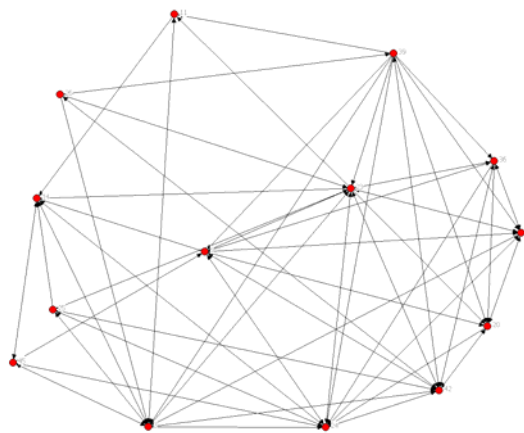


Figure. 1

14. Who is organising and funding the research?

I'm a research student in the Department of Information Studies at the University of Sheffield.

15. Who has ethically reviewed the project?

This project has been ethically approved via the Information Studies department's ethics review procedure.

16. Contact for further information

For more information please contact me by email in lip07nnt@shef.ac.uk

Please note that you will be given a copy of the information sheet as well as a signed copy of your consent form.

Thank you for your kind participation in this project.

Appendix 2: the Consent Form

Title of Project: A Study of Network Evolution of International Students in a Formal Learning context

Name of Researcher: Nashrawan Naser Taha

Participant Identification Number for this project:

Please initial box

1. I confirm that I have read and understand the information sheet dated: _____ for the above project and have had the opportunity to ask questions.

2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason.

3. I understand that my responses will be anonymised before analysis. I give permission for members of the research team to have access to my anonymised responses.

4. I agree to take part in the above project.

Name of Participant Date Signature

Name of Person taking consent Date Signature

(if different from researcher)

Researcher Date Signature

Copies:

One copy for the participant and one copy for the Principal Investigator / Supervisor.

Appendix 3: Social Networks Questionnaire Stage I

1. Please answer the following questions:

- 1. **Your Email Address:**.....
- 2. **Your Gender:**.....
- 3. **Your Programme of Study:**
- 4. **Country of origin:**.....
- 5. **Your First language:**.....

2. Please refer to your class names' list then choose the appropriate option in front of each name.

Forename	Surname	Socialize with Have coffee, going parties and/ or any other social activity	Work with (in Module assignments)	Ask general information (Find flat, finding part time job, public transport, etc.)	Give general Information (find a flat, finding part time job, public transport etc)	Give personal support	Receive personal support
Student1							
Student2							
Student3							
Student4							
Student5							

Appendix 4: SN Questionnaire Stage II:



The Department of Information Studies

- Your Name _____

Please refer to the information sheet for details of the project. By handling in this questionnaire you are consenting to participate in this project.

2. Please refer to the class photos and names below then indicate by placing a (✓) whether you have communicated with that person in the way described below. Please check all that apply and leave blank if none apply. (Note: if you know anyone who is not in the names list, please write their name in the spaces below).

	First Name	Last Name	Give/ Ask general information (Find accommodation, job, public transport, etc.)	Give/ Ask course related Information (Module timetable, room, and/or coursework, etc)	Work with (e.g. work in module assignments, discussions related to coursework)	Is your friend (e.g. socialize with, go out together, etc)
1	A					
2	B					
3	TC					

Thank You

Appendix 5: Interviews Schedules Stage I:

1. What are your name/ country of origin/ first language/ programme of study?
2. Please name the people you know in this class (using a class photo)? Did you get to know them before the class? What are their countries and First language?
3. What kind of relation you have with them? (Prompt: Ask Information; Advice; Work; Social support)
4. Is there any change in your relation since you got to know each other?
5. What are your main resources of information, advice and social support rather than your people in this class? (Pre-existing network).
6. Would you describe how your relations with those people have changed after coming to Sheffield University?
7. Who are people you work with and are not from this class?
8. What communication tools you use to communicate with them (both your current social network and previous one)? (give examples)
9. How do you normally organize your bookmarks and favourites in your traditional browser?
10. What do you know about social bookmarking tools?
11. What do you think of Diigo in specific as a social bookmarking tool? What advantages/disadvantages it has comparing to others you may heard of or use.

Appendix 6: Interviews Schedules Stage II:

1. What are your name/ country of origin/ first language/ programme of study?
2. Please name the people you know in this class (using a class photo)? Did you get to know them before the class? What are their countries and first language? (Do you know any one just by sight, what do you think of using photos in the questionnaire?)
3. What kind of relation do you have with them? (Prompt: Ask Information; Advice; Work; Social support) (Why do you communicate with them)?
4. Do you communicate outside the class?
5. Do you think that **being in a group** had an effect on your learning in the class and outside the class?
6. Do you think the **type of assignment** has affected your relation with others outside the classroom? (How did the video creation exercise affect your relations with others? Positively?)
7. Is there any change in your relation since you got to know each other?
8. What are your main resources of information, advice and social support rather than the people in this class? (Pre-existing network).
9. Would you describe how your relations with those people have changed after coming to Sheffield University?
10. Who are the people you are working with and are not from this class?
11. What communication tools do you use to communicate with them (both your current social network and previous one)? (give examples)
12. How do you normally organize your bookmarks and favourites in your traditional browser?
13. How do you normally share bookmarks?
14. What do you think of Diigo in specific as a social bookmarking tool? What advantages/disadvantages it has comparing to other tools you may have heard of or use.
15. Have you used it after the practical sessions? (How?)
16. Do you have any further suggestions or comments?

