A Study of Students' Conceptions of Networked Learning in a Developing Country Setting

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This thesis is submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy.

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I would like to dedicate this thesis to my loving father, who passed away during my PhD journey.

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This thesis results entirely from my own work and has not been offered previously for any other degree or diploma.

Signature ....Tan Thinh Nguyen.......

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Declaration

I hereby declare that except where specific reference is made to the work of others, the contents of this dissertation are original and have not been submitted in whole or in part for consideration for any other degree or qualification in this, or any other University. This dissertation is the result of my own work and includes nothing which is the outcome of work done in collaboration, except where specifically indicated in the text.

<div align="right">Tan Thinh Nguyen</div>

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Abstract

Institutional initiatives to foster networked learning practices, based on 'Western' models, are increasingly prominent in developing countries; yet, to date, very little research has explored campus-based students' conceptions or experiences of those initiatives. This study investigates students' conceptions of networked learning in a particular developing country setting: Can Tho University, Vietnam. The study started from the conviction that we should not assume that aspects of networked learning will be conceived by the students there in the same ways as in the countries where the models were developed.

The study adopted a phenomenographic research approach to elicit and describe the qualitatively varied ways in which undergraduate students experienced and perceived four different (though related) phenomena that are associated with networked learning in the literature and promoted within institutional initiatives. Those four phenomena relate, in turn, to: a) learning in relation to others and resources; b) the roles of technology in mediating learning through connections; c) cooperation with others in learning; and d) working together towards a common goal.

Data were gathered through semi-structured interviews and analysed according to Dahlgren and Fallsberg's (1991) seven-stage cycle of data analysis in phenomenography, so as to elaborate the range of ways in which the phenomena of study were perceived across the sample of participants. The findings of the study are presented as outcome spaces, representing the variation in conception of each phenomenon.

With regard to learning in relation to others and resources, three categories of description were identified: *resource access*, *knowledge transmission* and *knowledge construction*. Regarding the roles of technology in mediating learning through connections, three categories emerged: *flexibility*, *tool* and *medium*. These categories are argued to demonstrate a conceptual variation in the perceived extent and sophistication of the technological mediation occurring. Concerning cooperation with others in learning, the analysis of the data led to the emergence of three categories. These categories identified that cooperation in learning was perceived as *group work*, *exploratory learning* and *directing learning*.

In addition, qualitative differences in students' accounts on their conceptions of working together towards a common goal were constituted by three issues related to benefits of working together towards a common goal (*diversity awareness*, *increased understanding* and *increased performance*) and three issues related to challenges of working together towards a common goal (*technological availability*, *interpersonal differences* and *unproductive learning*).

The significance of the study derives from how it provides insight into how undergraduate students experience and perceive 'networked learning' in developing country contexts where learners typically have rather different values and educational histories than in the 'West'. For example, the students in this study perceived networked learning as partially an act of knowledge transmission from teacher to students, contrary to the Western literature, where the dominant conception invokes an image of students' active involvement in knowledge construction. On the other hand, students also experienced networked learning as making-meaning-through-connections, which is reasonably consistent with findings from studies of Western settings.

It is hoped that the findings will provide new insights of value to practitioners and educators seeking to design or integrate the networked learning concept into the curriculum in higher education in the developing world; and, at a higher level of granularity, empirical knowledge of use to educators and policy makers who wish to promote more student-centred learning approaches such as networked learning in the developing world.

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List of abbreviations

Blended Learning: Learning that is facilitated by the effective combination of different models of teaching, styles of learning and modes of delivery including with technologies.

Developing world: the developing world encompasses developing countries.

Developed world: the developed world encompasses developed countries.

Epistemology: The branch of philosophy dealing with knowledge and its justification

Formal Learning: Learning that takes place within a teacher-student relationship, such as in a school or educational institute, and which implies the design and delivery of learning programs.

ICT: Information and Communication Technologies

Informal Learning: Learning that occurs through the experience of day-to-day situations and is often unintentional learning

JITOL: The European-funded Framework 3 DELTA project, Just-in-time IT-based Open Learning

LMS: Learning Management System

Network: A group of unspecified relationships among entities of which the nature itself is undetermined.

Ontology: The branch of philosophy dealing with the nature of reality and truth

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Chapter 1 Introduction

1.1 Introduction

In today's society technology is developing fast. New Information and Communication Technologies (ICT) continue to transform the way in which students learn and teachers teach. The role of ICT in learning has evolved rapidly over the last several years. This has been due to the increasing availability and capabilities of ICT to support learning and teaching. Oliver (2003) stated, "Information and communication technologies (ICT) have become commonplace entities in all aspects of life".

In developing countries, the advances of ICT have generated enormous opportunities for transforming the educational system (UNESCO, 2011, 2014). The use and adoption of ICT to support teaching and learning has appeared to be centralised in terms of catalysts for educational transformations. According to UNESCO (2014), "ICT in education has a multiplier effect throughout the education system, by enhancing learning and providing students with new sets of skills; by reaching students with poor or no access (especially those in rural and remote regions); by facilitating and improving the training of teachers; and by minimising costs associated with the delivery of traditional instruction" (p. 6).

Higher education is one sector where ICT has had a major impact on student learning (see Jones, 2012b). The emergence of 'networked learning', for example, has been associated with exciting and innovative approaches to learning that have brought to light the importance of technology in mediating learning and in fostering 'connections' between people and resources. This study examines the use of technology in one South

East Asian setting to further understand how ICT is being used in learning through connections in higher education contexts.

As the author will discuss in more detail below, the term 'networked learning' has several meanings: as a theoretical lens emphasising 'connections', 'active learning' and joint forms 'knowledge construction'; as a programme design framework for practitioners emphasising 'authentic' learning goals and 'democratic' forms of course organisation; as a pedagogic approach emphasizing collaboration; and so on. According to Beaty et al. (2010), 'networked learning' can be seen as a "pedagogy of inquiry" and one suited for the twenty-first century (as cited in McConnell, Hodgson & Dirckinck-Holmfeld, 2012, p. 11). Goodyear, Banks, Hodgson and McConnell (2004) have argued that "networked learning is an area which has both practical and theoretical importance. It is a rapidly growing area of educational practice, particularly in higher education and the corporate sector" (p. 1). Networked Learning is seen as important because it raises issues around how people and resources can be brought together in learning through the use of ICT.

Currently, several scholarly publications about networked learning are available in the literature. Those include several books, e.g., *Advances in Research on Networked Learning* (Goodyear, Banks, Hodgson & McConnell, 2004); *Exploring the Theory, Pedagogy and Practice of Networked Learning* (Dirckinck-Holmfeld, Hodgson & McConnell, 2012); *Networked Learning: An Educational Paradigm for the Age of Digital Networks* (Jones, 2015), as well as various theses and dissertations published in various higher education institutions around the world (e.g., in Australia, Denmark, Netherlands, Sweden and UK). There is also a large pool of journal articles and conference papers – especially from the Networked Learning Conference

(http://www.networkedlearningconference.org.uk/), which has the specific purpose of offering a unique opportunity to "participate in a forum for the critical examination and analysis of research in networked learning – particularly in Higher Education and lifelong learning".

However, much research on networked learning has been conducted in Western countries (e.g., Goodyear, 2001; Byrne, et al., 2002; Goodyear et al., 2004; Jones et al. 2006; Jones & Dirckinck-Holmfeld, 2009; McConnell et al., 2010, Hodgson et al. 2012; Cutajar, 2014). Very little research has been carried out in developing countries (Shah & Hodgson, 2014). This is important because, as will be documented in Chapter 2, attempts to foster networked learning practices are increasingly prominent in developing countries. We should not assume that those attempts will be conceived by the students there in the same ways as in the countries where the models were developed.

The purpose of this study is, therefore, to add to the body of research in this area by exploring students' conceptions of institutional initiatives that in effect attempt to support 'networked learning' in a particular developing country setting. It is well known that the theory of networked learning is concerned with a particular learning model in which learners use ICT to establish connections and relationships with others and resources. This study will scrutinise how learners in a particular developing country context experience attempts to implement those practices.

The rest of this chapter is structured as follows. The next section provides a description of the background to the present study. This leads to precise statements of the aims of the study, the research questions and an overview of the study as a whole in Section 1.3. The research context for this study is then presented in greater detail, with a special

focus on higher education in Vietnamese contexts in Section 1.4. Finally, this chapter presents the significance of this study in Section 1.5 and outlines the structure of the thesis in Section 1.6.

1.2 Background to the Study

An interest in networked learning has often been manifest as an attempt to study how theoretical models are applied in practical cases (e.g. Darby, 2002; Goodyear et al., 2004; Jones, 2015). Networked learning itself provides a theoretical framework to study learning through connections mediated by ICT (Jones & Dirckinck-Holmfeld, 2009). Goodyear et al. (2004) and Jones (2015) have regarded networked learning as a particular field of research that is broadly based on the assumption that human-human and human-resources interactions constitute the most important components in learning. Hodgson, McConnell and Dirckinck-Holmfeld (2012) state that networked learning is concerned with "the development of a learning culture, in which the members' value supporting each other: no one individual is responsible for knowing everything" (p. 295). In other words, networked learning is based on a learning model characterised by relationships, usually called 'connections'. In that model, students not only utilise ICT tools to interact with learning resources, but more importantly, they interact with people, including each other (McConnell et al., 2012). Human-human interaction can be between student and teacher or among students. For example, networked learning can take place in the context of blogs in which students share their emerging concerns with others (Newbegin & Webster, 2012).

Within the context of higher education, networked learning provides teachers and students a new means of facilitating learning through connections mediated by ICT (Jones, 2015). Particular points of focus are cooperation in learning and the mediating

roles of technological tools. By 'cooperation in learning' is meant an aim to create opportunities for 'cooperation' (to be more closely defined later) and participation in a community to emerge. That issue is regarded as crucial. Goodyear et al. (2004) stated, "There is no point to networked learning if you do not value learning through co-operation, collaboration, dialog, and/or participation in a community" (p. 2). Furthermore, networked learning models also position as essential the exploration of the *technological* aspects of networked learning, in order to understand whether and how ICT can play a role in the creation of connections; for example, how ICT can be used to support interaction. The present study, therefore, not only considered cooperation in learning in the context of networked learning but also focussed on the use of ICT in mediating connections, because *human cooperation* and *ICT mediated interaction* are two mutually dependent cornerstones in the concept of networked learning (Goodyear et al., 2004). Hodgson and Zenios (2003) stressed the impact and importance of ICT in networked learning as follows:

> "The advances of computer-based communications and the capabilities of the Internet have enabled networked learning to become a central theme within educational theory and practice" (p.405).

Rodesiler and Trip (2012) also stated that the intended role of ICT in networked learning is "to bring individuals together to share insights, to make connections where there were none before, and to enhance the learning experience for all parties." (p. 186). Furthermore, in exploring the role of technology in the context of networked learning, it was impossible to overlook the importance of Learning Management Systems (LMSs), sometimes called the Virtual Learning Environment (VLE). LMSs are the most prominently used tool when university institutions attempt to support networked

learning initiatives (e.g., Bates & Sangra, 2011; Escobar-Rodriguez & Monge-Lozano, 2012). Often used to house a repository of materials ('resources'), uses of LMSs can also focus on the building and maintenance of the university's online communities (Williams & Olaniran, 2012).

With the use of LMS, the teaching content and learning materials can be put online, which makes it possible to combine online and offline activities – by enabling students to communicate and interact with each other, as well as accessing learning resources 'anywhere' (e.g., Watson & Watson, 2007; Williams & Olaniran, 2012). Part of the reason why an LMS is often seen as impacting on networked learning is because it serves as the institutional venue for online learning environments. As Dias and Diniz (2012) contend, "Learning management systems (LMSs) in higher education institutions (HEIs) provide the potential for rich learning environments built on social constructivist theories under the concept of blended (b-) learning" (p. 38).

However, how those environments are used and experienced varies considerably between different contexts. Learning in different contexts may have different impacts on students' experiences and conceptions of 'networked learning', much as it does on conceptions of 'learning' more generally. For example, Marton, Dall'Alba and Beaty (1993) noted that research in different contexts is likely to reveal different conceptions of learning. Much research has shown differences in Western and Eastern conceptions of learning in higher education contexts. Those differences have been conceptualised in terms of teaching and learning preferences (Littrell, 2006; Utsumi & Doan, 2009; London, 2011), students' autonomous learning ability (Rajaram & Bordia, 2011, 2013; Guo, 2012), cultural and institutional barriers (London, 2011; Pham, 2011),

technological barriers (Peeraer & Petegem, 2011b) and academic freedom (Vallely & Wilkinson, 2008).

For these reasons, the author was interested to investigate how 'networked learning' was conceived by learners in a particular developing country context. It was a goal of the present study to examine students' conceptions of networked learning in a particular developing country in South East Asia.

1.3 Aims of the Study

This study aims to describe how undergraduate students experience, understand and perceive aspects of networked learning in a particular developing country setting. The study primarily focuses on how undergraduate students perceive their experience of learning in relation to others and resources, the roles of technology in mediating learning through connections, cooperation with others in learning, and working together towards a common goal. The phenomenographic approach that is used focuses on mapping the collective variation in student perceptions with regard to four defined 'phenomena' discussed in the networked learning literature.

The study was guided by the following main research question:

> *What is the extent of variation in how undergraduate students collectively experience networked learning phenomena when they are introduced in a higher education institution in a developing country?*

In particular, the study aims to examine variation in collective experience of four particular phenomena, which, as the earlier overview has highlighted, are central, to narratives about networked learning in literature and policy: a) learning through

relations (with resources, tutors and students); b) the roles of technology in mediating learning through connections; c) cooperation with others in learning; and d) working together towards a common goal.

To address the four particular phenomena above, four research sub-questions were coined. Those sub-questions are intended to move the research focus gradually from very generic phenomena associated with networked learning towards more specific issues highlighted as important in the literature. The ordering reflects a concern, both during discussions with participants and when presenting the analysis, to address specific concerns within the literature without allowing those to prejudge the perceptions of wider phenomena. The research sub-questions were as follows:

1. *What is the extent of variation in students' collective experience of learning through relations? (This question focuses on perceptions of a broad, foundational networked learning concept: the importance of forming relations, or 'ties', with peers, tutors and resources. The importance of both strong and weaker ties is recognised, where some ties might actually be rarely or intermittently used in practice.)*

2. *What is the extent of variation in students' collective experience of the roles of technology in mediating learning through connections? (This question focuses on the integration of technologies into educational practices, which the networked learning literature characterises as having consequences such as strengthening or weakening particular relational ties or allowing for ties to be established that would not otherwise have occurred.)*

3. *What is the extent of variation in students' collective experience of cooperation with others in learning? (This question focuses on perceptions of how students actually*

use ties to work with others, typically in ways mediated by technology. The notion of 'working with others' means what the networked learning literature calls 'cooperative learning', a general concept that encompasses all forms of group work and consultation with others oriented towards learning goals.)

4. *What is the extent of variation in students' collective experience of working together towards a common goal? (This question focuses on perceptions of a networked learning concept with a specialised and exclusive technical definition: collaborative learning, which means more than cooperation and involves participants together defining the goals of their activity and producing joint products as an outcome of that activity, within particularly strong pedagogical ties.)*

1.4 Context of the Study

The context for the study is Can Tho University (CTU) in Vietnam. CTU is a large public multidisciplinary university in Vietnam. CTU was founded in 1966 and is one of the country's leading universities, with a good reputation in teaching and research, and strong links with the cultural, scientific and technical centres of Vietnam. Under Decision 1269/CP-KG dated 6 September, 2004 and Vietnamese government decree 6004/QD-BGDDT dated September 21, 2007, CTU is a 'major' Vietnamese research university located in the Mekong Delta in Vietnam and is one of the 14 national 'key' universities in Vietnam.

CTU has over 2,000 teaching and supporting staff members and offers Bachelor's, Master's and PhD degree programmes. As of 2016, CTU has more than 57,000 undergraduate and postgraduate students.

A range of learning technologies is available at CTU to support learning and teaching both in classrooms and online. CTU's LMS is a web-based learning system, which is internally branded *E-learning* (https://lms.ctu.edu.vn/dokeos/index.php and http://ctc.ctu.edu.vn/?option=com_content&view=article&layout=edit&id=547). This is based on Dokeos, which is an open-source LMS. *E-learning*'s features include content and course management, student interactions, a self-assessment tool, course participant tracking features, and virtual learning spaces for group learning (Tran, 2011; Thach, 2016). Course materials are digitised and organised in the LMS. The LMS also serves as an online learning portal not only for CTU's teachers and students, but also for people in the wider Mekong Delta region (Tran, 2010).

For a readership external to CTU, repeated references to 'e-learning' as a general trend in educational systems and *E- Learning* as a specific institutional platform has the potential to cause confusion. Therefore, throughout the rest of this thesis, the author refers to the university's LMS as *the LMS* in order to simplify the terminology.

Cooperation in learning activities mandated at CTU are those familiar from the networked learning models – they include studying course materials together and joint problem solving in group-based projects (CTU, 2014; Decision 2035/ DHCT-DT; Decision 3324/QD-DHCT; Tran, 2011). In the project-based group work, students are expected to work together around a project. All group members are responsible for achieving the project objectives, because the group-based project work is typically completed by examination or written report; both group and individual exams are used (CTU, 2014; Tran, 2011), for example in the module 'Sustainable development' (http://cenres.ctu.edu.vn/decuong/MT319.pdf). Cooperation and networking are, of course, mediated by a variety of learning tools that vary in flexibility of time and place.

But the most important tool from the vantage point of institutional planning, provision and support is the university's LMS.

In the present study, it was the student's experiences and conceptions of networked learning that were of interest. Initially, the author was interested to investigate a wide range of phenomena, which are often discussed by staff and managers at CTU:

- Ways in which networked learning is being used by teachers and students in education.

- Using technology for communication and information exchanges between student and teacher, and between student and student.

- Participating in discussion and dialogue.

- Accessing and retrieving materials.

- Cooperation in learning through engagement in cooperative activities.

- Opportunities where students are able to connect to others anywhere on the Internet.

1.5 Significance of the Study

A review of the literature (see Chapter 2) reveals that there is remarkably little research on how students experience and perceive networked learning in the developing world. That fact has been recognised before. For example, at the Ninth International Conference on Networked Learning in Edinburgh in 2014, Shah and Hodgson (2014) pointed out that:

> While research is available that explores teachers' use of learning technology within western contexts, there is less research that provides insights into

teachers' use of learning technology within non-western contexts. Currently we know little about higher education within developing contexts in terms of the prevailing pedagogical understandings and practices, the use of learning technology, and the contexts within which these practices are embedded. (p. 271)

The present study contributes to better understanding those educational uses of technology in non-Western contexts by focusing on how *students experience* those uses. With a central focus on the idea of students' conceptions of networked learning in a particular developing country setting, the significant of this study is therefore based on the following pillars:

- *This research is concerned with the theory and the practice of networked learning*. The study would add to the body of knowledge on networked learning. An emerging body of research is seeking to understand students' conceptions of networked learning in the developing world (e.g., Shah & Hodgson, 2014). Different contexts may lead to different conceptions with respect to the characteristics of educational systems, cultural aspects and approaches to teaching and learning. This study makes a significant contribution to understand in what ways students' conceptions of networked learning in a developing country context are similar to and different from how those issues are discussed in the literature, which has mostly considered the issue from a Western vantage point.

- The importance of research on *ICT support for learning in developing countries* is also strongly supported in recent research (e.g., Purushothaman, 2013; Zander & Georgsen, 2013). This study is the first attempt to study students' conceptions of 'networked learning' in the Vietnamese context. This could contribute to ongoing

discussion about different forms of ICT support provision in non-Western contexts.

- *Studies on students' conception of learning* are one of the core research areas in the field of educational research (e.g., Gracio, Chaleta & Ramalho, 2002; Bowden & Marton, 2004), to which the present study would be significant. According to Marton and Booth (1997), students may have qualitatively different conceptions in different contexts. Therefore, the outcomes of this study could add to the body of knowledge of how and what students in a particular developing country experience, understand and perceive learning in relation to other students, teachers and resources.

To summarise, the findings obtained from this study would help to uncover students' conceptions of networked learning in a particular developing country setting. Educators may need to understand how students experience and perceive key aspects of networked learning when designing and implementing it in higher education in similar contexts.

1.6 Structure of the Thesis

This thesis is structured into six chapters. This chapter has provided an introduction to the present study – describing the background, context, aims and significance of the study.

Chapter 2 reviews and discusses relevant academic literature, so as to establish a conceptual framework for the present study, and highlight gaps in previous research to which this work is oriented.

Chapter 3 presents the research methodology used for this study. It covers issues such as the reasons for the choice of a phenomenographic research approach to carry out the

study, how this study has been designed with a focus on how data were collected and analysed as well as a justification for sampling procedure and ethical considerations. This chapter also identifies and discusses a range of issues relevant to phenomenography – how it guides the focus of the project, the second-order perspective of phenomenography, and what the outcomes of phenomenographic research are and how they will be presented here.

Chapter 4 details the results of this study. The chapter is organised by the four research sub-questions. It describes the qualitatively different ways in which students experienced four aspects of networked learning: learning through relations with resources, tutors and students; the roles of technology in mediating learning through connections; cooperation with others in learning; and working together towards a common goal. A summary of the key findings of each aspect is graphically presented in an outcome space in hierarchical order that illustrates the logical relationships among the categories of description. This chapter ends with a conclusion section that summarises the findings of the present phenomenographic study in order to address the main research question.

Chapter 5 provides a critical discussion of the findings based on the findings described in Chapter 4.

The final chapter of the thesis (Chapter 6) draws the conclusions and provides an overview of the contributions of the study. The study's recommendations, limitations and areas for future research are also presented in this chapter.

Chapter 2 Literature Review

2.1 Introduction

The aim of this literature review is to provide a critical summary of the findings that have already been published by other authors and to establish a conceptual framework for the study. The literature review therefore synthesised the literature in the field of networked learning and students' conceptions of networked learning, with a particular focus on networked learning in developing country contexts. The literature does not answer the research questions. To answer the research questions, an extensive search and review of the existing relevant literature was carried out. The search terms that referred to networked learning, approaches to learning, collaboration in learning, cooperation in learning, collaborative learning, cooperative learning, students' conceptions, the use of technology in education, the use of technology for education, working together, benefits and challenges of learning together, networked learning in developing countries were used in order to ensure relevance and applicability in the literature search.

The review covered relevant literature published from the 1970s when the concept of conceptions of learning took off, but focussed on more recent work carried out since 2000. The search covered therefore a fairly new literature. The main literature sources include:

- Journal articles and conference papers
- Books and published studies
- Electronic sources on the Internet

To identify potentially relevant literature, the author has used the following main tools that cover relevant books, published articles and online resources:

- One Search tool at Lancaster University library – the institution where the author registered for his doctoral studies

- One Search tool at Technical University of Denmark (DTU Library) – the institution where the author is a guest PhD student at the time of writing.

- One Search tool from the central library in Denmark (https://bibliotek.dk/da).

- Google scholar

An example of the initial search results is presented in Table 2.1.

Places to search for information	Search terms used	Number of results	Comments
One Search Lancaster University	Networked learning	68	Lot of relevant books and articles
Bibliotek.dk	Networked learning	455	A lot of Relevant books
DTU Library	Networked learning	137,521	Publication year: 1990-2016
One Search Lancaster University	Collaborative learning	197	Full text online: 169
Bibliotek.dk	Collaborative learning	2213	e-books: 575 e-document: 14
DTU Library	Collaborative learning	43,552	Publication year: 1990-2016 For example, International Journal of Computer-supported Collaborative Learning (252), Computers and Education an International Journal (418)

Table 2.1 Initial search result

As can be seen from the table above, the search terms networked learning and collaborative learning generated a lot of results; for example, they generated 68 and 197 results respectively from One Search tool at Lancaster University. The researcher narrowed it down by reviewing the abstract for each of those results. All results that were relevant for the purposes of the present study were reviewed and analysed in more detail. The journal articles, for example, were analysed so as to concentrate on the research focus, the research context, the research methodology and the research outcomes. In order to provide a context for the present study, this chapter is divided into sections.

In Section 2.2, the review seeks to clarify how the term 'learning' is conceptualised in the literature and how the term is to be defined in this study. Given the diversity of definitions of learning in different contexts, it is therefore concerned, in turn, with *defining learning*, *conceptions of learning* and *networked learning*. *Conceptions of learning* are important to understand students' conceptions of networked learning, whereas *networked learning* is the context in which this study is situated and to which body this study makes the contribution.

In Section 2.3, the concepts of networked learning are examined, with a particular focus on the conceptual underpinnings of active learning, constructivism, and collaborative and cooperative learning. Issues around active learning, constructivism, and collaborative and cooperative learning are discussed in order to present a clear picture of key aspects of networked learning.

Section 2.4 focuses on how networked learning practices have been studied, researched and adopted in developing country contexts. More specifically, the section takes a fresh look on the integration of ICT into higher education and outlines empirical research

into networked learning in different contexts, in order to understand their implications in the developing world.

Finally, the chapter is concluded by summarising the literature review and looking at important considerations for the present study.

2.2 Learning

2.2.1 Defining Learning

Although there is no one, clear, and universal definition of learning, many definitions of learning involve common elements: the acquisition of knowledge, skills, strategies, beliefs, attitudes and behaviours through study or experience (Price, 2004; Ertmer & Newby, 2013). The nature of that 'experience' has been problematised differently by different authors. For example, according to Ormrod (1995) and Illeris (2000), "In psychology and education, a common definition of learning is a process that brings together *cognitive*, *emotional*, and *environmental* influences and experiences for acquiring, enhancing, or making changes in one's knowledge, skills, values, and world views" (as cited in Miniaoui & Kaur, 2014, p. 21, emphasis added). Other theorists, researchers and educational practitioners have specified the nature of what learning 'changes' in numerous ways. Goodyear and Carvalho (2014), for example, have defined learning as a sustained change in *behaviour* as a result of experience.

Based on the definition of learning by Shuell in 1986, Schunk (1991) quoted, "Learning is an enduring change in behaviour, or in the capacity to behave in a given fashion, which results from practice or other forms of experience" (as cited in Price, 2004, p. 67).

The situation whereby different definitions of learning seem similar but not identical has led to various attempts at categorisation or differentiation. For example, Schunk (1991) sets out to distinguish between different conceptions of learning by posing the following five questions:

- How does learning occur?

- What factors influence learning?

- What is the role of memory?

- How does transfer occur? and

- What types of learning are best explained by the theory? (as cited in Ertmer & Newby, 2013, p. 46).

As such, learning is a general term whose definition tends to vary depending on the context in which it is applied. From the networked learning perspective, the learning theory is based on a social theory of learning in which learning is viewed as a process. With regard to Schunk's question about how learning occurs, the networked learning conception posits a process where "knowledge emerges or is constructed in relational dialogue or collaborative interaction – knowledge is not a property but a social construction/way of knowing from our experience of the world" (Hodgson, McConnell & Dirckinck-Holmfeld, 2012, p. 293). Clearly, with regard to Schunk's third question, regarding knowledge in this way serves to relatively downplay cognitive views of memory in favour of knowledge's social distribution.

For many theorists, researchers and practitioners (e.g., Vygotsky, 1978; Collins, Brown & Newman, 1987; Rogoff, 1990; Hung & Nichani, 2001), social activities such as interactions, collaborations and communications are the key processes through which

learning occurs. Those social activities are therefore a likely source of the 'factors' influencing learning (in Schunk's second question). Hung and Nichani (2001), for example, consider learning is not an isolated activity. Instead, it is a social process. It is about change and can take place everywhere, both in formal and informal settings. This view of learning places an emphasis on the student's ability to learn in relation to others. According to Reynolds, Caley and Mason (2002), such learning is deeply affected by the context in which it occurs. Duffy and Jonassen (1992) stated, "Interaction and collaboration is a major enabler of the knowledge construction paradigm (as cited in Miniaoui & Kaur, 2014, p. 21). Other authors such as Reynolds, Caley and Masson (2002), and Ryberg, Buus and Georgsen (2012) have emphasised that social interactions have the potential to foster the interaction through which learning is occurring. Reynolds, et al. (2002) stated, "Participation in both informal and formal communities serves to negotiate purpose in work activities; shared vision, identity and meaning among the group may follow" (p. 27). In this sense, social interactions are considered as important aspects of learning which emphasises how meanings and understanding emerge through social processes (Vygotsky, 1978). In this sense, to return to Schunk's fourth question, the transfer of learning between situations and people occurs through this constant negotiation, sharing and interaction.

In summary, learning does not have any one commonly accepted definition. Different authors have used different terms when defining learning. One main reason behind the diversity of definitions of learning is the context in which learning takes place. In keeping with the definitions discussed above, the researcher defines learning as *a process of change (in knowledge, values, skills, world views, practices and behaviours) whereby knowledge is constructed through 'interactions'*.

To answer the last of Schunk's questions – about particular 'types' of learning – it is necessary to consider some more particular conceptions of learning, and to problematise further the nature of the attendant interactions.

2.2.2 Conceptions of Learning

A number of studies of conceptions of learning have been carried out in educational research. The most influential works on conceptions of learning have been that of Säljö (1979a) and Marton, Dall'Alba and Beaty (1993). Through a phenomenographic study of a group of 90 Swedish adult learners, Säljö (1979a) found that there were a variety of ways in which different students viewed or perceived their own learning. He identified five different conceptions of learning as follows:

- Learning as the increase of knowledge;

- Learning as memorising;

- Learning as the acquisition of facts, procedures, etc., which can be retained and/or utilised in practice;

- Learning as the abstraction of meaning; and

- Learning as an interpretative process aimed at the understanding of reality.

Using data gathered from 29 students enrolled on the Social Science Foundation Course of the Open University in 1980, Marton, Dall'Alba and Beaty (1993) found six conceptions of learning in which the first five conceptions showed similarities with Säljö's (1979a) work, and a sixth conception described learning as *changing as a person*. These six conceptions are classified into two groups which are correlated with two qualitatively different approaches to learning: surface and deep approaches. A first group focuses on the act of learning itself. This group consists of three categories:

increasing one's knowledge, memorising and reproducing, and *applying*. These three categories share the fact that learning is viewed as primarily reproducing knowledge in existing forms (Bowden & Marton, 2004).

On the other hand, a second group, which consists of three categories: *learning understanding*, *seeing something in a different way*, and *changing as a person*, emphasises "the meaning of what is learnt" (Bowden & Marton, 2004, pp.68-71). These latter three categories more closely mirror a focus on the construction and negotiation of knowledge and practices that the author emphasised in the previous section.

To summarise, students who hold the first three conceptions tend to adopt surface approaches to learning. That is to say, the first three conceptions "reflect a lower-level, quantitative view of learning" (Marshall, Summers & Woolnough, 1999, p. 292). On the other hand, students who hold the last three conceptions are likely to adopt deep approaches to learning. In other words, the last three conceptions "reflect a higher-level, qualitative view of learning as an active process of seeking meaning, leading to some kind of transformation in one's view of things, or of the self" (Marshall et al., 1999, p. 292). It seems clear that the definitions of 'learning' emphasised in the literature on networked and collaborative learning are more reflective of the 'deep' than the 'surface' conceptions of learning.

Importantly, a variety of conceptions of learning has shed light on the relationship between *conception of* and *approach to* learning. Different people will not perceive learning in the same way; rather, their approaches to learning are closely related to their conceptions of learning (e.g., Säljö's, 1979a; Marshall et al., 1999; Bowden & Marton, 2004; Richardson, 2005). Furthermore, *conception* of learning is influenced by the

context in which it takes place. Eklund-Myrskog (1998), in a phenomenographic study on students' conceptions of learning in different educational contexts, reported that conceptions of learning are to a considerable extent contextually dependent.

2.2.3 Networked Learning

The first definition of networked learning was presented by a research group at Centre for Studies in Advanced Learning Technology (CSALT) at Lancaster University in the Joint Information Systems Committee (JISC) project "Networked Learning in Higher Education" in 1999 as follows:

> "Networked learning is learning in which information and communications technology (ICT) is used to promote connections: between one learner and other learners, between learners and tutors; between a learning community and its learning resources" (as cited in Goodyear et al., 2004, p.1; McConnell, et al., 2012, p. 6).

This definition emerged from a series of projects and initiatives in the late 1980s and 1990s on the research into networked learning in higher education (McConnell et al., 2012). What differentiates networked learning from other forms of learning supported by technology is the greater attention to human-human interaction and the interaction with digital materials and resources through computer-mediated communication (Goodyear et al., 2004).

Networked learning has brought to light the importance of technology in mediating interactions – between learners and tutors, among learners, and between learners and resources. These interactions can be synchronous, asynchronous or both. According to Goodyear et al. (2004), "The interactions in networked learning environments can, in

principle be through text, voice, graphics, video, shared workspaces, or combinations of these forms" (p. 2). Hodgson et al. (2012) further stressed the importance of technology in networked learning as follows:

> With ICT support, networked learning has developed from being an isolated and uncoordinated endeavour of individual technology interested teachers and students to become an institutional commitment. If there is no institutional and managerial commitment, the network for learning is not likely to have many nodes or stretch across an institution. (p. 299)

This comment resonates with the emphasis on the LMS in this project; as described in Chapter 1, it is the LMS that is the primary institutional commitment to networked learning provision at Can Tho University – as for many other universities.

Significantly, although the use of technology to mediate connections is an integral and important aspect of networked learning, it is not the technology itself that determines learning, learning design or the learning process (Hodgson et al., 2012). It is generally recognised that the *connections* are more important than the *resources* in the definition: subsequent work tracing the development of the definition of networked learning since the JITOL project confirms that fostering of connections between people (among students and between teachers and students) in a community is a pre-requisite for saying that networked learning is occurring at all, while the importance of learning resources varies across contexts (e.g., McConnell et al., 2012). Goodyear et al. (2004) argued this point as follows:

> Some of the richest examples of networked learning involve interaction with online materials and with other people. But in our view, use of online materials

is not a sufficient characteristic to define networked learning. Human-human interaction through computer-mediated communication or CMC, is an essential part of networked learning. (p. 2)

To summarise, the above definition emphasises the importance of connections and the use of ICT in the learning process. It also emphasises an important role for ICT – considered as a means to link different aspects of networked learning together. As Ryberg et al. (2012) stated, "Learning is not confined to the individual mind or the individual learner. Rather, learning and knowledge construction is located in the connections and interactions between learners, teachers and resources, and seen as emerging from critical dialogues and enquiries" (p. 45). In networked learning, learning takes place in connections with others and learning resources. According to Jones, Ferreday and Hodgson (2008),

> Networked learning focuses on the connections between learners, learners and tutors and between learners and the resources they make use of in their learning. This approach to learning suggests a relational view in which learning takes place in relation to others and also in relation to an array of learning resources. (p.90)

Additionally, the definition of networked learning encompasses "theoretical assumptions about learning and how to design for learning" (Ryberg et al., 2012), but it does not privilege a particular pedagogical model (Jones, 2009). Indeed, a range of practices can be said to constitute 'networked learning'. To better illustrate what does and does not 'count' as networked learning, it is necessary to consider some of the underpinning concepts of the networked learning theory in more detail.

The review of the literature found that a variety of learning theories and learning approaches – such as *active learning*, *constructivism*, and *collaborative and cooperative learning* – perform an important role to explain learning within networked learning environments. These learning theories and learning approaches will be described in more detail in the following section.

2.3 Conceptualising Networked Learning

2.3.1 Active Learning

Networked learning demands learning to be 'active' and to focus on the construction of knowledge through social interaction and collaboration (e.g., Harasim, Hiltz, Teles & Turoff, 1995; Jones, 2015). The term 'active learning' refers to modes of instruction that involve students in learning activities – such as investigational work, problem solving, group work, collaborative learning and experimental learning (Anthony, 1996). A core element of active learning is that the primary responsibility for learning is placed on the student and not on the teacher. Active learning is thus perceived as a radical change from traditional instructional methods. It refers to a student-centred approach in which the student actively participates and engages in learning activities to construct knowledge (Prince, 2004). According to Bonwell and Eison (1991),

> Students must do more than just listen: They must read, write, discuss, or be engaged in solving problems. Most important, to be actively involved, students must engage in such higher-order thinking tasks as analysis, synthesis, and evaluation. Within this context, it is proposed that strategies promoting active learning be defined as instructional activities involving students in doing things and thinking about what they are doing. (p. 5)

Moreover, Chickering and Gamson (1987) suggested seven principles of active learning in undergraduate education as follows:

- Encourages contact between students and faculty

- Develops reciprocity and cooperation among students

- Encourages pro-active participation

- Gives prompt feedback

- Emphasises time on task

- Communicates high expectations

- Respect diverse talents and ways of learning

Applying these principles to the range of activities mandated at Can Tho University, the following learning activities were considered relevant in the context of the present study: work in groups, collaboration and cooperation, working together, interaction between teachers and students, sharing information, discussion and dialogue.

2.3.2 Constructivism

Constructivist learning refers to the learning activities, "in which learners construct new ideas or concepts on the basis of their existing knowledge and experience" (Bruner, 1966, as cited in Trentin, 2010, p. 24). In this sense, constructivism appears to be important for understanding how people learn in networked learning environments, because it appropriately reflects the meaning of networked learning activities; for example, learning through social interaction in which meaning is negotiated. As Jones (2015) argued, "The most important inheritance from constructivism in networked learning is the situation of learning in social practice and in the interactions between people and their social settings" (p. 55). He further stated, "The central ideas of

constructivism are that knowledge is created by people, either as individuals or as part of groups, through experiencing the world and reflecting upon those experiences" (Jones, 2015, pp. 52-53).

From a constructivist perspective, it is useful if learners are urged to be actively involved in their own learning process, in order to construct a meaning from their own experiences (Phye, 1997); while 'knowledge' is the desired outcome of their learning process and is itself constructed. Brooks (1999) described this point such as: "As long as there were people asking each other questions, we have had constructivist classrooms. Constructivism, the study of learning, is about how we all make sense of our world, and that really hasn't changed" (as cited in Beirne & Velsor, 2012, p. 16).

In the context of the present study, constructivism offers insight into understanding interactions between teachers and students, and between students and students within networked learning environments due to its assumptions regarding "the idea that individuals construct their understanding of the world as a product of their actions on the world" (Mascolo, 2009, p. 4). The same institutional activities are highlighted as important as for active learning – but constructivism additionally draws attention to the importance of understanding how people construct meaning within, and about, those activities. That construction of meaning is a key focus of the phenomenographic approach used in this study.

2.3.3 Collaborative and Cooperative Learning

The literature argues that the emergence of networked learning has brought 'new' approaches to learning. These approaches strive to create a profound shift in how learners learn in several ways, two of which are considered in this section. Two modes

of directly 'social' learning (collaborative learning and cooperative learning) are emphasised within networked learning activities due to the fundamental focus within networked learning on human-human connection (e.g., Jones & Steeples, 2002; Hodgson et al., 2012). According to Jones and Steeples (2002), collaborative learning and cooperative learning both imply a more 'active' role for the learner (see Section 2.3.1 for a discussion of what 'active' means). Furthermore, the adoption of these modes of learning can create an environment that can bring learners together to network and construct knowledge through social interactions; for example, "learning emerges from relational dialogue with and/or through others in learning communities" (Hodgson & Watland, 2004, p. 126). There are, therefore, obvious parallels with constructivist thinking (Section 2.3.2). Valkanos (2008) has stated, "The purpose of collaboration is to combine expertise and resources in order to meet the needs of all learners. What is expected from collaboration is supportive interactive group learning, shared understanding, social construction of knowledge and acquisition of competences" (p. 388).

Other researchers (McConnell, 2000; Zenios & Goodyear, 2008; Hodgson et al., 2012; McConnell et al., 2012; Raffaghelli & Richieri, 2012) have also argued that collaboration provides a powerful form of social interactions to networked learning. The term 'collaboration' is, therefore, sometimes used within the literature simply so as to emphasise the importance of *active* and *social* knowledge construction. For example, McConnell (1999) explains the importance of collaboration to a learning approach in networked learning environments as follows:

> Many terms are emerging to describe the use of electronic communication and the Internet in education and training. My preference is for networked learning

since it places emphasis on networking people and resource; and on collaboration as the major form of social relationships within a learning context. The emphasis is emphatically on learning and not on technology. (as cited in McConnell et al., 2012, p. 10)

To understand what 'collaboration' is intended to mean beyond being a combination of active learning and constructivism, it is useful to look at how it is differentiated from cooperation. Much discussion of the distinction between collaborative and cooperative learning has been made in the literature (Roschelle & Teasley, 1995; Dillenbourg, Baker, Blaye & O'Malley, 1996; Panitz, 1999; McConnell, 2002; McInnerney & Roberts, 2004; Jones, 2015). In order to understand how these two approaches to learning can be used within networked learning, it is important to present a clear picture of what differentiates these two approaches to learning, and why they are significant to networked learning.

Cooperative learning refers to an approach to learning in which learners work individually to complete their part of a shared goal (Dillenbourg et al., 1996). In cooperative learning roles and tasks are usually assigned by the teacher in order to help learners interact together in order to accomplish a *specific* and *specified* goal. The teacher is the centre of authority and maintains complete control (Panitz, 1999). In other words, in cooperative learning, each learner is responsible for a part of the problem as given (Dillenbourg et al., 1996).

Collaborative learning, by contrast, can be defined as an approach to learning "that implies working in a group of two or more to achieve a *common* goal, while respecting each individual's contribution to the whole" (McInnerney & Robert, 2004, p. 205, emphasis added). It is based on the notion that learning can be a directly social act in

which the learners actively engage in the learning process with others (e.g., Roschelle & Teasley, 1995; McInnerney & Roberts, 2004). This view of collaborative learning builds on social constructivism that emphasises social interaction, because meaning making is a social construct. Conversations, dialogues and teamwork are important aspect of collaborative learning (e.g., Dillenbourg et al., 1996). Part of that dialogue will involve negotiating aspects of the collaborative process itself, and jointly constructing an understanding of what the goal of the process actually is.

More specifically, within a networked learning environment, McConnell (2002) suggests a distinction between collaborative and cooperative learning, which might be illustrated as follows:

- Cooperation is a situation in which individuals within a learning set *define an agenda for carrying out* a course assignment chosen by themselves in consultation with their peer learners and tutor.
- Collaboration is a situation in which participants work in small learning sets to *define the problem itself*, relating to the practice of networked learning, which is amenable to collaborative group work.

Ryberg et al. (2012) explicitly support this distinction, while arguing, additionally, that the cooperation-collaboration distinction refers to "whether the work on the task or problem *and the outcome* is shared (collaborative) or whether individuals engage in discussions with others about their reflections on individual assignments (cooperation)" (p. 46, emphasis added).

When this study is situated in the field of networked learning, the researcher found the distinction suggested by McConnell (2002) particularly relevant for the purpose of the

present study – due to the fundamental principles underlying this distinction being dominant within the networked learning literature, and also because they are discussed within the institution that forms the research site for this study.

Within the context of the present study, collaborative learning is defined as a *situation that implies working together to accomplish a common goal*, whereas cooperative learning is defined as *a situation that implies the division of work among the participants*.

The distinction is reflected in the research questions (Section 1.3) in two ways. The third research sub-question refers to "cooperation in learning" quite directly, so as to orient the study towards how students themselves conceive of what it means to 'cooperate', from their own experience. The fourth research sub-question focuses on "working towards a common goal" so as to allow for the investigation of students' experiences of situations that the literature would regard as more strongly and narrowly collaborative.

2.4 Learning with ICT in Developing Country Contexts

2.4.1 Introduction

The purpose of this section is to examine the literature on the role of ICT in higher education, particularly in developing country contexts. The aim of this section is not to provide a comprehensive review of the literature. The literature on technology integration in higher education is sufficiently massive and diffuse (and often of dubious relevance to the present study) that it is better to rely on existing reviews and highlight particularly pertinent cases; while the literature specifically on the Vietnamese context

is very limited. Rather, the aim is to clarify how the present study addresses particular gaps in the existing literature on students' conceptions of networked learning in a developing country context.

In reviewing the literature on networked learning in the developing world, the researcher has chosen to focus on two issues that are most relevant to the purpose of this study: a) Integrating ICT into higher education; and b) Empirical research into networked learning.

In order to explore students' conceptions of networked learning in the developing world, it is essential to explore issues about the integration of ICT into higher education. These issues appear to be important for understanding how the use of ICT has contributed to the transformation of higher education throughout developing countries (e.g., World Bank, 2000).

The second issue concerns empirical research into networked learning. A comprehensive literature search in studies in networked learning in developing contexts was difficult due to the fact that there is little research published about networked learning in developing country contexts. Rather, a number of empirical studies in networked learning in different contexts are presented in Table 2.2. A select few studies will be discussed in more detail in Section 2.4.3.

The details of these two issues are covered in the subsequent subheadings.

2.4.2 Integration of ICT into Higher Education

The rapidly expanding use of technology in higher education in the developing world is transforming the way students learn with each other. Much is expected from the

potential of ICT in transforming education. This reflects a number of reform efforts in education in developing countries (Richards, 2004; Peeraer & Tran, 2010; Peeraer & Petegem, 2011b).

The integration of ICT into higher education and the contexts within which technology is applied refers to two main aspects, namely the use of ICT *for* education and the use of ICT *in* education. As Yeboah-Fofie (2015) states,

> The use of information and communication technologies in the educative process has been divided into two broad categories: ICTs for Education and ICTs in Education. ICTs for education refers to the development of information and communications technology specifically for teaching-learning purposes, while the ICTs in education involve the adoption of general components of information and communication technologies in the teaching/learning process. (p. 195)

The use of ICT *for* education, which is the focus of this work, is associated with adopting and deploying of learning technology for educational purposes. Many researchers (e.g., Coleman, 1999; Hakkarainen, Palonen, Paavola & Lehtinen, 2004) have stated that new technologies provide novel resources to support human interaction, facilitate collaborative problem solving, and provide collaborative tools for collaborative building of knowledge. As Conde, Garcia, Rodriguez-Conde, Alier and Garcia-Holgado (2014) stated, "Learning platforms are a way for institutions to provide teachers and learners with a wide range of educational applications and services" (p. 517).

One of the most important learning technology tools in higher education is LMS (e.g., Steel, 2007; Bates & Sangra, 2011; Escobar-Rodriguez & Monge-Lozano, 2012). An LMS is a web based platform, enabling management and delivery of content and resources to diverse population of students. Its main function is building and maintaining learning communities by connecting different actors, including teachers, students, learning resources and other people (Williams & Olaniran, 2012). Bates and Sangra (2011) conceived the importance of LMSs as follows: "Whether the Web is used as a classroom aid, or for blended learning, or for fully online courses, nearly all these applications are based on the use of a learning management system". Although different LMSs have different features, they typically offer a centralised virtual space for communications and interactions (Bates & Sangra, 2011).

Using such LMS tools in higher education opens new ways for learning and teaching; for example, accessing the knowledge and learning materials through the Internet (Bates and Sangra, 2011), promoting a more student-centred learning (Greenhow, 2011), networked learning (e.g., Jones, 2004; Jones, Ferreday & Hodgson, 2008), using LMS for text-based communication and for delivering text-based learning materials (Nagy, 2016), and using LMS as a platform to support effective learning environments (Babo & Azevedo, 2012).

Several reviews examine the roles of ICT in higher education. For example, according to UNESCO (2015), "ICTs in higher education are being used for developing course material; delivering content and sharing content; communication between learners, teachers and the outside world; creation and delivery of presentations and lectures; academic research; administrative support, student enrolment". Clearly, the 'networked learning' practices that are the focus of this study are a specific subset of how ICT is

being used in higher education – yet a particularly important subset from the vantage points of students and learning. With the use of ICT in education, classes are shifting from the traditional teaching to various forms of interactive teaching and uses of virtual learning environment (e.g., Dillenbourg, Schneider & Synteta, 2002). Dillenbourg et al. (2002) stated that a 'virtual learning environment' (sometimes a synonym for the term LMS used in this study) is neither an educational web site nor a virtual campus. Rather, it is a social space where, increasingly, educational interactions occur, and learning takes place through learning activities "within which students construct and share objects". The main premise of this view is that ICTs are becoming increasingly important not only in terms of providing online learning environments, but also in relation to the nature of mediating the social interactions of learning. It is in this sense that ICTs are playing an important role in empowering and promoting students' collaboration and interaction, and hence, potentially enhancing constructivist learning.

Furthermore, the Internet and new ICT are also often cited as main driving forces that have influenced the development of new learning paradigms and approaches where social constructivism has proven to be central to the learning process. Fisher and Scharff (1998) claimed, "New technologies and learning theories must together serve as catalysts for fundamentally rethinking what learning, working and collaborating can be and should be in the next century" (as cited in Hodgson & Zenios, 2003, p. 405). Networked learning is such a paradigm that has been argued by several researchers to be an educational paradigm for the age of digital world (e.g., Goodyear et al., 2004; Jones, 2015). From a networked learning perspective, social interaction is seen as a critical aspect of learning. It is considered as a foundation for learning to take place in relation to others (e.g., Goodyear et al., 2004; McConnell, et al., 2012; Jones, 2015). With this respect, students are not only consumers of knowledge and information, but

also actors who are co-collaborators and co-producers of knowledge and information (e.g., Goodyear et al., 2004). The importance of the social aspect has also been identified in different empirical studies in different contexts, including social context in a networked learning environment (Czerniewicz, 2001), the social aspect in the integration of eLearning with the practices of higher education institutions in Pakistan (Nawaz, Awan & Ahmad, 2011). For example, Nawaz et al. (2011) argued, "The student and not technology should be the center of any change in teaching and learning practices" (p. 10).

When considering learning with ICT in developing country contexts, there is no single educational practice of using ICT in learning. Many different practices can be used for different purposes. For example, Kruger (2010) claimed, "In educational institutions, access to learning resources, real-time communication, and access to research resources can be simplified using ICTs" (as cited in Munguatosha, Muyinda & Lubega, 2011, p. 307), whereas Kumar (2012) expressed the importance of ICT to take learning out of the classroom.

Other examples of the uses of ICT reported in the literature include the use of mobile phones and the web in the development of cross-cultural awareness (Botha, Vosloo, Kuner & Berg, 2009); adopting social networked learning in higher learning institutions in Tanzania (Munguatosha et al., 2011); democratic dialogue in an online classroom (Little, Titarenko & Bergelson, 2012); the use of asynchronous discussion forums and synchronous private messages of students (Oztok, Zingaro, Brett & Hewitt, 2013); the use of e-mail dialogue journal in enhancing writing performance at Universiti Putra Malaysia (Foroutan, Noordin & Hamzah, 2013); online support communities (Corbeil

& Corbeil, 2012); or using a blog as an online learning community (Tanzijan et al., 2015).

However, although ICT can offer new potential and opportunities in education, those opportunities are accompanied by significant challenges. Through a critical review of 60 papers on e-learning challenges with a particular focus on developing countries, Andersson and Grönlund (2009) found that developing countries face challenges on the adoption of ICT in learning that are different from those of developed countries in terms of access to technology and context. Similarly, Blignaut and Lillejord (2005), through a qualitative study to explore the effect of ICT on an asynchronous online learning environment in African countries, also identified four patterns of challenges faced by the cross-cultural online learning: technology, project management, online learning communities and cross-cultural issues.

In this manner, successful integration of ICT in higher education in the developing world depends on a number of factors regarding the purpose of the use of ICT in teaching and learning processes (e.g., Turney, Robinson, Lee & Soutar, 2009). Research has argued that the use of ICT in higher education settings is being constrained by the context (Czerniewicz, Ravjee & Mlitwa, 2006), social factors (Czerniewicz, Ravjee & Mlitwa, 2006), the ICT infrastructure (UNESCO, 2011; Kpaduwa, 2015), ICT skills and computer confidence of teachers (Peeraer & Petegem, 2010), and approaches to teaching and learning (e.g., Fahmy, Bygholm & Jæger, 2013). For example, Czerniewicz et al. (2006) argued, "Technology may enhance educational goals, depending on the context, and social factors play the leading role in determining the ICT take-up" (p. 7).

To summarise, various issues around the integration of ICT into higher education are discussed in this section. The literature review has provided insights regarding key issues identified as important to enable the integration of ICT into higher education. However, there is generally a lack of empirical research in the literature around learning through connections mediated by ICT from students' perspectives in developing country contexts.

2.4.3 Empirical Research into Networked Learning

This study provides insight into those issues from students' views in a developing country setting. This section will provide a summary of empirical research into networked learning in different settings. The purpose of this section is to review the literature on empirical research into networked learning. Doing so is important to contextualise the present project though, as will be seen, most of the literature that has empirically studied networked learning practices and conceptions has focussed primarily on 'Western' settings. Table 2.2 provides a summary of papers that empirically study networked learning in different settings. The table highlights, in turn, the research questions that each study focuses upon; the setting of that research; the methodology used; and any discussion that is evident of students learning through relations, the roles of technology, discussions of cooperation, and working towards common goals. The latter four issues are, as established earlier in Section 1.3, those that will underpin the focus of the present study.

Table 2.2 contains a list of empirical research into networked learning in different settings.

Authors	Research questions or purpose of study	Setting	Methodology	Discussion of student learning through relations (with resources, students and tutors)	Discussion of the roles of technology in mediating learning through connections	Discussion of cooperation in learning	Discussion of students working towards common goals
Goodyear et al., 2004	The main aim of this study was to gather information about undergraduate students' perspectives on networked learning.	Undergraduate students in the UK	A mixture of case study and survey methods	Communication and interaction with the tutor and other students Access to learning resources Web-based materials	Medium (Information systems) for teaching and learning Using networked learning technologies to interact within the groups and to post materials to other groups Learning at a distance Virtual learning environment (online group work)	Students working in groups	Group-based approach

| Roberts, 2004 | What approaches to teaching using the Web, are to be found in this sample of teachers? What conceptions of teaching, using the Web can be found? To what extent do individual university teacher's conceptions of, and approaches to, teaching using the Web align with the definition of networked learning underpinning the articles in this collection? | In one modern Scottish University | Phenomenography | Accessible sources of information The Web as a learning environment, which enables learning relationships to be established and developed. | An electronic medium, for example using the Web for group work | | Decision making and dialogue |
| Zenios, Banks & Moon, 2004 | The main aim of this study was to: a) identify the key factors that crucially influence | The UK Open University Post Graduate Course in Education | A case study | Engaging in computer conferencing | Computer conferencing | Sharing information, experience and ideas through reading contributions from | Collaboration has been a central activity within the conferences |

						each other and writing their own representations Online discussion	
Blignaut & Lillejord, 2005	The aim of this study was to explore the effect of ICT support and the computer mediated communication of doctoral candidates from cross-cultural backgrounds in an	Participants located at universities in five African countries.	A qualitative approach	Using ICT to access resources	LMS with an asynchronous discussion forum was used to manage learning in the online learning community, for example mutual peer support or provide	Online learning community	Four patterns of challenges faced by the cross-cultural online learning: technology, project management, online learning communities and cross-cultural issues, for example the lack of

	asynchronous online learning environment.				support to the remote doctoral candidates.		responsiveness from fellow doctoral candidates in online discussions or time constraints.
Munguatosha, Muyinda & Lubega, 2011	The purpose of this study was to establish a model for adopting social networked learning in higher institutions of learning in developing countries of Africa.	Higher education in Africa	Mixed methods involving survey and interviews	Learning occurs when engaging in social interaction	Using social software tools for chatting, collaborating with others such as Facebook, MySpace, Twitter, etc. LMS was widely used in higher institutions	Knowledge construction through collaboration	Not discussed
Czerniewicz & Brown, 2012	The purpose of this study was to investigate various aspects of students' access and use of cell phones and computers at different stages of their lives for learning.	University students in the South African context	Case studies	Not discussed	Using ICT (e.g., cell phones) in a range of locations to facilitate learning activities and to access practices of higher education	Not discussed	Not discussed

Jones, 2012b	The purpose of this study was to examine the argument for the technology itself to have changed a whole generation of young students' social characters and their approaches to learning.	A range of courses in higher education in the UK	A mixed method approach, including surveys and interviews	Not discussed	"Student's experiences with technologies varied. Not all students were equally competent with technologies and their patterns of use varied considerably when moved beyond basic and entrenched technologies" (Jones, 2012b, p. 31)	Not discussed	Not discussed
Nyvang & Bygholm, 2012	The purpose of this study was to investigate under which conditions actors in institutions decide upon which ICT to use for networked learning purposes?	Implementation of ICT in the program Human Centered Informatics at Aalborg university in Denmark	Case study	A project-based, problem-oriented approach as a core pedagogical model Participating with other students, for example active participation in the learning processes	Virtual group rooms to support collaboration on LMS Facebook as a platform for communication and collaboration	A project-based collaboration	Project group work

Smith, 2012	How do small business owner-managers learn leadership through networked learning?	A networked learning programme for SME owner-managers in the UK	An ethnographic study, including a virtual ethnography of one cohort of 25 delegates	Learning with other students, relying less on the tutors	Supporting online discussions and peer-to-peer interactions	Collaboration and co-construction of knowledge	Collaborative and participative approaches to learning
Coto, Mora & Lykke, 2013	How can a problem-based and project-based pedagogical (PBL) approach contribute in computer engineering curricula with the purpose of developing student skills in real-life problem solving, reducing dropout and failures rates? How can this pedagogical approach be implemented in computer engineering curricula with the purpose of developing	The National University of Costa Rica	Case study	Learning with others in groups Students' engagement with the group work Tutors give feedback.	Not discussed	Collaborative work in groups Collective problem solving	A project-based group work

	student skills in real-life problem solving and reducing dropout and failures rates, and does it work?						
Fahmy, Bygholm & Jæger, 2013	The purpose of this study was to investigate three different 'Learning Situations' (LS) in three countries: Denmark, Egypt and Vietnam.	Undergraduate students in Denmark, Egypt and Vietnam	Ethnographic study	*In the Danish case:* Students are responsible for their learning and participate actively in learning activities (student-centred approach) There is a high level of interaction between teachers and students, students and students, and students and materials. *In the Egyptian case:* The learning process is centred on the student-materials interaction.	Blended learning programs	Not discussed	Not discussed

				There is the absence of elements of self-managed learning processes. "Students learn by memorizing information written in books or notes which the teacher obliges them to study" (p. 98). *In the Vietnamese case:* Teacher-controlled interaction: the learning process is centred on the teacher (teacher-centred approach). It encourages students to be passive learners. Communication is one-way from the teacher to students.			

Cutajar, 2014	What are the qualitative differences in Maltese post-compulsory pre-university students' accounts of their networked learning experiences?	Post-compulsory pre-university Maltese students	Phenomenography	Flexibly accessing learning resources when required Follow through self-managed learning as an individual enterprise Learning in connectivity with others Learning in community with others	An online learning system (e.g., using the Internet for learning in connectivity with others) Using the Internet to follow through individual self-managed learning Teacher contact	Active member of a learning group Relating to others for others' learning Online contributions in learning with others Participating in online activities	Co-actors in learning
Shah, 2014	The purpose of this study was to explore the qualitative variations in the teachers' understandings and perceptions of using learning technology at a university in a South Asian context.	Teachers' use of learning technology at a university in a South Asian context	Phenomenography	Access multiple sources Connect and communicate with others "Information-transmission" teaching approach (e.g., students listen to the teacher.)	Tool for engaging in communication	Not discussed	Not discussed

Table 2.2 Summary of empirical research into networked learning

The majority of the studies in Table 2.2 focussed on identifying the use of technology in learning with others in different contexts (e.g., Smith, 2012; Cutajar, 2014). Each of the studies offers a different vantage point from which to reflect learning through connections, either human-human or human-resources connections. For example, Smith (2012) studied small business owner-managers learning 'leadership' through networked learning. She described how "owner-managers of small-to medium sized enterprises" learn leadership through participating in the networked learning community.

Some other studies examined learning with others in a learning community (e.g., Raffaghelli & Richieri, 2012) or focussed on the new roles of teachers associated with networked learning (Nielsen & Danielsen, 2012).

One study in particular – that by Cutajar (2014) – deserves to be highlighted in some detail because the methodology used, phenomenography, is the same as for the present project (see Chapter 3 for more discussion of the methodology); though as with many of the studies reviewed here, Cutajar (2014) investigated students' experience of networked learning in a developed country context. Her analysis of the data from a sample of 32 'post-compulsory' but 'pre-university' students identified four qualitatively different categories in which students experience networked learning. The four categories are as follows: a) using the Internet to flexibly access learning resources when required; b) using the Internet to follow through self-managed learning as an individual enterprise; c) using the Internet for learning in connectivity with others; and d) using the Internet to learn in community with others. These categories represented the varying ways of experiencing networked learning described by students in a developed country setting. The first category was characterised by accessing the

availability of learning resources online, whereas the second category related to learning as an "individual self-controlled enterprise". The focus of the second category was on "the students' responsibility to control their own learning in their own time". In the third category, the student participates in online activities with others for personal learning benefit. For example, the student sees "learning embedded in the online sharing and exchanges with other students" (Cutajar, 2014, p. 99). The fourth category focussed on using the Internet for learning in community with others. The difference between this and the third category was the way students see the learning with others. When learning in this category was seen to participate in an online learning community in which each member playing a part of others' learning, the student in the third category focussed on personal learning.

One other study in particular also deserves to be highlighted: this time, because it includes some consideration of a developing country setting. Fahmy et al. (2013) used ethnographic research as a research approach in a study to investigate learning situations in three different countries: Denmark, Egypt and Vietnam. In this study, they found that there are some significant differences in learning preferences and approaches to learning. In terms of approaches to instruction, it is perhaps not surprising that students in developing countries (Egypt and Vietnam) themselves are not responsible for identifying which problem to work with. They rely on the teacher as the main supplier of knowledge who is the centre of the learning process rather than a facilitator of learning. In this way, the teacher 'owns' a large part of the learning process: for example, retaining full control of the flows of activities and the spaces in which those activities occur. As a result, this instruction does not allow students to express themselves, ask question and take responsibility for their own learning. The findings of Fahmy et al. are broadly in line with Pham and Renshaw's (2013) more general work,

which does not attempt to focus on networked learning: they found evidence of a general reluctance of Asian teachers to empower students to take ownership of their learning experience. Such teaching approaches might be a significant barrier to preventing Vietnamese students from becoming active learners in their learning endeavours.

The present project aims to contribute to this literature on networked learning, in particular by considering how learners in developing country contexts conceive of networked learning practices when they are "imported" into institutional settings very different from those in which they were developed. For that reason, Chapter 5 will discuss the results of the present study by comparing them with the literature discussed here in some depth.

2.5 Conclusion

This literature review has drawn on the existing body of literature in the field of networked learning, particularly focusing on recent research studies in developing country contexts. It provided important lenses through which to understand the concepts and theories of networked learning but also with which to offer insights into the current research in the field of networked learning in developing country contexts.

The research and journal articles summarised in this review have identified many important aspects of networked learning including: learning in relation to others and resources, students' conceptions of learning, learning with ICT in developing country contexts. These aspects have formed a conceptual framework for the present study. From this perspective, central concerns to be investigated in this study include: learning through relations, the roles of technology in mediating learning through connections,

cooperation with others in learning and working together towards a common goal. These concerns are aimed at investigating the extent of variation in how undergraduate students collectively experience networked learning phenomena when they are introduced in a higher education institution in a developing country.

There are two main issues identified by this chapter. Firstly, the literature review has established an understanding of existing research in the field of networked learning. Networked learning is an interesting area in relation to both technology-enhanced learning and social theories of learning because it not only reflects how humans, contexts and environments can be connected, but also can be used to describe situations in which students actively participate and engage in learning activities to share ideas, resources and experience as long as technology plays a significant role in mediating social connections and interactions, as well as human-resource connections (Jones & Dirckinck-Holmfeld, 2009; Jones, 2015). Goodyear et al. (2004) stated, "Networked learning is an area which has great practical and theoretical importance. It is a rapidly growing area of educational practice, particularly in higher education and the corporate sector". In this sense, networked learning is an innovative area of educational research, a research area is concerned with "learning in which information and telecommunications technology (ICT) is used to promote connections: between one learner and other learners; between learners and tutors; between a learning community and its learning resources." (McConnell, et al., 2012, p. 6).

So, what makes networked learning different from other learning paradigms? At a simple level, it is important to address two important components of networked learning: connectivity and technology. Networked learning is a learning paradigm that promotes learning through connections with a strong focus on creating, developing and

maintaining connections with both people and learning resources (Jones, 2015). Another key component of networked learning is the use of technology in mediating connections in learning networks. According to Hodgson et al. (2012) and Jones (2013), networked learning is concerned with the development of learning that is mediated by technology in large-scale learning networks. Hodgson et al. (2012), for example, stated,

> With ICT support, networked learning has developed from being an isolated and uncoordinated endeavour of individual technology interested teachers and students to become an institutional commitment. If there is no institutional and managerial commitment, the network for learning is not likely to have many nodes or stretch across an institution. With few nodes, it is also not likely to foster the kind of connections and interactions needed for networked learning to take place. (p. 299)

In other words, the concept of networked learning places the emphasis on the learner's ability to connect with other learners, teachers and learning resources in and out of the classroom. The goal of networked learning is also to promote cooperation and collaboration with other learners. What is important here is that learning takes place through social activities. As Goodyear et al. (2004) argued, "There is no point to networked learning if you do not value learning through co-operation, collaboration, dialog, and/or participation in a community" (p. 2).

Secondly, another issue of growing importance, in the field of networked learning in a variety of contexts in particular, is that of empirical understanding regarding the qualitatively different ways in which students conceptualize networked learning in a particular learning setting.

To date, most research on networked learning has been conducted in developed country contexts, especially in Western Europe (Shah & Hodgson, 2014). As described earlier in this chapter, a lot of the work has been conducted in countries like the UK and Denmark – the places where the theory was developed and where scholars associated with the networked learning research community have been particularly active (McConnell et al., 2012). There has been very little empirical research in networked learning in developing country contexts (e.g., Bataineh & Baniabdelrahman, 2006; Shah & Hodgson, 2014).

While universities across developing countries have been enthusiastic about utilising the potential of ICT to transform their educational systems to a more modern system in line with its current needs (e.g., Peeraer & Petegem, 2011a, 2011b; UNESCO, 2014), "there is little rigorous research to support a causal linkage between student learning outcomes and ICTs in the developing world" (Tolani-Brown, McCormac & Zimmermann, 2011, p. 218). Therefore, this chapter outlined key points of learning with ICT in developing country contexts. The use of ICT has led to new approaches to learning that promote student-centred learning approaches. The literature review also showed that the challenges for the adoption of ICT in learning in developing countries differ from those of developed countries. It also highlighted some important issues concerning obstacles influencing learning with ICT in higher education settings in developing countries.

All things considered, the literature sheds light on several important aspects of networked learning. Thus, the present study seeks to enrich the literature by identifying the extent of variation in how undergraduate students collectively experience networked learning phenomena when they are introduced in a higher education

institution in a particular developing country setting. This is not only identifying the essential meaning of networked learning in a particular context, but also could add something new knowledge to the literature. Such knowledge is important for developing or adapting networked learning practices in the developing world. As Vesisenaho and Sutinen, (2010) argued, "Information technology (IT) can make a difference in a developing country only if it is designed in close collaboration with its users" (p. 60).

In the next chapter, I shall provide an overview of the methodology used in this study, and explain why that methodology is suitable for investigating these issues.

Chapter 3 Methodology

3.1 Introduction

This chapter describes the research methodology and design that were employed for the various stages of this study. It is divided into four main sections. Section 3.2 considers the reasons for the choice of a phenomenographic research approach used in this study, and is followed by Section 3.3 on phenomenography. Section 3.4 is written more specifically about the present research design. This section draws attention to how the principles of phenomenography were applied in the design of the study and how the study was conducted in practice. The validity and reliability of the study are discussed in Section 3.5. Finally, Section 3.6 concludes with a summary that recaps the main points in the chapter.

3.2 Determining a Research Approach

When conducting research, it is important to determine an appropriate methodology to support the various stages of the research. An appropriate methodology is often discussed in relation to the nature of the object that is investigated (Pring, 2004). Since the present study is interested in identifying the various conceptions that a group of students have for the phenomena of study, the chosen research approach for this study therefore fell under a qualitative research paradigm, a research tradition that attempts to "make sense of phenomena in terms of the meanings people bring to them" in their natural settings (Hennink, Hutter & Bailey, 2011).

In practice, the qualitative research paradigm is a broad term that covers a variety of research strategies (Boeije, 2010; Creswell, 2011; Merriam & Tisdell, 2015). There are

a number of qualitative research approaches, each of which reveals something different about the phenomenon of study. The present author does not perceive any research approach as *inherently* superior to any other; instead, in his view the selection of research approach should be dependent on the ability to meet the research objectives, and to answer the research questions.

Because the desired end outcomes of this study were to produce findings that reflect the qualitatively different ways people describe their understanding, conceptions and experiences of a particular phenomenon, the qualitative design chosen here was a phenomenographic research approach. The rest of this section describes that approach and sets out the reasons for choosing it.

Firstly, it is important to discuss the present study within its ontological and epistemological starting points as they affect how the research methodology is chosen. Two main stances are considered here: a) a stance dealing with the nature of reality (ontology); and b) an epistemological stance dealing with knowledge and its justification that served as the guiding philosophy behind the present study.

The ontological assumptions underlying the present study were in essence that conceptions result from students' understanding, experience or thinking about a phenomenon in a given context. It was suggested that each student may have a distinctive understanding of a particular phenomenon of study, and different students may potentially experience and perceive the phenomenon in different ways. This led to an interest in examining the nature of conceptions provided by students towards that phenomenon. An interpretive approach was therefore needed to describe students' understandings and experiences of the phenomenon of study. The focus of the study was thus not the subject nor the object of study, but the internal relationship between

them – the relationship between students and their experience and understanding of the phenomenon.

With regard to epistemological issues, the present study's epistemological stance was based on the subjective experiences and perceptions of students. This was how students related to the world and how knowledge was generated. The collection of data in a natural setting was needed because knowledge could be obtained through an interpretative analysis of the qualitative data provided by the students. In this sense, the researcher's perspective for a phenomenon of study was not a focus. The phenomenon should be described as it was experienced and perceived by the students. It was set out in earlier chapters that the conceptions of these students in a Vietnamese university setting should not be assumed to be the same as their 'Western' counterparts that are usually examined in existing studies. But that does not mean that Western conceptions should be seen as 'standard' or 'normal'. Instead, the conceptions of the students in this study will be investigated and analysed in their own terms. Considering 'differences' with other studies will be a matter for discussion *after* the results have been presented and analysed.

Additionally, phenomenography is a qualitative approach that provides "a way of looking at collective human experience of phenomena holistically, despite the fact that the same phenomena may be perceived differently by different people and under different circumstances" (Åkerlind, 2012, p. 116). As such, the author believes that phenomenography offers promise for investigating how students *collectively* experience, understand and perceive the phenomenon of study, i.e., networked learning in a particular setting.

The relative usefulness and application of phenomenography lies in its ability to explore "variation in how people experience various aspects of their world" and its aim is not to find the singular essence, but the variation and the architecture of this variation in terms of the different aspects that define the phenomenon (Marton and Booth, 1997). It has been suggested that a key strength of phenomenography involves exploring "both the conceptual and the experiential, as well with what is thought of as that which is lived" (Marton, 1981, p. 181). This combination of exploring the conceptual and experiential is very relevant to the present study, because it not only focuses on the essence of human experience and conception in a particular context, but also examines a variety of ways in which students have conceptualised particular phenomena of study. More widely, this objective has played an important role in researching educational practice. For example, some particularly influential studies that used a phenomenographic approach have been those by Säljö's (1979b) study on students' conceptions of learning; Prosser, Trigwell and Taylor's (1994) study on academics' conceptions of science learning and teaching; Marton and Booth's (1997) study on learning and awareness; Yates, Partridge and Bruce's (2012) study on information experiences; and Cutajar's (2014) on networked learning in a developed country context.

3.3 Phenomenography

3.3.1 Overview

Phenomenography is a distinctive qualitative approach that was originally developed within educational research during the 1970s by Ference Marton and his colleagues in the Department of Education at the University of Göteborg in Sweden (Marton, 1981;

Säljö, 1996; Sjöström & Dahlgren, 2002). It has been widely used in qualitative research for many years across a variety of areas (e.g., Marton & Säljö, 1976; Bowden, 1996; Sjöström & Dahlgren, 2002; Trigwell, 2006; Christiansen, 2011; Yates et al., 2012; Stenfors-Hayes, Hult & Dahlgren, 2013; Cutajar, 2014; Goodyear & Carvalho, 2014; Tsai & Tsai, 2014). Researchers have used this qualitative research method to explore and provide the basis for understanding the various meanings related to the phenomena in the world, particularly in the UK, Australia, Sweden and Hong Kong (Åkerlind, 2012).

> "whatever phenomenon or situation people encounter, we can identify a limited number of qualitatively different and logically interrelated ways in which the phenomenon or the situation is experienced and understood" (Marton, 1994, as cited in Cousin, 2009, p. 183).

Marton's quotation above expresses the essence of phenomenography and its meaning to answer questions about how a particular phenomenon is experienced, understood and perceived. As a research tradition, Marton (1986) defines phenomenography as

> "a research method for mapping the qualitatively different ways in which people experience, conceptualize, perceive, and understand various aspects of, and phenomena in, the world around them" (as cited in Wilson, 2013, p. 222).

From this theoretical stance, a phenomenographic study attempts to describe a limited number of qualitatively different, but logically interrelated ways in which a particular phenomenon is experienced, understood and perceived (Marton, 1996; Marton & Booth, 1997).

To illustrate how phenomenography differs from some other research approaches, Richardson (1999), in comparing phenomenography and other qualitative studies, such as ethnography and phenomenology, found several key differences. Perhaps most fundamentally, Richardson suggests, the underlying ontological and epistemological assumptions make phenomenography distinct from other qualitative research approaches.

Phenomenography takes a second-order and non-dualistic ontological perspective which can be regarded as the fundamental distinction between phenomenography and many other qualitative research approaches. From a dualistic view, the individual person or subject is a separate entity from the phenomenon or object (Trigwell, 2006), because "the focus is on an inner or outer world with each being an explanation for the other" (Bruce & Ahmed, 2014, p. 67). By contrast, from the non-dualistic ontological position, there is only *one* world that is experienced. In this world the subject and object of the study are not separate as isolated entities. Marton (2000) explained:

> From a non-dualistic ontological perspective, there are not two worlds: a real world, objective world on the one hand, and a subjective world of mental representation on the other. There is only one world, a really existing world, which is expressed and understood in different ways by human beings. It is simultaneously objective and subjective. An experience is a relationship between objects and subjects encompassing both. The experience is as much an aspect of the object as it is of the subject. (p. 105, as cited in Ireland, Tambyah, Neofa, & Harding, 2008, p.4)

Furthermore, the focus of phenomenographic studies is on the collective understandings of the variation of the experiences of the phenomenon within this one world (Åkerlind, 2012). As Marton and Booth (1997) argued:

> There is not a real world "out there" and a subjective world "in here". The world is not constructed by the learner, nor is it imposed upon her; it is *constituted* as an internal relation between them. There is only one world, but it is a world that we experience, a world in which we live, a world that is ours. (p. 13)

This position is at odds with those of many researchers in case study, phenomenology and grounded theory traditions. For example, a case study focuses on developing an in-depth understanding of a particular case seen as illustrative of "real-life" phenomenon (Yin, 2009). Doing so does not intrinsically focus on the relationality of real world and experience, and instead the focus on experience is seen more as illustrating the real case that is dualistically seen as outside that experience. In phenomenology, by contrast, the focus is on studying several individuals that have shared the experience in order to understand the 'essence' of the experience rather than its relationality (Creswell, 2013). In grounded theory, the aim is more general than phenomenography, i.e., to "generate or discover a theory" (Creswell, 2011).

Phenomenography is thus characterised as an interpretive and descriptive qualitative approach that excels at bringing the researcher to describe relationally the conception, experience and understanding of a particular phenomenon within a single world, taken to be the world in which all the participants and their experiences exist; it has been suggested as an appropriate research approach for researching "the qualitatively different ways in which a phenomenon can be experienced" (Cope, 2004, p. 2). The focus of phenomenography is *not* on individuals taken separately, rather its focus is on

the collective understandings of the entire group and how those can be represented (Marton, 1981; Richardson, 1999).

To summarise, Trigwell (2006) presents important characteristics making phenomenography different from other research approaches as follows:
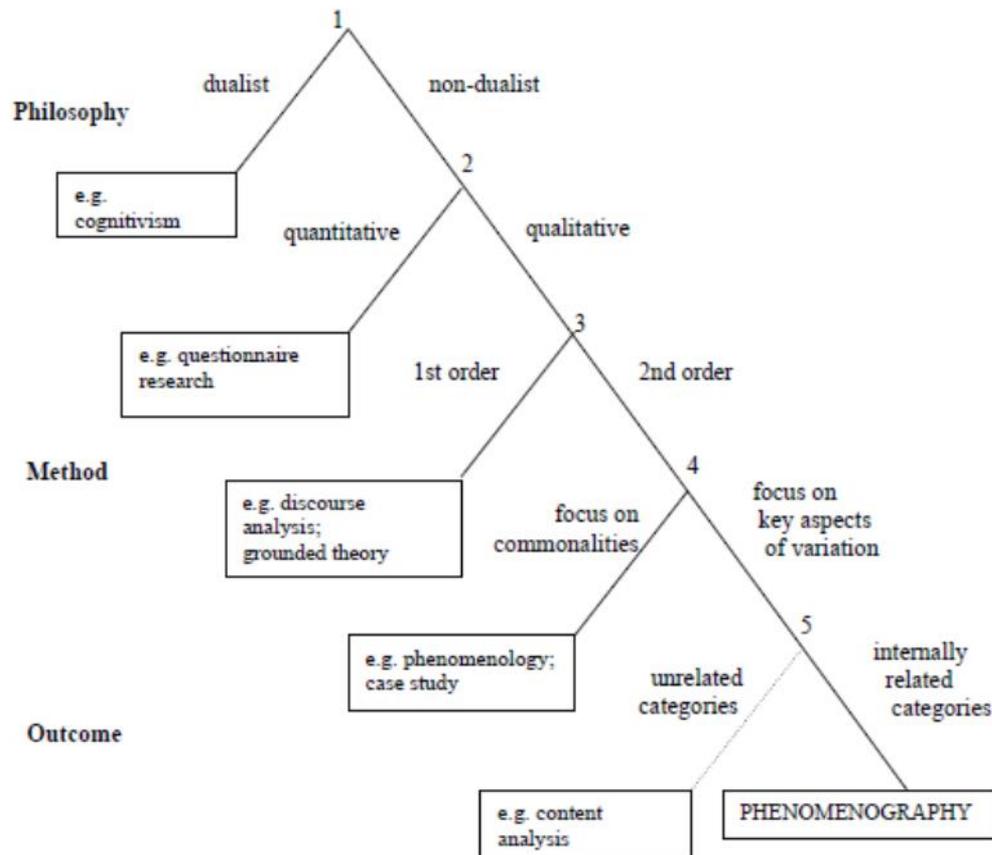
Figure 3.1 Phenomenography in relation to other qualitative research approaches (Trigwell, 2006, p. 369)

As can be seen in Figure 3.1, Trigwell identified five significant characteristics of phenomenography:

- *Non-dualist:* Phenomenography takes a non-dualistic perspective. In phenomenography, the subject is not a separate entity from the object of an experience. Rather, meaning is seen as being constituted from the internal relationship between them (Trigwell, 2006, p. 369).

- *Qualitative:* Phenomenography is a qualitative research design aimed at studying ways of experiencing a given phenomenon (Marton, 1981).

- *Second-order perspective:* Phenomenography adopts a second-order perspective (Trigwell, 2006). Phenomenographic research focuses on how people experience and understand the world.

- *Focus on key aspects of variation:* Phenomenography is concerned with identifying "the qualitatively different ways in which various phenomena in, and aspects of, the world around us are experienced, conceptualized, understood, perceived and apprehended" (Marton, 1994, as cited in Dahlgren, 2011, p. 81).

- *Internally related categories:* The results of a phenomenographic study are a limited number of categories that describe collective human experiences of a given phenomenon (Trigwell, 2006). These categories are internally and logically related to one another (Marton & Booth, 1997). Trigwell (2006) writes, "The focus of phenomenography on the group, rather than individual experience, and an outcome containing a limited number of hierarchical, qualitatively different categories." (p. 369).

The following two sections now turn to a discussion of the phenomenographic approach and central terms. The focus of phenomenography is discussed in more detail in Section 3.3.2. Section 3.3.3 describes outcomes of phenomenographic research.

3.3.2 Focus of Phenomenography

Underpinning the decision to adopt phenomenography as a research approach is the understanding that the aim of phenomenographic research is to identify variations in ways people understand and experience a phenomenon of interest. Phenomenography

emphasises the experience and conception that are important to how the study was envisaged. However, phenomenography brings with it a number of other positions and assumptions and these need to be considered and their implications for the project accounted for.

Firstly, phenomenography is a non-dualist research approach (Marton & Booth, 1997; Booth, 2008). Non-dualism in phenomenography is intended to mean that the nature of reality is viewed as one world, "a real existing world that is experienced and understood in different ways by human beings" (Richardson, 1999). This implies that, "meaning stems from the relationship between an individual and a phenomenon, or rather, the relationship between a subject and an object" (Reed, 2006). What this means for the present study is that no division between the subject and the object of study must be assumed. Instead, the initial assumption taken by a phenomenographic approach is that the researcher depicts experience as an internal relationship between human beings and the world (Marton, 1981; Pang, 2003). Marton and Pong (2005) call this internal relationship as "a way of experiencing something" or "conception". Figure 3.2 illustrates the internal relationship between the subject and object of study.

Figure 3.2 Graphical representation of a conception (adopted from Bruce, 2003)

Terms such as *conceptions*, *ways of understanding*, *ways of comprehending*, and *conceptualizations* have been used as synonyms for *ways of experiencing* in the literature (Marton & Booth, 1997). As such these terms are also synonyms in this study. They are also considered as fundamental to understanding a particular phenomenon.

Johansson, Marton and Svensson (1985) explained conceptions in more detail as follows:

> Conceptions, which make up our unit of analysis, refer to whole qualities of human-world relations. They also refer to the qualitatively different ways in which some phenomenon or some aspect of reality is understood. When trying to characterise these conceptions, we use some categories of description. The categories are, however, not identical with conceptions – rather they are used to denote them. (as cited in Yates et al., 2012, p. 105)

Furthermore, Marton (1981) insisted that there is an infinite set of possible conceptions of a particular phenomenon, as follows:

> Conceptions and ways of understanding are not seen as individual qualities. Conceptions of reality are considered rather as categories of description to be used in facilitating the grasp of concrete cases of human functioning. Since the same categories of description appear in different situations, the set of categories is thus stable and generalizable between the situations even if individuals move from one category to another on different occasions. The totality of such categories of description denotes a kind of collective intellect, an evolutionary tool in continual development. (p. 177)

With this respect, the nature of phenomenography is concerned with identifying variations in ways people understand and experience a phenomenon of study in a way that is *relational*. As Sjöström and Dahlgren (2002) argued, "Humans differ as to how the world is experienced, but these differences can be described, communicated and understood by others" (p. 340). Therefore, phenomenography is suitable for finding and

systematizing "forms of thought in terms of which people interpret aspects of reality" (Marton, 1981).

Secondly, phenomenography is interested in the structure and meaning of a phenomenon of study from a second-order perspective. This is because, within the single world perspective outlined above, phenomenography seeks to describe the aspects of the collective variation of experience across those individuals who experience a phenomenon of interest (Marton, 1981, Cope, 2004). Marton (1981) expressed this point such as: "From the first-order perspective we aim at describing various aspects of the world and from the second-order perspective we aim at describing people's experience of various aspects of the world" (p. 177).

Uljens (1991) illustrated the distinction between the first- and second-order perspectives as follows (as illustrated in Lin, 2011, p. 7218):
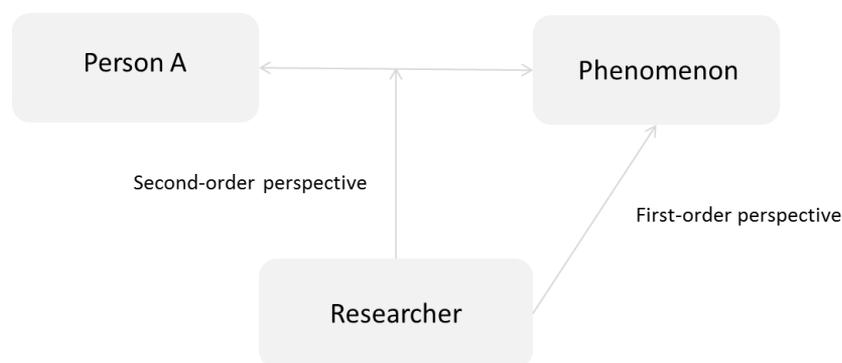
Figure 3.3 An illustration the difference between the first-order and the second-order perspective

As illustrated in Figure 3.3, the key difference between the first-order and the second-order perspective lies in the research vantage point (and, as will be described below, this distinction has direct methodological implications). A first order perspective is concerned with seeking to describe various aspects of the world (Marton, 1981; Trigwell, 2006). In contrast, a second order perspective aims at describing "people's

experience of various aspects of the world" (Marton, 1981, p. 177). This choice of research focus should not be misunderstood as a move away from the single world perspective of phenomenography. Instead, the choice is underpinned by a view about how we might *access knowledge about that single world*. Marton (1981) states, "We only have access to the world through experience" (p. 180). In fact, this choice reflects assumptions about the forms taken by the relationships between individuals and phenomena and the world around them. In this respect, phenomenography is interested in variation in the way people experience and understand a phenomenon of interest, retaining a focus on a non-dualistic ontological perspective and explicitly adopting a second-order epistemological perspective (e.g., Marton, 1981; Collier-Reed, Ingerman, & Berglund, 2009).

3.3.3 Outcomes of Phenomenographic Research

Compared to other qualitative research approaches, phenomenography can also be differentiated in terms of its end outcome. The intended outcome of a phenomenographic study is to describe categories of description for conceptions from a second order perspective (Marton & Booth, 1997; Sin, 2010). Within phenomenographic research, the results are typically presented in a finite set of variations in which a phenomenon is experienced (Marton, 1981, 1988; Marton & Booth, 1997). This finite set of variations is considered as categories of description that can be used "in facilitating the grasp of concrete cases of human functioning" (Marton, 1981). Yet, as discussed above, those categories are seen as relational. As such, the results of a phenomenographic study are often presented in a form of an outcome space that illustrates the logical relations among the qualitatively different categories of a collective experience of a group of individuals (Cousin, 2009). An outcome space is a

set of "a limited number of hierarchically related categories of description" (Cope, 2004). It reflects "the possible ways the phenomenon can be experienced" (Cope, 2004) and how they are related to each other structurally and referentially (Marton, 1981).

In this study, the outcome will be to provide an outcome space that illustrates the categories by which students experience networked learning in a particular developing country setting, and the relations between those categories.

3.4 Research Design

3.4.1 Overall Approach

Research design is a logical process that guides the study in the various stages of the research, including how to collect, analyse and interpret data. When this study was positioned within the phenomenographic approach, a qualitative research design was chosen to guide the type of questions asked, the form of data collection and how to analyse and interpret the collected data. Marton (1981) and Cope (2004) stated that phenomenography is a particular qualitative approach to research that is specific about methods of data collection and data analysis because it focuses on meaning and requires a data collection instrument to interrogate underlying meaning when gathering and interpreting data. It is "a coherent, distinct, qualitative research paradigm" (Cope, 2004) that concerns strategies of inquiry, data collection and data analysis. This section considers how those strategies were used within the context of this research project.

3.4.2 Participants

In a qualitative study, the decision regarding the number of participants in a study is influenced by the study's purpose. Like other qualitative research approaches, the

quality of phenomenographic research should not be judged on sample size (Creswell, 2011, p. 209). It would rather be based on the purposes of the study and the quality of the interpretation that can be achieved. Creswell (2011), for example, suggests that:

> One objective of qualitative research is to present the complexity of a site or of the information provided by individuals. In some cases, you might study a single individual or a single site. In other cases, the number may be several, ranging from 1 or 2 to 30 or 40 (p. 209).

Many researchers use the concept of *saturation* within qualitative methods to determine a sample size. The logic of saturation is based on the premise that data collection continues until "no new or relevant information seems to emerge as more data are collected" (Johnson & Christensen, 2014). Walker (2012) wrote, "Saturation is a tool used for ensuring that adequate and quality data are collected to support the study. Saturation is frequently reported in qualitative research and may be the gold standard" (p. 37). However, the use of saturation may be varied from different research approaches, and as a concept it has some drawbacks for sample size estimation when designing research projects because the saturation can only be determined as the resulting data is analysed. As Guest, Bunce and Johnson (2006) argued, "Although the idea of saturation is helpful at the conceptual level, *it provides little practical guidance for estimating sample sizes, prior to data collection*, necessary for conducting quality research" (p.59, emphasis added). Guest et al. (2006) conducted a study of the degree of data saturation in qualitative research. They found that data saturation had for the most part occurred within the first *twelve* interviews. According to Trigwell (2006), whose work concerns phenomenographic approaches more specifically, from 10 to 30

interviews, each of 30–60 minutes, is all that is needed to "explore the interviewee's experience of the phenomenon in depth" in phenomenographic studies.

Marton and Booth (1997), and Yates et al. (2012) suggested two principles that guide the determination of sufficient sample size within phenomenographic research: 1) A sample size should be sufficient to gather a limited number of qualitatively different ways of experiencing a phenomenon of study; and 2) A sample size must be manageable for data collection and analysis. In other words, the practicalities of data analysis must be considered in advance, along with the issue of saturation, when making decisions about sample sizes within the context of purposive sampling.

Taking into account the points made above, the researcher determined that a sample of *at least 12* interviews would be needed (and resolved to approach more than this number due to the likelihood that not all of those people approach would agree to participate). This number would provide a good chance of obtaining an acceptable degree of data saturation while ensuring that data analysis remained manageable. However, for this strategy to be successful it is vital to ensure that the participants selected are the holders of knowledge in the area the study intends to investigate.

For ensuring a sample to be representative it was carefully selected so that it reflects the characteristics, beliefs and attributes of the complete group that was under this study.

According to Merriam and Tisdell (2015), "Purposeful sampling is based on the assumption that the investigator wants to discover, understand, gain insight and therefore must select a sample from which the most can be learned" (p. 96). Therefore, a purposive sampling strategy was used to ensure varied and rich information through

selecting a heterogeneous sample in regards to age, gender, studies majors and variety of learning experience. The issue where the participants needed to be homogeneous was that they needed to have experienced the phenomenon under investigation, i.e., networked learning in the particular setting.

Seventeen volunteer full-time undergraduate students from CTU, nine male and eight female students, participated in this study. Their ages ranged from 18 to 23 years old and they had different majors. The sample was composed of three first year students, two second year students, three third year students and nine fourth year students. Participants were selected so that their experience with networked learning was associated with learning in relation to both interacting with other people and with provided online resources. The issue of interacting with other people particularly refers to having experience at learning in groups and in what the institution calls "cooperation in learning" on the university's LMS (and also most likely through social media and other forms of connection such as email and phone). Cooperative activities at CTU include studying course materials together and joint problem solving, for example, group project work and problem-based project work. In these activities, a study topic or a common goal such as a group-based project is the basis for forming a study group in which group members are responsible for achieving the required objectives. This form of learning provides opportunities for discussion, cooperation and learning in relation to others and resources that can take place across formal and informal learning contexts. All the participants have been involved in these cooperative activities. Table 3.1 shows the participants' profiles.

Gender		Year of studies				Major	
Male	Female	1	2	3	4	Science	Social-science
9	8	3	2	3	9	8	9

Table 3.1 Participants' profiles

Students from across the institution were invited for two reasons. Firstly, because of the importance, recognised in the literature, of the 'institutional' uses of technology as providing the infrastructure for sustained practices (see Chapter 2). Secondly, because it is the central management of CTU that is, in this instance, attempting to encourage practices consistent with networked learning principles across the institution as a whole – by providing and mandating for use of that infrastructure (although the institutional management tend to use the term 'cooperation in learning' more often than 'networked learning' within the institution itself).

Of the 17 undergraduate students who were interviewed, eight had science majors (engineering, mathematics, physical and biological sciences) and nine had social-science majors (literature, languages, law, psychology, education, business and finance).

3.4.3 Ethical Considerations

The issue of ethics in educational research is important. Any human research should be conducted only with ethical approval (e.g., Hennink et al., 2011, Johnson & Christensen, 2014). The study was carried out in compliance with both the ethical guidelines and procedures of Lancaster University. These ethical procedures were approved by Lancaster University before any data was collected. The ethical approval procedures for this study included the following steps:

- Ethical review by ethical review bodies of Lancaster University and the supervisor, according to the risks of the study.

- All participants were informed about any potential to be identified in the results of the study, such as sensitive data, were removed.

- The privacy, confidentiality and cultural sensitivities of the participants were respected.

The non-specific consent form from Lancaster University (refer Appendix A) was used to obtain an agreement with all the participants that clarified that all responses were completely anonymous and confidential. Any information provided by the participants has been kept completely confidential and the participants are completely anonymous in the report. The researcher has explained to the participants about the purposes and objectives of the study. A website, http://info4student.com, with information about the study, the researcher's background has also been provided to all the participants that allowed them to clarify uncertainties, ask questions about the study, and decide whether or not to participate in this study. Additionally, all participants were informed of their right to withdraw from this study at any time. The researcher has respected the answers and opinions of the participants. Their names were not appeared in any report, articles or presentations. Any information which might potentially identify any participants was kept confidential and not used in published material.

3.4.4 Data Collection

For this project, the data collection would be undertaken using interviews with participants. Interviews within qualitative research are the subject of much research literature, while a smaller number of authors consider the nature of interviews in

phenomenographic research approaches more particularly. Below, pertinent points from each of these areas of literature are considered in turn.

At the most general level, the aim of the qualitative research interview is to attempt to "gather description of the life-world of the interviewee with respect to interpretation of the meaning of the described phenomena" (Kvale, 1983, as cited in Naarmala, 2009, p. 23).

In phenomenography, qualitative data can include individual interviews, group interviews, observations, drawings, written responses, and historical documents (Marton, 1996, Marton & Booth, 1997), but the individual interview is probably the most widely employed data collection technique in phenomenographic research (e.g., Marton & Booth, 1997; Richardson, 1999; Yates et al., 2012). It is the most popular data collection technique in three senses that are apposite to this research project:

1. individual interviews are useful because they not only allow the researcher control "over the line of questioning", but also allow the researcher *to investigate historical information of interviewees* (Creswell, 2009);

2. it is the main method of collecting data for phenomenographic studies with the aim of "revealing" the utterances of the participants interactionally, in-the-moment (e.g., Richardson, 1999; Cope, 2004); Marton (1996) claimed, "The experiences and understandings are jointly constituted by interviewer and interviewee" (as cited in Dortins, 2002, p. 209); and

3. the nature of the interview can be flexible, and that makes it attractive to investigate a way of experiencing a phenomenon in a way that is responsive to what a participant has said previously within the interview, particularly to build an account of a second-order perspective relationally (as discussed above in phenomenographic

research, there is much greater interest in the interviewee's account of experiencing the world) (Marton, 1981; Marton & Booth, 1997).

Phenomenographic interviews tend to be relatively open-ended (e.g., Richardson, 1999; Yates & Partridge, 2014). Richardson (1999) stated, "Phenomenographic researchers described the relevant phenomenon from the reports or inferences of their subjects. Typically, these reports are obtained in semi-structured, individual, oral interviews using open-ended questions" (p. 64).

The use of open-ended questions allows for rich descriptions of information by providing the interviewees an opportunity to describe their experience, perception and understanding in their own terms that reflect their own conceptions rather than those of the interviewer (e.g., Mason, 2002; Magnusson & Marecek, 2015).

It is generally recommended that interviews in explorative situations will be *free-flowing* (i.e., very lightly structured) and conducted in words and expressions of the participants' choosing (in other words, the researcher will use the vocabulary of the participant to the extent possible) (Magnusson & Marecek, 2015). Magnusson and Marecek (2015) suggest that the interviewer phrases "his or her requests in a form that is open-ended" in order to give the interviewee freedom to describe and express experiences, memories, reflections and opinions. For this reason, semi-structured interviews based around open-ended questions, conducted in a free-flowing way, and using participants' vocabulary where possible, are appropriate for the present study. This is because the researcher is interested in investigating the *participants*' second-order perspectives on a particular phenomenon – in other words, how the *participants* experience, understand and perceive that phenomenon within their world.

To obtain highly elaborated qualitative data, the researcher prepared an interview protocol that consisted of key questions on the research foci which were designed not only to collect information about the participants' lived experiences of networked learning to answer the research questions, but also to help to address the foci to be explored during the interviews. These questions were developed as the basis for in-depth interviews, but allowed for open-ended discussion (refer Appendix C for the interview protocol). This interview protocol was based on the phenomena of study and issues highlighted as important within the literature review. It focussed on the goals to be achieved in the interviews, but "the interview items did not have the form of the answer built into them" (Magnusson & Marecek, 2015, p. 47). The interview protocol acted as an instrument for reminding the researcher of necessary topics to cover, questions to ask and areas to probe; it was used flexibly and it did not act as a script. In this way, the interviewer was able to cover the same general foci and questions with all of the interviewees. It was important as it enabled the researcher to elicit information about the variation of the interviewees' lived experiences of a given phenomenon. As Cope (2004) argues, "In phenomenographic studies, interview guide questions need to be designed to provide data which will help establish critical variation in a group of participants' ways of experiencing a phenomenon" (p. 12).

For each interview, the researcher followed the advice of Kvale (1983) about 12 characteristics of the qualitative research interview as follows:

> It is 1) centered on the interviewee's life-world; 2) seeks to understand the meaning of phenomena in his life-world; it is 3) qualitative, 4) descriptive, and 5) specific; it is 6) presuppositionless; it is 7) focused on certain themes; it is open for 8) ambiguities, and 9) changes; it depends upon the 10) sensitivity of

the interviewer; it takes place in 11) an interpersonal interaction, and it may be 12) a positive experience. (as cited in Naarmala, 2009, p. 23)

The researcher considers the 12 characteristics considered by Kvale to remain pertinent within the context of the phenomenographic research approach discussed here. The interviews for this project are *centred on the interviewee's life-world* by focusing on their own direct experiences of a phenomenon.

Furthermore, in preparing for each interview, the researcher explained the purpose of the interview for the interviewee one more time, so that certain foci of interest to the researcher are addressed. During the interview section, the research tried to keep the interview on track in the sense that the researcher would bring the interviewee back on the track when he/she went off on a topic that was not relevant to the study purpose. The researcher also attempted to build a positive relationship with the interviewee, so that the interviewee could feel free, safe and comfortable to share and reflects their experiences and understandings on the research foci. The interviews focussed on four foci, namely, learning through relations, the roles of technology in mediating learning through connections, cooperation with others in learning, and working together towards a common goal. As discussed earlier, these are the (very large) points of intersection between the networked learning framework as it is presented in the literature and what the institution is attempting to accomplish locally.

In order to elicit underlying meanings and intentional attitudes from the participants, follow up questions were used, and these needed to be anticipated. This is important, because in one account Åkerlind (1999) stated, "In many cases the unstructured follow up questions were more important in eliciting underlying meaning than the pre-determined questions" (p. 3). The study thus adopted follow-up questions, as suggested

by Åkerlind (1999). Examples included: "Could you tell me a bit more about that?", "Could you explain that further?", "What do you mean by that?" and "Could you give me an example?".

Additionally, the following open-ended questions were also used:

- Could you say some more about that?

- Could you explain in more detail what you meant…?

- Is there anything else you would like to tell me about that…?

- Could you provide a bit more detail about…?

The aims of the follow up questions above were encouraging expansion of ideas or getting more depth and understanding about experience, conception, or an issue suggested by the interviewees (Åkerlind, 2005), as well as exploring and obtaining nuanced answers provided by the interviewees in more detail.

With respect to how to conduct phenomenographic interviews, some fundamental aspects were considered in the present study. Firstly, for reasons already discussed above, the researcher never influenced the responses of the participants, because the fundamental task and responsibility of the interviews were to obtain high quality data which reflects the experience of reality of the participants. Yet clearly the researcher needed to provide some prompts. In this regard, the approach taken reflected that of Ashworth and Lucas (2000) who state:

> "The researcher and researched must begin with some kind of (superficially) shared topic, verbalised in terms which they both recognise as meaningful. If we tried to bracket this, the conversation would be directionless" (p. 299).

Secondly, the researcher needed to work to establish a good level of communication and empathy with the participants, because this might influence the truthfulness of the responses obtained. Marton (1996) characterised the phenomenographic interview as "the experiences and understandings, are jointly constituted by interviewer and interviewee" (as cited in Dortins, 2002, p. 209).

The interviews ended with an additional wrap-up question "Is there anything else you would like to tell me about your experiences of…?" (Creswell, 2009). Post interview comments and discussions took place after each interview.

The interviews were conducted in the participants' native language (Vietnamese) and recorded by audio recorders and notes. Each interview lasted between 45 and 60 minutes. All was recorded, then transcribed, and subjected to qualitative analysis.

3.4.5 Data Analysis

According to Hatch (2002), the goal of data analysis is as follows:

> Data analysis is a systematic search for meaning. It is a way to process qualitative data so that what has been learned can be communicated to others. Analysis means organizing and interrogating data in ways that allow researchers to see patterns, identify themes, discover relationships, develop explanations, make interpretations, mount critiques, or generate theories. It often involves synthesis, evaluation, interpretation, categorization, hypothesizing, comparison, and pattern finding. It always involves what Wolcott calls "mindwork". Researchers always engage their own intellectual capacities to make sense of qualitative data. (p. 148)

Qualitative data analysis is an ongoing, iterative, interpretive process that occurs simultaneously with data collection (Creswell, 2009; Merriam & Tisdell, 2015). Johnson and Christensen (2014) stated, "Qualitative data analysis is much more eclectic [than quantitative data analysis], and there is no single *right* way of analysing the data because of the nature of the qualitative data collected" (p. 93, emphasis added). However, they continue, the process of data analysis comprises "preparing the data for analysis, conducting different analyses, moving deeper and deeper into understanding the data…, representing the data, and making an interpretation of the larger meaning of the data" (Creswell, 2009, p. 183). In general, qualitative data analysis requires coding and searching for relationships and patterns until a holistic picture can emerge (Johnson & Christensen; 2014). The search for relationships is particularly important for the present project because, as discussed above, for research that takes a phenomenographic approach, the aim is to provide an outcome space consisting of a limited number of concepts that are understood relationally.

From a phenomenographic perspective, data analysis can be carried out in a number of ways – there is no single process for the analysis of the phenomenographic data (Marton & Booth, 1997). But the aim of data analysis in phenomenographic research is to explore "variation in how a phenomenon is experienced" (Yates et al., 2012, p. 102).

In practice, the data analysis of a phenomenographic study involves an iterative process (Booth, 1992) during which the transcripts are read repeatedly to yield the similarities and differences between how participants experience, understand and perceive the phenomenon. Trigwell (2006) describes the data analysis of a phenomenographic study in the following way:

> The analysis phase normally involves an initial identification of a set of categories of description, analysis of the structural relationship between the categories independently of the transcripts, and an iteration between the transcripts and the structural relationship, until a stable set of categories is constituted. (p. 371)

Importantly, Yates, Partridge and Bruce (2009) stated, "It is the variation of experience that is of primary importance, not how many people show evidence of it". The aim is to capture the degree of variation, even if some of those variations are less common than others (for example, when considered between numbers of participants as individuals, or between frequency of utterances). For these reasons, an ideal concept for data analysis is to "blend the general steps with the specific research strategy steps" (Creswell, 2009) in data analysis in attempting to capture the whole picture that reveals how students experience, understand and describe their world. Creswell (2009) suggests that qualitative data analysis will proceed on two processes. The first one is the general process of data analysis. This process involves a number of general steps in analysing the data, including organising and preparing data (i.e., text data as in transcripts) for analysis, reducing the data into themes, and representing and visualising the data in tables or figures. The second one is "the analysis steps embedded within specific qualitative designs" (Creswell, 2009); for example, phenomenography has additional analysis steps in analysis and representing data (i.e., identifying categories of description and outcome space).

For this study, the analysis was carried out through a series of analytic steps. The analytic steps were inspired by Creswell's (2009) qualitative data analysis and Dahlgren

and Fallsberg's (1991) a seven-stage cycle of data analysis in phenomenography. Figure 3.4 illustrates the different steps of analysis in this study.
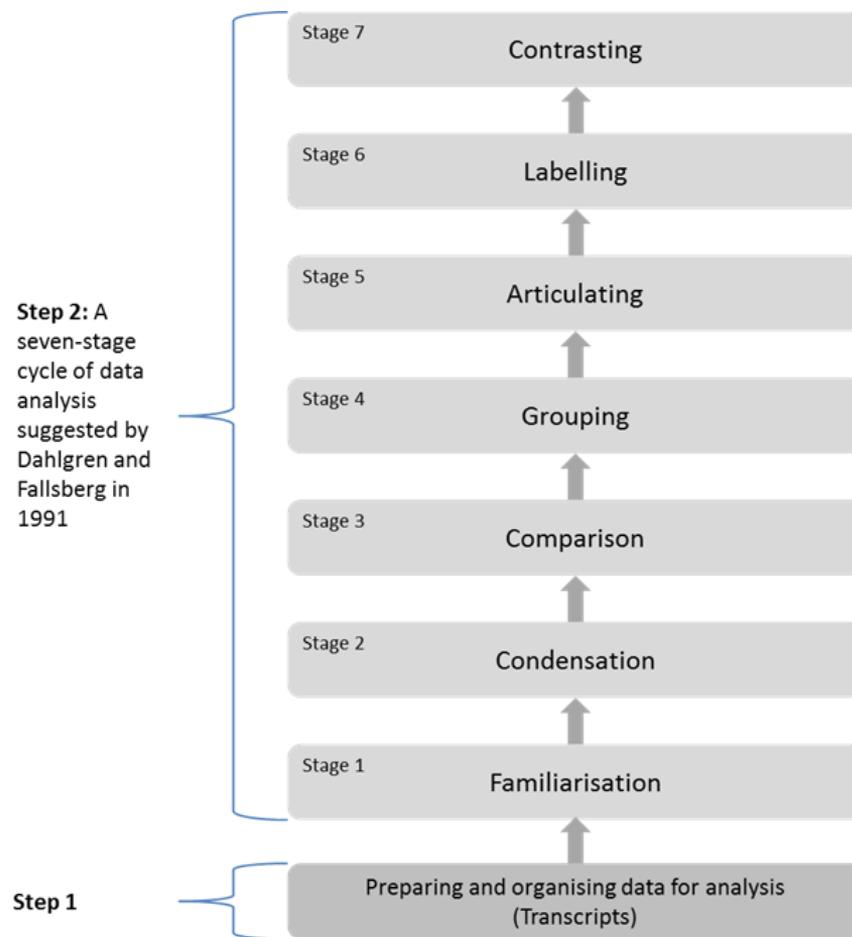
Figure 3.4 Data analysis

3.4.5.1 Step 1: Preparing and Organising Data for Analysis

The first step involved transcribing the interviews and organizing data both topically and chronologically; for example, topics such as learning through relations (with resources, tutors and students), the roles of technology in mediating learning through connections, cooperation with others in learning, and working together towards a common goal, etc.

Upon completion of each interview, the transcripts were transcribed as the basis for the data analysis process. All transcripts were translated and transcribed verbatim by the researcher.

3.4.5.2 Step 2: Seven-stage Cycle of Data Analysis

The second step is to analyse the data. The analysis was carried out using Dahlgren and Fallsberg's (1991) seven-stage cycle of data analysis in phenomenography, an approach to systematically analyse the phenomenographic data. This is a multiple-stage process with a clearly defined purpose at each step, and corresponds to stages 1-7 on Figure 3.4. These stages were taken in sequence in which each stage leads to another for a complete discussion of the entire data analysis process.

Considering the applied nature of phenomenographic inquiry in the present study, the primary orientation in data analysis in the second step is towards a descriptive and interpretive perspective where the objectives are investigating how the phenomena of study have been experienced by the students and variation of different ways of experiencing (Yates & Partridge, 2014). Most obviously, such a stance makes it imperative that the researcher not only maintains an open mind. More concretely, this stance means that the researcher *considers* and *accepts* the participants' ideas, opinions and views during the entire data analysis process. Furthermore, every transcript is analysed within the context of the whole sample, because the focus is on collective rather than individual experience (Cope, 2004; Åkerlind, 2005). In other words, this means mapping the variation across the whole collective, rather than considering individual differences as "inconsistencies" in accounts that need to be reconciled in some way. As Marton (1988) claims, "Phenomenographers do not make statements

about the world as such, but about people's conceptions of the world" (as cited in Light, Cox & Calkins, 2009, p. 51).

The analysis of the verbatim transcripts was carried out in the following stages:

1. **Familiarisation**

   The initial stage of the analysis involved familiarization to gain a sense of their meaning and achieve an overall impression. The researcher read and reviewed every transcript at least three times in open-mined manner in order to obtain a general sense of the information – initially, simply by asking the question "What has this student talked about?". As Agar (1980) suggested, "Read the transcripts in their entirely several times. Immerse yourself in the details, trying to get a sense of the interview as a whole before breaking it into parts" (p. 103 as cited in Creswell, 2011).

2. **Condensation**

   The transcripts were processed by seeking significant elements about the ways in which the phenomena of study were experienced, understood and perceived by students. Each transcript was analysed in sentences. The aim of this stage was identifying the most significant elements in the transcripts that were related to the phenomena of study. It included a thorough and detailed task by examining line by line of each transcript to identify significant passages and statements provided by each student. The focus was on "the meaning of statements in relation to surrounding statements and to the transcript as a whole" (Blomberg, 2006); for example, statements related to how students understood and perceived learning in relation to others, cooperation in learning, and the roles of technology in mediating learning through connections, etc. The researcher then marked these passages and

statements by colours; for example, blue for learning in relation to others and resources, green for the roles of technology, and red for cooperation in learning, yellow for benefits and orange for challenges. Key words were underlined; for example, group, others, flexibility, discussion, share, etc. (underlined) to highlight them from the whole transcript. The passages and statements were then condensed and inserted into a table that represents the whole transcript. Each table corresponds to one transcript. This process was carried out across all the accounts. An example of *condensation* is illustrated in Table 3.2.

Condensation	
Materials	Online course materials
	Others' knowledge
Teacher	My teachers have taught me how to resolve problems.
Group	Assigning students to groups
LMS	At the beginning of a term, I have to enrol for some courses on the LMS.
Social media	Social media such as Facebook, discussion boards are valuable tools for exploring a topic together.

Table 3.2 Example of condensation

3. Comparison

The aim of this stage was to find the central parts of the transcripts by comparing the significant statements from stage 2, because phenomenography focuses on "the range of meanings within a sample group, as a group, not the range of meanings for each individual within the group" (Åkerlind, 2012, p.117). The stage began with comparing different statements in order to identify similarities and differences in the way the students experienced and understood the phenomena of study. The meaning of each statement was not only interpreted in relation to surrounding statements but also in relation to the group of experience it belonged to. In other words, each statement was compared with other statements both within and between

accounts (Blomberg, 2006). New information was noted by colours as new themes emerged. This was an iterative process that began with an examination of the whole and the different parts of each transcript until no new information could be elicited. This repeated process went through all the accounts. The aims of this stage were twofold: a) to identify variation in the statements about how the phenomena of study were experienced, understood and conceived, and b) to reduce the amount of data through the removal of redundant information process.

During this stage the researcher paid special attention to key words and phrases that expressed and described how a particular phenomenon has been experienced, as well as terms that were emerged repetitively; for example, sharing and exchanging information, conversation, discussion, learning together, group-based project etc.

4. **Grouping**

The grouping process was carried out. Similar statements in their way of experiencing a particular phenomenon were then grouped together. Colour codes and table structure were used to organise the statements from the stage 3 according to the preliminary themes such as cooperation in learning, the roles of technology, accessing to resources, learning in relation to others, etc. As such, all the statements were then split based on similarities and differences. This led to different categories each of which represents one way of experiencing the phenomenon. The categories emerged from the data analysis process rather than having been defined in advance. In fact, the grouping process was *iterative*, moving back and forth within and between accounts. This process continued until the groups seemed to be stable. As Åkerlind (2012) claims, "The whole process is strongly *iterative* and *comparative* one, involving the continual sorting and resorting of data, plus ongoing comparisons

between the data and the developing categories of description, as well as between the categories themselves" (p. 118, emphasis added).

Identifying each category's structure of awareness involved exploring aspects related to the participants' awareness of a given phenomenon. While identifying the structure of awareness of each category, the researcher applied the following questions to the data: a) *What did the participant focus on?;* b) *What remained in the background of awareness?; and* c) *What aspects were located in the margin of awareness?.* An example of a structure of awareness is illustrated in Figure 3.5.
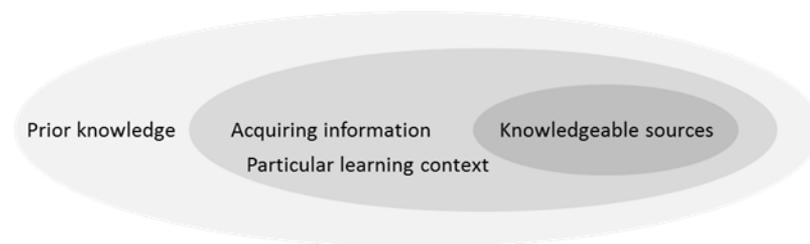
Figure 3.5 Example of a structure of awareness

5. Articulating

The aim of this stage was to identify the characteristics that distinguished one category from the other categories in order to establish borders between these categories. The meaning of each category was reviewed in relation to other categories. The researcher sought out similarities and differences across categories to identify dimensions of variation among these categories. These dimensions of variation appeared in the categories of descriptions but changed across them. For example, dimensions of variation of learning in relation to others and resources are shown in Table 3.3.

Dimensions of variation	
Role of technology	This dimension examined the role of technology in learning through relations.

Role of teachers	This dimension explored the role of teachers in learning through relations.
Role students	This dimension described the role of students in learning through relations.
Location of knowledge	This dimension concerned location of knowledge.

Table 3.3 Example of dimensions of variation

6. Labelling

The categories were then labelled. Each category of description was assigned a name that was associated with one way of experiencing a particular phenomenon. These categories of description constituted the variations provided by the participants. Assigning a name to a category was a crucial stage because the name had to reflect the essence of a way in which participants experienced and understood a given phenomenon of study. In this sense, the name reflected the participants' experience of the phenomenon based on the meaning embedded in the category. An example of labelling categories of learning in relation to others and resources is illustrated in Table 3.4.

Dimensions of variation	
Resource Access	Referring to the process of interaction between the student and learning resources
Knowledge Transmission	Focusing on the act of transmitting knowledge from the teacher to students
Knowledge Construction	Making meaning through relations

Table 3.4 Example of labelling categories

7. Contrasting

The aim of this stage was to identify the internal relationships between the categories and the structure of the variation in experiencing a given phenomenon by examining their structures of awareness. The focus, therefore, shifted from individual category to the relationships between them, with a focus on a *collective* level of experiences. The structure of awareness and dimensions of variation were compared across and between the categories to identify logical relationships

between them. A hierarchy of categories was determined as the result of examining their structures of awareness. Each set of categories was then organised in a form of an outcome space that is a sort of analytic map (Dahlgren, 2005), which represents the qualitatively different ways of experiencing or understanding a given phenomenon and the logical relations between them (Marton, 1981; Marton & Booth, 1997). Dahlgren (2005) described the outcome space as follows:

> The outcome space provides a kind of analytic map of variations in what has been learned from a given learning task. It is therefore an empirical concept which is not the product of logical or deductive analysis, but instead results from intensive examination of empirical data. Equally important, as used here, the outcome space is content-specific: the set of descriptive categories arrived at has not been determined a priori, but depends on the specific content of the learning material. (p. 30)

Laurillard (2002) distinguished three different types of outcome spaces based on the relationships between the different categories of description: a) An inclusive, hierarchical, outcome space in which "a more sophisticated conception will logically include the lower ones"; b) An outcome space in which the different conceptions are not related to each other, "but to the history" of the participants' experiences with the phenomenon; and c) An outcome space which represents "a developmental progression, where each successive conception is better, in a similar way to the progression defined for scientific theories: they explain more, they are more productive" (p. 30).

The outcome spaces of this study will be presented and discussed in Chapter 4 and Chapter 5.

To summarise, in this study, the analysis was an iterative process in which the different stages were reviewed and moved *back* and *forth*. The process of data analysis was carried out repeatedly, as the findings were revealed and refined. In fact, data collection and data analysis were a simultaneous process (beginning during data collection), and the data analysis became more intensive in the step 2 when all the data were gathered.

3.5 Validity and Reliability

Validity and reliability in qualitative research are the criteria for how effectively the research design is implemented in order to achieve the research objectives. Because of the nature of qualitative research, any qualitative study is concerned with validity and reliability issues (Anderson, 2010; Creswell, 2013). Qualitative researchers have developed a number of different concepts for increasing the validity and reliability of qualitative research (Creswell, 2013; Merriam & Tisdell, 2015). In fact, qualitative research in general differs as regards different assumptions about the world, different approach and different paradigm; therefore, each qualitative research paradigm requires "paradigm-specific criteria for addressing rigour" (Morse, Barrett, Mayan, Olson & Spiers, 2002, p. 5). Merriam and Tisdell (2015) state that "with the wide variety of types of qualitative research, there are bound to be differences in criteria for validity and reliability" (p. 240).

The issues of validity and reliability in phenomenographic research have been discussed by several researchers such as Booth (1992), Sandberg (1997, 2005), Cope (2004), Sin (2010), and Åkerlind (2012) in the literature. A number of issues can affect the rigour of a phenomenographic study, for example the researcher's justification for structuring the outcome space, the internal consistency of the object of study, data and findings (Sin, 2010), communicative validity, pragmatic validity and reliability (Sandberg,

2005; Åkerlind, 2012); design of interview questions, data collection and data analysis method (Cope, 2004).

Validity refers to how well a study is designed and to the extent to which the results of a study are appropriate to represent the phenomena they are intended to represent (Golafshani, 2003; Merriam &Tisdell, 2015). From a phenomenographic perspective, Åkerlind (2012) explained the term *validity* as follows:

> "Validity is widely regarded as the extent to which a study is seen as investigating what it aimed to investigate, or the degree to which the research findings actually reflect the phenomenon being studied" (123).

Reliability refers to the extent to which the results of a study can be replicated (Merriam & Tisdell, 2015). However, the use of the concept of reliability could be problematic or even misleading (Stenbacka, 2001), because the reality in the world is subject to change and "human behavior is never static" (Merriam & Tisdell, 2015, p.250).

Since phenomenography is a particular type of qualitative research that has its own characteristics and assumptions about the world, it requires specific criteria for establishing rigour of research findings. Cope (2004) offers an interesting analytical framework on assessing validity and reliability in phenomenographic studies. In Cope's view, ensuring validity and reliability of phenomenographic research is "more straightforward" if all aspects of the research have been underpinned with the analytical framework of *a structure of awareness*. He suggests that the use of a structure of awareness in phenomenographic research would help to ensure validity and reliability during the research process.

Marton, Runesson and Tsui (2004) defined *awareness* as "the totality of a person's experiences of the world, at each point in time. It is all that is present on every occasion" (p. 19).

A structure of awareness consists of three overlapping areas that describe the theme; the background and the margin of awareness (see Cope, 2004, 2006; Bowden & Marton, 2004), as illustrated in Figure 3.6:
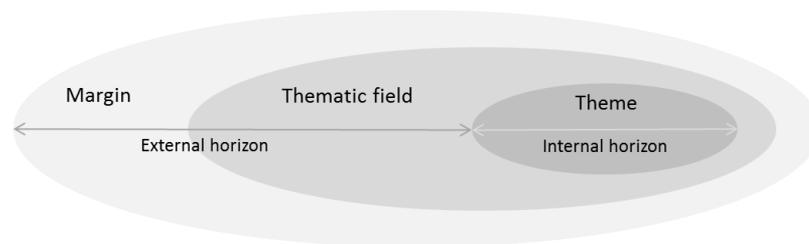
Figure 3.6 Structure of awareness (Cope, 2004, p.6)

The first area, *the theme*, represents the focus of the awareness. It refers to a number of aspects of the phenomenon which have emerged and become the focal awareness. A second area, *the thematic field*, represents aspects related to the theme in a particular context. It is organised around the theme and forms the background of the awareness out of which the theme emerges. The last area, *the margin*, is obviously not primarily about aspects that are related to the phenomenon experienced, but it still represents those aspects that make up the margin of awareness.

A structure of awareness can also be described in terms of the external and internal horizons (Marton & Booth, 1997). As illustrated in Figure 3.6, the external horizon comprising of the margin and the thematic field areas forms the context surrounding the theme (internal horizon). The external horizon represents all the aspects that are "part of awareness at a particular instant but which are not thematic" (Cope, 2006, p. 22). By contrast, the internal horizon consists of those aspects that are in focus.

One of the assumptions underlying a structure of awareness is that awareness is holistic, multidimensional and changing; it is not a static phenomenon waiting to be explored and described. Marton et al. (2004) wrote, "Awareness changes dynamically all the time and every situation is experienced against the background of previous experiences" (p. 19).

For the purpose of this study, a theme of awareness is aspects of the phenomenon, and those aspects or factors related to and embedded in the theme are the thematic field. The margin refers to aspects or factors that are coexistent in time and space but without being related to it. In other words, the thematic field can be seen as the relevant context or background of the theme and the margin refers to aspects or factors that are not immediately relevant to the content or meaning of the theme but they co-exist in time and space, and make up the margin of awareness.

To summarise, a structure of awareness proposes a concept of insight in which describing a way of experiencing a phenomenon in a given context. Therefore, it "can be used to describe an individual's way of experiencing a phenomenon in a particular context and at a particular time" (Cope, 2006, p. 21).

Based on the nature of phenomenographic research and inspired by Cope's (2004) the analytical framework of a structure of awareness, the following strategies were employed in ensuring the rigour of the findings:

- Avoiding personal biases that may have influenced the findings: In the entire research process, the researcher has always kept a focus on exploring the meaning that the participants have given about the phenomena of study.

- An appropriate study design: Identifying an appropriate study design is vital in ensuring validity of the results (see Creswell, 2009, 2013; Johnson & Christensen, 2014). In this study, phenomenography was considered and argued as the most appropriate research approach in research of this kind.

- The number of participants reached a point of sufficiency in a phenomenographic study.

- Design of interview questions: The interview questions were designed to elicit data that could help establish critical variation in ways of experiencing the phenomena of study.

- Data collection: Data collection aimed at capturing the utterances of the participants. The researcher attempted to explore the world from the participants' points of view in order to capture the meanings of their experiences through in-depth semi-structured and open-ended questions.

- Data analysis method: Appropriate data analysis procedures were used to guide and conduct data analysis. The data analysis was carried out based on the framework of a structure of awareness to ensure validity and reliability (Cope 2004). The data analysis process was documented in an accurate manner in Section 3.4.5.

- Interpretive awareness: In order to demonstrate clarity in terms of data analysis and subsequent interpretation, Dahlgren and Fallsberg's (1991) a seven-stage cycle of data analysis in phenomenography was used. Each stage of the framework had its own defined purpose. Every statement was interpreted in relation to its structure of awareness.

- Presenting results in a manner which permitted informed scrutiny: Categories of description for conceptions were described in terms of their structures of awareness and dimensions of variation. Quotes of students' accounts were included to support

findings. Categories of description for conceptions have been presented in a logical way in order to show internal relationships between them. An outcome space was presented as a holistic account of a particular phenomenon under study.

In this manner, validity and reliability of the present study can be maximised at the stages of research design, research undertaking, and research documentation. Morse et al. (2002) stated, "We need to return to recognising and trusting the strategies within qualitative inquiry that ensure rigour" (p. 15).

Additionally, a website with information about the study, the researcher's background and the findings has been provided to all the participants that allowed them to review the results, ask questions about the study, and send feedback to the researcher. This is a kind of "member checking" (e.g., Morse et al., 2002; Creswell, 2013) to determine the accuracy of the findings. According to Creswell (2013), member checking is a technique for establishing credibility. He claims, "In member checking, the researcher solicits participants' views of the credibility of the findings and interpretations" (p. 252). In this study, all the participants were provided access to the website *Info4student.com* to view, judge the accuracy of the account. The information provided on the website has been intended for an external check of the research process and the credibility of the findings.

3.6 Conclusion

This chapter has set out the methodology and design of the present study. The study aims to identify the qualitatively different ways in which different undergraduate students experience, understand and perceive various aspects of networked learning. A phenomenographic research approach has been presented as an appropriate research

approach for this study. There are several reasons why phenomenography is used, and these were set out in terms of synergy with the objectives of the research as well as by contrasting with other possible research approaches. Firstly, in the chapter, it has been argued that phenomenography is particularly useful for describing the various ways in which students describe their experience and perceptions of phenomena of study (Marton & Booth, 1997; Richardson, 1999). Secondly, it was argued that the research objectives are well suited to a research approach that takes a second-order and non-dualistic ontological perspective in which there is only one world, "the world is experienced" (Marton, 1981) – because this research is interested in investigating the qualitatively different ways of experiencing the world. Thirdly, the focus of phenomenography on collective variation rather than individual differences was argued to be congruent with the aim of producing a qualitatively limited number of categories of description for conceptions, where conceptions are understood as derived from utterances and as relational constructs (Åkerlind, 2012). Bruce and Ahmed (2014) stated, "Although the analysis is comprised of individual utterances from a selection of a particular cohort, it is the collective experience that phenomenography captures".

The research design and analysis adopted in this study has therefore been developed with a focus on characteristics of phenomenographic research. This research design requires the researcher to maintain an open mind during the research process (Marton & Booth, 1997; Åkerlind, 2012). As Åkerlind (2012) argues, "The researcher needs to be willing to constantly adjust her/his thinking in the light of reflection, discussion and new perspectives" (p. 117). The present study relies heavily upon qualitative data obtained from semi-structured interviews (where the "semi-structured" nature of those interviews is actually a rather light structure) conducted using the vocabulary of the participants. The issue of estimating and justifying the sample size of was discussed

and the number of interviews carried out for this study was justified in terms of the likelihood of data saturation and the practicality of analysis.

The data analysis strategy has also been discussed. Analysing data in this present study involved a recursive process that is recursive and takes place simultaneously with data collection. The data analysis process is conducted in two distinct steps: a) the preparing and organizing data for analysis; and b) the use of Dahlgren and Fallsberg's (1991) a seven-stage cycle of data analysis for data analysis. The findings are to be finally presented in a form of outcome spaces (see Chapter 4). Simultaneous data collection and analyse will allow the researcher to prepare and develop a data source more productively. The entire data analysis process is carried out in light of the research questions, the issues highlighted as important within the literature review, and consideration of the discussions in the literature on phenomenographic research.

The chapter has concluded by discussing considerations of research quality in the present research. A set of strategies for ensuring the rigour of this study has been presented.

Having set out the research design in this way, the next chapter will consider the findings of the present study.

Two points that are especially worth noting in reporting the findings of the present study are the unit of analysis and the 'voice' of the participants. Firstly, it should be recognised that "the basic unit of phenomenography" is "different ways of experiencing something" (Marton, 2015, p.106). Individuals are not the unit of analysis for phenomenography. Individuals can themselves experience the phenomenon in varied ways, but the aim of phenomenographic research is to identify variation in collective

experience across a group in a particular context (in this case, a group of Vietnamese undergraduate students). For this reason, no indication is given to indicate which student is quoted in the findings chapter.

Secondly, in order to support a given interpretation in a particular context, the present author presents the voice of the participants in terms of quotations when explaining a particular interpretation. Because there is no standard for how long quotations should be used in reporting qualitative research, the author uses *short* but *typical* quotations to provide examples of what a particular phenomenon is experienced and perceived. The aim of using quotations from qualitative data is to give *important* pieces of evidence to support interpretations and explanations of the findings of the present study.

Chapter 4 Findings

4.1 Introduction

This chapter presents the findings of the study, organised and presented in four sections that directly address the four research sub-questions:

1. *What is the extent of variation in students' collective experience of learning through relations?*

2. *What is the extent of variation in students' collective experience of the roles of technology in mediating learning through connections?*

3. *What is the extent of variation in students' collective experience of cooperation with others in learning?*

4. *What is the extent of variation in students' collective experience of working together towards a common goal?*

The four foci are learning through relations; the roles of technology in mediating learning through connections; cooperation in learning; and working towards a common goal. For each of these foci, the description is presented in the following way:

- Overview of the findings

  An outcome space is presented to provide an overview of the categories of description and their relationships. The outcome space constitutes a picture of the holistic meaning: portraying how a given phenomenon is experienced and understood by the students.

- Categories of description

The categories describe the essential elements that constitute the way in which the phenomenon is experienced and understood, and are each denoted by a category name.

The findings portray the structure of awareness for each category of description using the theme; the thematic field and the margin (Cope, 2004, 2006). The theme is the focal awareness (the internal horizon), whereas the thematic field and margin belong to the external horizon that form the background and context of the awareness.

- Dimensions of variation

The dimensions of variation show how the categories of description are differentiated from each other; they are factors that change across the categories. Dimensions of variation are described in terms of similarities, differences and distinctive characteristics of all the categories of description.

- Conclusion

The conclusion provides a Table, an overview of how each category is described.

The categories of description for conceptions are each illustrated using example quotations from individual participants. No references to the individual participants are presented in any of the quotations because the findings focus on variation across the collective ways of experiencing a given phenomenon.

The key findings of the present study are summarised in Table 4.1 below.

Learning through Relations		
Resource Access	Knowledge Transmission	Knowledge Construction
Meaning Structure		

The process of interaction between the student and learning resources	The transmission of knowledge from the teacher to students	Making meaning
Structure of Awareness		
Theme: Knowledgeable sources *Thematic field*: Acquiring information and particular learning context *Margin*: Prior knowledge	Theme: Teacher-student focus Thematic field: Learning context Margin: Learning preferences	*Theme*: Meaning making *Thematic field*: Social interaction and communication, and prior knowledge *Margin*: Digital literacy
Dimensions of variation		
Role of technology		
Establishing connections with learning resources, particularly LMS	A communication medium between the teacher and students, particularly outside the classroom	Technology plays an important role in mediating two-way interaction and communication for students.
Role of teachers		
Provide information and materials to students	The main authority of the learning process Passing knowledge and information to students	The teacher involves students in group works in a particular learning context such as a formal academic setting.
Role of students		
Searching for information that they have decided would help them	Recipients of the teacher's knowledge	Students participate in learning activities with other students. The students are committed to share information and knowledge.
Location of knowledge		
Information and knowledge residing in knowledgeable sources	Learning resides in receiving knowledge from the teacher.	Learning resides in meaning making with others. It takes place in discussions and dialogues.
Roles of Technology in Mediating Learning through Connections		
Flexibility	Tool	Medium
Meaning Structure		
Flexibility is in focus.	The role of technology as a *tool* for mediating learning through connections.	The role of technology as a *medium* for mediating learning through connections.
Structure of Awareness		
Theme: Time and place *Thematic field*: Asynchronous and synchronous communication	*Theme*: Using LMS for learning through connections	*Theme*: Communication medium *Thematic field*: Social aspects

Margin: Prior experience, and digital literacy	*Thematic field*: The incorporation of LMS into the teaching and learning practices *Margin*: Prior experience and digital literacy	*Margin*: Prior experience and digital literacy

Dimensions of variation		
Particular context		
This dimension of variation concerns communication in different contexts.	Retrieving course materials or connecting to teachers and other students	This dimension of variation concerns different contexts in which learning through connections is situated.
Use of technology		
Asynchronous and synchronous communication and interaction without the constraints of time and place	The use of technology as a tool for both human-resources and human-human interactions with an emphasis on LMS	The use of technology as a medium for both synchronous and asynchronous communication

Cooperation in Learning		
Group Work	Exploratory Learning	Directing Learning
Meaning Structure		
Learning in (small) project-based groups	Some friends come together and form a learning group to explore a given topic together.	A learning process in which individuals take control of their own learning and engage in learning with others in online learning communities.
Structure of Awareness		
Theme: Group-based project *Thematic field*: Integral part of a course and common goal *Margin*: Prior knowledge and experience	*Theme*: Exploratory learning *Thematic field*: Friendship *Margin*: Prior knowledge and experience	*Theme*: Directing learning *Thematic field*: Learning needs *Margin*: Prior knowledge and experience
Dimensions of variation		
Learning context		
Group work takes place in the formal learning setting (e.g., a part of a course).	The learning situation is organised by a group of friends (cooperation among friends to explore a particular topic together).	Learning takes place in online communities such as a group on Facebook. An individual takes the initiative and the responsibility for his or her learning.
Learning outcomes		

Achieving an overall group goal	Sharing and exchanging information and knowledge Exploring a given topic together, e.g., difficult materials	Satisfying the learning needs of the individual.
Role of teachers		
Allocating students into groups Supporting and advising students	The role of the teacher in supporting this form of learning is less attention. Rather, an emphasis is placed on students who take the initiative without guidance of the teacher.	Directing learning takes place outside the formal academic setting. Emphasis is given to individuals who engage in online learning communities without the assistance of the teacher.
Role of students		
Group members are assigned a particular project. Participating in the learning process with others	Students take the initiative to participate in learning with their friends.	Individuals take responsibility for their own learning. They take the initiative to participate in online learning communities by themselves. There are little or no cooperation between members of an online community in a sense of common learning goals.
Working towards a Common Goal		
Technologically-Mediated Cooperation	Interpersonal Cooperation	Relationship between 'Personal' and 'Common' Goals
Meaning Structure		
The challenges of *technologically-mediated cooperation* such as Internet access and computers available for students to use	Focusing on *interpersonal cooperation*: The benefits and challenges inherent to working towards a common goal reside in the interpersonal cooperation.	Focusing on the *relationship between 'personal' and 'common' goals*: The benefits and challenges inherent to working towards a common goal reside in the relationship between 'personal' and 'common' goals.
Structure of Awareness		
Theme: Online communication *Thematic field*: Technological availability *Margin*: Prior experience	*Theme*: Interpersonal aspects *Thematic field*: Different types of people *Margin*: Prior experience	*Theme*: Personal/common goals focus *Thematic field*: Common goal and cost focus *Margin*: Years of study and majors of study
Dimensions of variation		

Benefits to students		
The benefits to students in this conception are less attention. Rather, an emphasis is placed on the challenges of technologically-mediated cooperation.	This dimension of variation concerns diversity awareness.	This dimension of variation concerns increased performance and increased understanding.
Challenges to students		
Focusing on two challenges regarding the impact of technology on working together: Internet access and computer available for students to use	Focusing on interpersonal differences	Focusing on unproductive learning

Table 4.1 Summary of the findings

4.2 Learning through Relations

4.2.1 Overview of the Findings

The categories of description for conceiving learning in relation to others and resources are as follows:

- *Resource access*;

- *Knowledge transmission*; and

- *Knowledge construction.*

Those categories are differentiated from each other by the variation of four dimensions: role of technology, role of teachers, role of students, and location of knowledge. The outcome space presents the logical relationships between categories of description as constituting a hierarchical order of increasing complexity. Higher categories in the diagram constitute more complex conceptions than lower categories. That outcome space is illustrated in Figure 4.1.
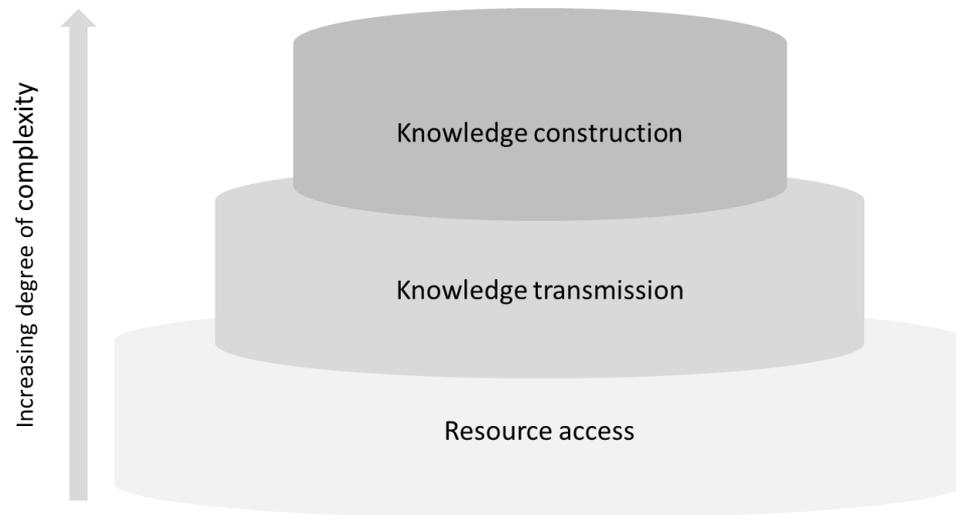
Figure 4.1 Outcome space – *Learning through Relations*

The vertical axis of the outcome space shows the increasing degree of complexity of the connections being described. *Resource access* represented the least complex category, where the process of accessing knowledgeable sources was in focus. Resource access denotes a connection that both relatively unidirectional and whose duration can be determined by one of the connected elements: the students. The next category of description, *knowledge transmission,* was relatively more complex than resource access. In *knowledge transmission*, learning through relations is conceived as being about information that moves from place to place, rather than as a stationary resource to be accessed at will. The category of description *knowledge construction* differentiated from the other categories as it focussed on the importance of making meaning through interactions that are bi-directional and involve various forms of dependency between the elements that are being connected.

The meaning structure of each category was conveyed in the category name. It accounted for the significant characteristics of the category. The internal relation between the participant and a given phenomenon of study, which made up a way of experiencing the phenomenon, was explored through a structure of awareness.

4.2.2 Resource Access

4.2.2.1 Meaning Structure

In this category, learning through relations is perceived as *resource access*: a process of limited interaction between student and learning resources. Responses in this category perceived connections as opportunities to gain access to new information and knowledge sources. Those knowledgeable sources might include course materials provided by teachers or useful materials shared by other students on the LMS.

Accessing course materials provided by the teachers on the LMS appeared to be the most important learning sources for the participants – being coded 12 times.

> *"The LMS is very important because the teacher uploads course material before a class session. It also leads me to interactions and connections with my teachers, fellow students and course materials."*
> *"The LMS is a place for accessing online course material with features for connecting with other sources."*
> *"The LMS serves as a tool for accessing course material, scholarships, tuition fees, etc."*

The latter response indicates that students do not always conceive of institutional 'networked learning' provision separately from other institutional processes that are supported using ICT systems.

Those responses indicating this category also claimed that creating connections with online resources not only occurred through reading lectures and course material on the

LMS, but also through searching and accessing other sources of information on the Internet. For example:

> *"The Internet gives me free access to a wide range of information beyond course materials. There is a huge potential for finding valuable sources such as articles, slides and relevant course material. It makes my learning easier."*
>
> *"From my experience, I use library by browsing online resources to find relevant learning sources to my subject."*
>
> *"Once I have signed up for a course, I have to access to the course's website to read the learning resources for this course. The learning resources include some reading information that I need to search on the Internet."*
>
> *"Accessing online instructional resources [on the LMS] ... is always important for a course ... Further, I always use Google to search online sources for my learning."*
>
> *"The Internet provides a huge of valuable information to students."*

Participants also expressed their ways of accessing peers' information as follows:

> *"Learning together offers a way to receive more information through a high level of interactions with each other."*
>
> *"We share information by uploading files on the LMS."*

4.2.2.2 Structure of Awareness

In this category, participants' attention centred on the process of accessing knowledge from knowledgeable sources. Knowledgeable sources residing in course materials provided by the teachers, information shared by other students, or online sources were

the focus of this category. Comments such as *"accessing to online instructional resources"* or *"accessing course material"* illustrated this conception.

The thematic field of awareness for this category was comprised of two aspects: a) acquiring information and b) particular learning context. Awareness concerning acquiring information referred to finding information in knowledgeable sources; for example, finding information in learning materials on the LMS. With regard to learning context, either or both the 'task context' and the resources themselves are to some extent 'provided' (by the teacher) in many of the scenarios being described. An example to illustrate a particular learning context would be searching online for information needed for a course of study or an assignment. In this sense, these aspects were related to the theme in the background. Some quotations illustrate this point:

> *"Accessing online instructional resources [on the LMS] ... is always important for a course"*
> *"...search online sources for my learning."*
> *"I found relevant learning sources for my projects on the Internet."*

The margin of this category was prior knowledge. Students might have some prior knowledge concerning the knowledgeable sources but it was not regarded as being an essential part of the theme. In this sense, students' prior knowledge was obviously co-present with the theme, and was located in the margin of awareness.

The structure of awareness of *resource access* is shown in Figure 4.2.
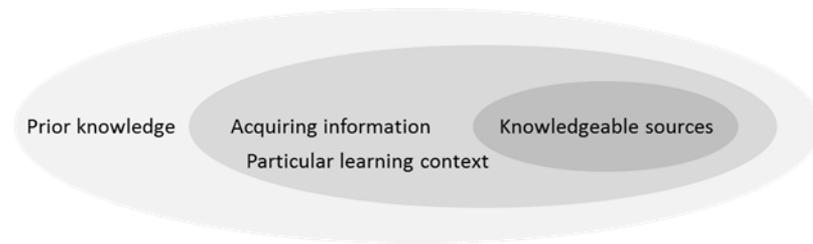
Figure 4.2 Structure of awareness for *resource access*

4.2.2.3 Dimensions of Variation

1. **Role of technology**

   The LMS was considered as an important tool for establishing connections with learning resources:

   "LMS is very important for my learning, course materials, teachers' and other students' contact information…"

   "LMS is a place for accessing online course material with features for connecting with other sources."

   "LMS serves as a tool for accessing course material, scholarships, tuition fees, etc."

   The connections with online learning resources on the LMS were described as "accessing", "reading" and "connecting". Furthermore, some responses in this category focussed on online opportunities outside the LMS, particularly finding learning resources on the Internet and social media:

   "Facebook groups were valuable sources for learning."

   "While an LMS is an important platform to deliver course content, Google is an important search engine in finding valuable resources."

"The Internet gives me free access to a wide range of information beyond course materials. There is a huge potential for finding valuable sources such as articles, slides and relevant course material. It makes my learning easier."

Those responses indicating this conception remarked on difficulties in assessing content quality when using the Internet for searching relevant information sources for their study:

"It is difficult to make a decision regarding the academic quality of a source."

"The Internet offers opportunities to find a lot of valuable information. However, some of information sources on the Internet are not reliable. They may mislead the understanding."

"An introduction to how to evaluate a site's validity as an academic resource is very helpful."

2. Role of teachers

This dimension of variation concerns the relationship between the teacher and the learning resources. The role of teachers within this conception was on providing both course materials on the LMS and recommendations about information to search for on the external Internet. This point is illustrated by the following quotations:

"The role of the teacher is not only to deliver content but also provide information and materials to students."

"I access online instructional resources provided by my teachers."

3. **Role of students**

   The role of students within this conception was on finding information in response to their perceived needs:

   "Resources found on the Internet were valuable. Without these resources, it was not possible to complete my final project."

   "We can upload files for our group on the LMS."

   "I access course materials on the LMS."

4. **Location of knowledge**

   The location of knowledge within this conception is associated with information and knowledge residing in knowledgeable sources:

   "We have to read materials before a lecture."

   "I find relevant sources for project on the Internet."

4.2.2.4 Summary

The category of description *resource access* is summarised in Table 4.2.

Resource Access	
Meaning Structure	*Key quotes*
The process of interaction between the student and learning resources	Read materials Accessing online course material Resources found on the Internet were valuable. Without these resources, it was not possible to complete my final project.
Structure of Awareness	
Theme: Knowledgeable sources *Thematic field*: Acquiring information and particular learning context *Margin*: Prior knowledge	
Dimensions of variation	

Role of technology
Establishing connections with learning resources
Role of teachers
Provide information and materials to students
Role of students
Searching for information that they have decided would help them
Location of knowledge
Information and knowledge residing in knowledgeable sources

Table 4.2 Summary for category of description – *resource access*

4.2.3 Knowledge Transmission

4.2.3.1 Meaning Structure

What was distinctive about this category was that the *transmission* of knowledge was brought to the fore – its movement from place to place, rather than the accessing of knowledge seen as a relatively 'stationary' resource. Another significant aspect of this category was the focus on the teacher-student interaction. It was likely that students perceived the teacher as a source of knowledge.

In viewing the transmission of knowledge, participants focussed on the teacher-student connection. The emphasis here was on transmission of knowledge and information from the teacher to students and the consequent utility for students; for example, the teacher gave a lecture and students listened and actively sought to understand:

> *"It is important to hear what the teacher says [...] in order to understand a lecture."*

Responses in this category tended to view the teacher as the main authority whose primary role was to provide the information and knowledge that would be actively appropriated. This point is illustrated by the following quotations:

"The lecture helps me understand the materials."

"I learn much from my teachers."

"My teachers have taught me how to resolve math problems."

Terms emerged such as *"helps me understand"*, *"hear what the teacher says"* or *"have taught me"* reflected the authority of the teacher as a source of knowledge within the learning process.

4.2.3.2 Structure of Awareness

When perceiving learning through relations as knowledge transmission participants' attention was directed towards the *process* of transmitting knowledge. Learning was experienced as information and knowledge that *resided in* the transmission process. The following quotation illustrates this perception:

"The lecture helps me understand the materials."

The thematic field of awareness for this category was the learning context. The learning context was co-present with the theme and was relevant to the theme in the sense that the awareness of knowledge transmission was contextualised as taking place in a particular academic setting such as a lecture.

The margin of awareness was associated with learning preferences. While every student might learn differently, it was not regarded as relevant for the theme of awareness.

Figure 4.3 depicts the structure of awareness of *knowledge transmission*.
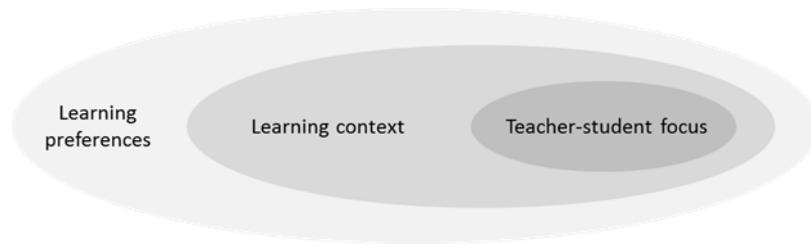
Figure 4.3 Structure of awareness for *knowledge transmission*

4.2.3.3 Dimensions of Variation

1. Role of technology

The technology, particularly email and phone, was considered as a medium for communicating with the teacher outside the classroom:

"I communicate with my teachers by phone and email."

2. Role of teachers

The role of teachers within this conception was on giving 'lectures' that helped students understand the course materials. As such, the role of the teacher was perceived as a resource person, authoritatively transmitting knowledge and information to assist students. The following quotations illustrate how students perceived learning through relations as a one-way process with its emphasis on the teacher and not on students:

"I can ask teachers to explain materials."

"If we can't find a solution to a problem, we can ask the teacher."

"I would have the teacher-centred instruction, because this instruction allows the teachers do a number of assessments of each student's progress. These assessments help us evaluate our understanding. As a result, we can understand what is wrong and right in order to develop ourselves."

3. Role of students

Students were viewed as recipients of the teacher's knowledge. Their primary role seemed to be receiving knowledge and information from the teacher. In one sense, the role of students is occasionally conceived as relatively more passive in this category than for the previous category (where they actively 'accessed' resources):

"As a student, I have to listen to my teachers."

Of course, students are often not entirely passive, because they are interested in being recipients of information for stated purposes of their own.

4. Location of knowledge

This category was associated with knowledge and information initially located with the teacher, with learning situated in the process of transmission from teacher to students.

"The lecture is important to understand course work."

4.2.3.4 Summary

The category of description *knowledge transmission* is summarised in Table 4.3.

Knowledge Transmission	
Meaning Structure	*Key quotes*
The transmission of knowledge from the teacher to students	Ask teachers to explain materials Listen to my teachers The lecture helps me understand the materials.
Structure of Awareness	
Theme: Teacher-student focus *Thematic field*: Learning context *Margin*: Learning preferences	
Dimensions of variation	

Role of technology
A communication medium between the teacher and students, particularly outside the classroom
Role of teachers
The main authority of the learning process
Passing knowledge and information to students
Role of students
Recipients of the teacher's knowledge
Location of knowledge
Learning resides in receiving knowledge from the teacher

Table 4.3 Summary for category of description – *knowledge transmission*

4.2.4 Knowledge Construction

4.2.4.1 Meaning Structure

This category was characterised by making meaning through relations in which it differentiated itself from the two previous categories by focusing on learning through relations among students. Responses in this category perceived learning through connections as a means of making meaning – through social *interactions*. For example, a group-based assignment was perceived as one such opportunity to promote making meaning through connections among students:

> *"A group-based assignment involves information gathering, idea generation, discussions and problem solving. This form of learning focuses on sharing information and exchanging knowledge and experience through interactions and relationships among group members. It is important that all members should contribute to the group-based assignment."*

Responses in this category described relatively active processes of knowledge construction. Firstly, an emphasis was placed on the value of discussions:

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"I think… discussions are an essential aspect of learning in relation to others because this helps us to expand our horizons."

"During discussions with others, I have opportunities to reflect their points of view to better understand mine."

Secondly, joint efforts to complete a learning task such as a group-based project encouraged students to share knowledge and information sources. The following quotations illustrate the meaning associated with this perception:

"A group-based assignment involves information gathering, idea generation, discussions and problem solving."

"Group members bring into the learning group their knowledge and prior experience that can contribute to the knowledge sharing process."

"The knowledge sharing process occurs through interactions in terms of discussions and posting materials to each other group member. It is an opportunity for me to gain access to materials and to understand others' meaning."

4.2.4.2 Structure of Awareness

Meaning making was the distinctive characteristic of this category. Participants' attention was directed towards meaning making through social interactions with others:

"I enjoyed learning with others in a group when members were committed to help each other and shared interests through discussions. As a result, meaning could be generated through the discussions."

The thematic field of awareness for this category was comprised of two aspects: a) social interaction and communication and b) prior knowledge.

With regard to awareness of social interaction and communication, responses in this category perceived discussion, feedback, sharing ideas and information, and helping together as essential parts of a process of knowledge construction:

> *"Discussions are an essential aspect of learning in relation to others."*
> *"I could comment, share and discuss a topic with other students on a discussion forum."*

With regard to prior knowledge, students were aware of the influence of that prior knowledge in processes of knowledge construction:

> *"Prior knowledge may influence the way a group works because a member who has prior knowledge of a subject tends to act as group leader. Other members follow him or her."*

Together these two aspects were simultaneously present in awareness, and formed the background out of which meaning making emerged as the theme of awareness.

The margin of awareness for this category was digital literacy: the skills and competences to use digital and communication technology in the processes described. This aspect remained on the periphery of the structure of awareness.

The structure of awareness of *knowledge construction* is shown in Figure 4.4.
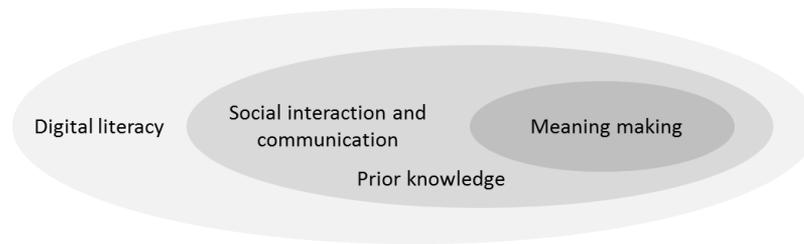
Figure 4.4 Structure of awareness for *knowledge construction*

4.2.4.3 Dimensions of Variation

1. Role of technology

This dimension of variation describes the role of technology as a medium for social interaction and communication among students. Those responses indicating this conception perceived that communication and interaction might take different forms such as email, phone calls, and online conversations and group discussions:

"We could interact with others on social media. When I need some information, I ask others on an online forum, for example a group on Facebook. If someone has relevant or interesting material, he/she also posts it online so others can read it."

"For a group-based project, we use Facebook as a tool for sharing and exchanging learning sources."

2. Role of teachers

The role of the teacher here was to assign students their task and work context (such as a group-based project):

"In group work, the teacher assigns students to groups that encourage us to work together."

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3. **Role of students**

Students described engaging in social interaction and communication in the learning process: discussion, feedback and dialogues were perceived as integral components here. For example, the opportunity to read feedbacks of others was seen as an opportunity for exploring a matter from different points of view:

"In many situations, I have had opportunities to receive feedback on a question or an idea. As a result, I have benefited from interactions with others because I could see a matter from a wide range of perspectives."

Another important aspect of this dimension seeing learning as an opportunity to 'help together':

"Helping together in learning... Learning with others can provide more information to each other to serve learning."

"Students who bring academic experiences to the group can help other students in understanding a subject...For me, I can benefit from others' prior knowledge or experience with a subject...."

4. **Location of knowledge**

The focus here was on making meaning through connections:

"During discussions with others, I have opportunities to reflect their points of view to better understand mine."

"Connections with each other were a way towards jointly solving a problem. We participated in discussions and contributed to our project in terms of what knowledge and information we had. The aim was completing the project on time."

4.2.4.4 Summary

The category of description *knowledge construction* is summarised in Table 4.4.

Knowledge Construction	
Meaning Structure	*Key quotes*
Making meaning	Discussions are an essential aspect of learning. I could comment, share and discuss a topic with other students on a discussion forum.
Structure of Awareness	
Theme: Meaning making	
Thematic field: social interaction and communication and communication, and prior knowledge	
Margin: Digital literacy	
Dimensions of variation	
Role of technology	
Technology plays an important role in mediating two-way interaction and communication for students.	
Role of teachers	
The teacher involves students in group works in a particular learning context such as a formal academic setting.	
Role of students	
Students participate in learning activities with other students. The students are committed to share information and knowledge.	
Location of knowledge	
Learning resides in meaning making with others. It takes place in discussions and dialogues.	

Table 4.4 Summary for category of description – *knowledge construction*

4.2.5 Conclusion

The analysis of the data uncovered three qualitatively different categories in which learning through relations was perceived. These categories of description focussed on learning through relations with resources, tutors and students; and are related within a hierarchy of inclusiveness (Figure 4.1). *Resource access* conceived learning through relations as accessing knowledgeable sources. Emphasis was given to resources on the LMS in particular. *Knowledge transmission* involved the movement of knowledge from teacher to students, with the teacher perceived as source of knowledge and student as

having some goal associated with that knowledge. *Knowledge construction* focussed on students engaged in communication to construct meaning.

4.3 Roles of Technology in Mediating Learning through Connections

4.3.1 Overview of the Findings

The categories of description for conceiving the roles of technology in mediating learning through connections are as follows:

- *Flexibility*;

- *Tool*; and

- *Medium*.

Those categories are differentiated from each other by the variation of two dimensions: particular context and the use of technology. The first dimension concerns situations in which students use ICT for learning through connections. The second dimension describes particular ICT tools that students use for learning through connections. It should be noted that digital literacy among participants did not vary greatly. The findings found that the level of digital literacy had little impact on how technology was used for learning through connections.

The outcome space presents the logical relationships between categories of description as constituting an inclusive hierarchy, whereby 'less sophisticated' categories are subsumed by 'more sophisticated' categories. That outcome space is illustrated in Figure 4.5.
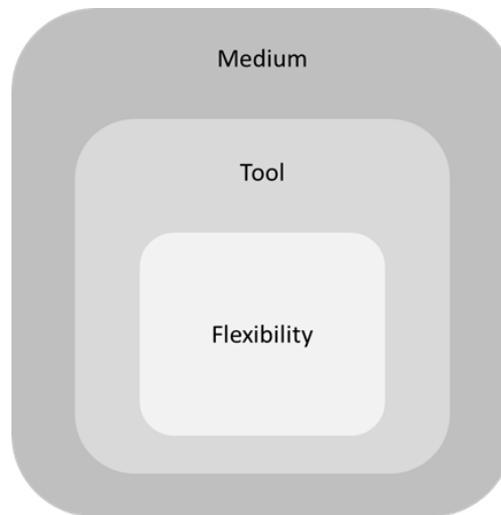
Figure 4.5 Outcome space – *Roles of Technology in Mediating Learning through Connections*

Flexibility was the least sophisticated conception, where the flexibility of time and place was in focus. Effectively what is being conceived is the opening up of a greater range of possibilities or opportunities, or conversely the removal of prior constraints, in a relatively generic way – actual practices are not foregrounded. In the second category of description *tool*, the focus was on the LMS as a tool for mediating learning through connections. In other words, the category is based around a conception that highlights the tool itself and advocates the necessity of tool use for functional purposes. In the third category of description, *medium,* the focus was different. Those students adopting the third conception *medium* focussed on two-way communication with a focus on the social aspects of communication. It was relatively the most sophisticated conception of experiencing the roles of technology in mediating learning through connections.

The margin of awareness for all three categories was comprised of two aspects: a) digital literacy and b) prior experience. Digital literacy was obviously not an essential part of the theme, but it was co-present with the theme and thus situated in the margin of awareness. Awareness concerning prior experience was also co-present with the theme. Participants might have some prior experience about using technology for

learning through connections, but it was not regarded as being appropriate for a given context that the participants were insisting on. In this sense, prior experience relating to the theme was not seen as being relevant, and was therefore also located in the margin of awareness.

4.3.2 Flexibility

4.3.2.1 Meaning Structure

In this category the roles of technology in mediating learning through connections can be expressed as *flexibility* in terms of opportunities of learning through connections at their own pace and at any time:

> *"We do discussions online. A Facebook group becomes a discussion board."*
>
> *"Technology serves learning with online resources from anywhere at any time. We can share resources with others on Facebook."*

Learning through connections can take place using synchronous and asynchronous communication. Synchronous communication provides opportunities for students to discuss online (e.g., instant messaging), whereas asynchronous tools allow students to connect to the group members without the constraints of time and place:

> *"I am able to interact with other students at any time through email, phone calls and social media."*
>
> *"Technology offers opportunities for both online and offline communication channels."*

Those responses indicating this category also expressed flexibility as a means of accessing learning materials without the constraints of time and place:

"Online resources allow me to explore learning materials at my own pace at any time."

"Technology serves learning with online resources from anywhere at any time."

4.3.2.2 Structure of Awareness

In this category, participants' attention was directed towards the *flexibility* of time and place:

"Technology connects us on online discussions. We can read and post messages at any time."

"We can share information at any time."

The thematic field of awareness for this category included asynchronous and synchronous communication which was co-present with the theme but not the focal point of awareness. Rather, this formed the background of awareness. Awareness concerning asynchronous and synchronous communication referred to the fact that technology offers opportunities to students who can potentially interact and communicate with each other from anywhere at any time. This can be accomplished through both online and offline communication channels:

"Technology places an important role in interaction and communication. We can communicate through emails, phone calls or share information on social media at any time."

The structure of awareness of *flexibility* is presented in Figure 4.6.
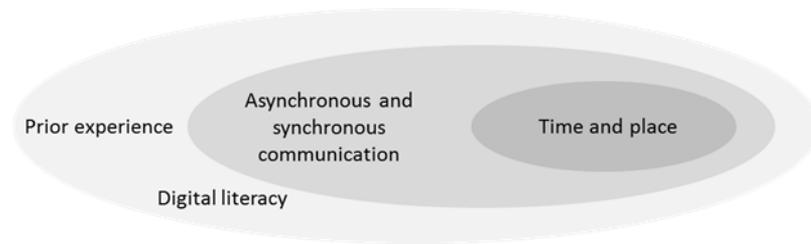
Figure 4.6 Structure of awareness for *flexibility*

4.3.2.3 Dimensions of Variation

1. **Particular context**

   This dimension concerns communication in different contexts. Those responses indicating this conception described engaging in learning through connections in both online and offline contexts:

   "I think…the advantages of using technology both inside and outside the classroom lie in supporting both synchronous and asynchronous communication. This is important because it provides the possibility for collaboration in both online and offline contexts."

   "Facebook became a discussion forum for our project at any time."

2. **Use of technology**

   This dimension describes the role of technology in diverse contexts such as human-human interactions and human-resources interactions. Those responses indicating this conception conceived that technology offers opportunities for learning through connections without the constraints of time and place:

   "Technology facilitates asynchronous and synchronous communication. This is important for creating and maintaining connections to others from anywhere."

"The LMS allows us to upload files to a virtual place. In this way we can share our work with other students at any time."

They also used asynchronous and synchronous communication in different situations. Some comments from students illustrate the meaning associated with this point as follows:

"I contact my teachers by phone and email."

"Facebook became a discussion forum for our project."

"We do discussions online. A Facebook group becomes a discussion board."

4.3.2.4 Summary

The category of description *flexibility* is summarised in Table 4.5.

Flexibility	
Meaning Structure	*Key quotes*
Flexibility is in focus	Technology facilitates asynchronous and synchronous communication. The LMS allows us to upload files…. Facebook became a discussion forum for our project.
Structure of Awareness	
Theme: Time and place	
Thematic field: Asynchronous and synchronous communication	
Margin: Prior experience, and digital literacy	
Dimensions of variation	
Particular context	
This dimension of variation concerns communication in different contexts.	
Use of technology	
Asynchronous and synchronous communication and collaboration without the constraints of time and place	

Table 4.5 Summary for category of description – *flexibility*

4.3.3 Tool

4.3.2.1 Meaning Structure

Rather than focusing on opportunities of learning through connections without the constraints of time and place as in the previous category, those responses indicating this category perceived the roles of technology in mediating learning through connections as a *tool*, particularly LMS as a tool for learning through connections. A pair of quotations below illustrated the meaning associated with this point:

> *"The LMS is an online space that allows us to access course materials, upload files and contact other students and teachers."*
>
> *"LMSs and social media such as Facebook, discussion boards are valuable tools for exploring a topic together."*

Those responses indicating this category perceived the LMS as a virtual space for learning through connections that allows them to communicate and interact with others:

> *"I value discussions with my peers online as I can review my understandings."*
>
> *"Course materials and contact information are found on the LMS."*
>
> *"We upload and share files with others on the LMS."*
>
> *"We can find other students' contact information on the LMS."*

Teachers also made courses available on the LMS so that students could access course materials online:

> *"At the beginning of a term, I have to enrol for some courses on an LMS. Each course has its own place on the LMS, so that it is able to read course material at any time. It is also possible to find someone for asking something if needed."*

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4.3.2.2 Structure of Awareness

Responses in this category focussed on the use of the LMS for learning through connections. Some comments were made by students as follows:

> *"The LMS is important for student learning. Teachers upload course materials for students, and students can share materials and communicate with other students. It is a space that connects teachers with their students and among students."*
>
> *"The LMS allows us to upload files to a virtual place. In this way we can share our work with other students."*

The thematic field of awareness for this category was the incorporation of LMS into the teaching and learning practices. Responses in this category perceived the LMS as the university's space for both human-human and human-resources interactions. This aspect of awareness was co-present with the theme but not in focus. It was thus situated in the background of awareness for this category. This point is illustrated by the following quotation:

> *"The LMS is necessary, because it facilitates access to learning content, and teachers' and students' contact information. All students have been issues with a username and password to access the LMS."*

The structure of awareness of *tool* is shown in Figure 4.7.
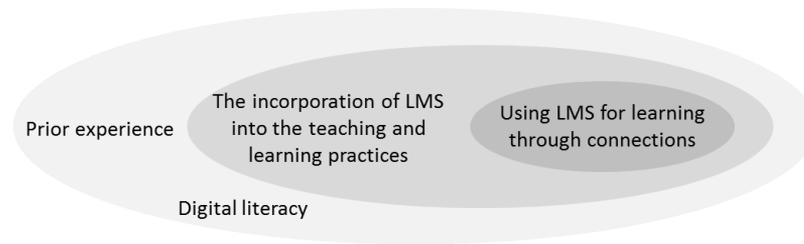
Figure 4.7 Structure of awareness for *tool*

4.3.2.3 Dimensions of Variation

1. Particular context

The technology was considered as a tool for learning through connections in different contexts:

"With regard to my projects, the LMS has provided me opportunities to find relevant sources. The relevant sources have been in many different forms, either learning material, online articles, teachers, and students or asking questions on forums."

"In general, technology does an overall good job in providing tools that facilitate collaboration. This allows us to explore a particular subject from different angles."

2. Use of technology

Those responses indicating this conception described the LMS as a tool for their learning in a sense of accessing to course material and connecting to other students and teachers:

"Online sources are not only online texts…they are also about asking others and teachers about a matter. From my experience, I use the LMS to request information from my friends or ask my teachers about the course material."

"We can find other students' contact information on the LMS."

"LMS is a place for accessing online course material with features for connecting with other sources."

Communication and interaction could be undertaken on shared virtual places on the LMS:

"I post relevant materials to my group on the LMS."

4.3.2.4 Summary

The category of description *tool* is summarised in Table 4.6.

Tool	
Meaning Structure	*Key quotes*
The role of technology as a tool for mediating learning through connections.	Teachers upload course materials for students, and students can share materials and communicate with other students. It is a space that connects teachers with their students, and connects students with students. I post relevant materials to my group on the LMS.
Structure of Awareness	
Theme: Using LMS for learning through connections	
Thematic field: The incorporation of LMS into the teaching and learning practices	
Margin: Prior experience and digital literacy	
Dimensions of variation	
Particular context	
Retrieving course materials or connecting to teachers and other students	
Use of technology	
The use of technology as a tool for both human-resources and human-human interactions with an emphasis on LMS.	

Table 4.6 Summary for category of description – *tool*

4.3.4 Medium

4.3.4.1 Meaning Structure

This category has some superficial similarity with the previous category since it is also characterised by the use of technology for learning through connections. But there are important differences between them as well. Those responses indicating this conception focussed on a different aspect of technology on learning through connections compared to the previous one. While the previous category focussed on the LMS as a *tool*, this category of description was dominated by the importance of *two-way communication* with a focus on the social aspects of communication:

> *"Technology facilitates both formal and informal interactions. Social media do more far than simply connect students. In fact, we share information, post comments, write responses, give our opinions and discuss a matter. As a result, we could build social relationships."*
>
> *"Technology supports communication. Email, chat and phone are important in keeping in touch with teachers and other group members."*

For example, social media were seen as medium communication tools for online learning through connections:

> *"Social media such as Facebook, discussion boards are valuable tools for exploring a topic together because these tools let us to share and spread our ideas and meanings to each other. In this sense, we could compare different understandings or perspectives to find differences as well as similarities."*
>
> *"We had a course group on Facebook that connected students for discussion and communication around a course work or a subject of interest."*

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Those responses indicating this conception also centred their focus on the role of technology in mediating the connection between students and teachers:

"...Email, chat and phone are important in keeping in touch with teachers..."

4.3.4.2 Structure of Awareness

Responses in this category brought the communication *medium* to the fore of awareness. In this category, the theme centred on the process of establishing communication through social interactions between two or more students, and between students and teachers. The communication might be synchronous (cell phones or instant messaging) and asynchronous (e.g., email, sharing information on virtual places).

The thematic field of awareness for this category was social aspects. Awareness concerning social aspects referred to social context in which communication took place. This context was associated with the experience and was thus relevant to the theme of awareness but not in focus. Therefore, it formed the background of awareness and was situated in the thematic field. Some examples to illustrate a social context would be discussion:

"We do discussions online. A Facebook group becomes a discussion board."
"Facebook can keep me updated with the latest information of my group."
"I read and respond to posts on my learning group on Facebook."
"Individuals are able to practise language with others online."
"Technology helps me learn English with others online."

The structure of awareness of *medium* is presented in Figure 4.8.
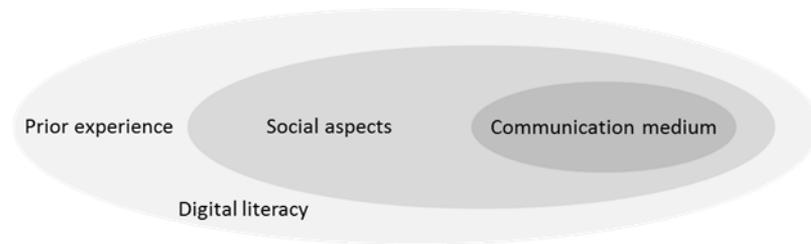
Figure 4.8 Structure of awareness for *medium*

4.3.4.3 Dimensions of Variation

1. Particular context

The focus here was on different contexts, in which learning through connections was situated:

"In many ways, technology helps students interact together around a project."

"The emergence of networked technologies provides ways to support online social interactions. Social interaction is an important aspect of learning…because social interactions involve sharing, engagement, conversation and discussion. Technology transmits ideas, opinions and information to each other. As a result, information can be distributed to each other."

"Technology supports instructional methodologies such as a group-based instruction. The use of technology allows us to connect to others. If I want to find others for networking, I could find them on Facebook. A group on Facebook helps to organise group members around a particular subject."

"PowerPoint and Word are useful for presenting our project."

2. Use of technology

The technology was perceived as a medium for both synchronous and asynchronous communication:

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"In fact, we share information, post comments, write responses, give our opinions and discuss a matter."

"We do discussions online. A Facebook group becomes a discussion board."

"Facebook is a place where we can share and discuss issues related to our project."

Those responses indicating this conception seemed to use different forms of communication that were best-suited for different people, and for different purposes:

"Email, phone and a Facebook group are important for us to collaborate together on a group-based assessment. We created a group on Facebook for collaborating group members."

"Feedback on my knowledge is important to me because it helps me to see a matter from a more comprehensive point of view."

"Technology opens up possibilities in group work that strengthen collaboration among group members. Technology supports asynchronous and synchronous communication. Google drive, for example is used to sharing files."

"I contact with my teachers via emails and cell phones."

"Technological tools allow us to represent our ideas or arguments in a way that let others to be able to read, discuss and comment; for example, discussion forum is an example. People can read, commend and reply to each other's view of point. PowerPoint is another example for group presentation."

4.3.4.4 Summary

The category of description *medium* is summarised in Table 4.7.

Medium	
Meaning Structure	**Key quotes**
The role of technology as a medium for mediating learning through connections.	Technology facilitates both formal and informal interactions. I contact with my teachers via emails and cell phones. Email, phone and a Facebook group are important for us to collaborate together on a group-based assessment.
Structure of Awareness	
Theme: Communication medium *Thematic field*: Social aspects *Margin*: Prior experience and digital literacy	
Dimensions of variation	
Particular context	
This dimension of variation concerns different contexts in which learning through connections is situated.	
Use of technology	
The use of technology as a medium for both synchronous and asynchronous communication	

Table 4.7 Summary for category of description – *medium*

4.3.5 Conclusion

The analysis of the data revealed three qualitatively different categories in which the roles of technology in mediating learning through connections were perceived. These categories of description are related within a hierarchy of inclusiveness (Figure 4.5). *Flexibility* conceived the role of technology in providing students greater flexibility in learning through connections in terms of time and place.

Tool emphasised the role of LMS as a tool for learning through connections. This category was frequently presented in the data, being coded 14 times, meaning that it was among the most frequently occurring categories.

Medium focussed on the role of technology to support both synchronous and asynchronous communication in different contexts of learning through connections.

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4.4 Cooperation in Learning

4.4.1 Overview of the Findings

The categories of description for conceiving cooperation in learning are as follows:

- *Group work*;

- *Exploratory learning*; and

- *Directing learning*.

Those categories are differentiated from each other by the variation of four dimensions: learning context, learning outcomes, role of teachers, and role of students. The first dimension concerns the learning context in which cooperation in learning is situated. The second dimension addresses how cooperation in learning is perceived in relation to learning outcomes. The third dimension focuses on what ways teachers are involved in cooperation in learning. The fourth dimension looks at how students are involved in cooperation in learning.

The outcome space depicts the logical relationships between categories of description as constituting an inclusive hierarchy of increasing complexity. A more complex experience was relatively considered to include the less ones. That outcome space is illustrated in Figure 4.9.
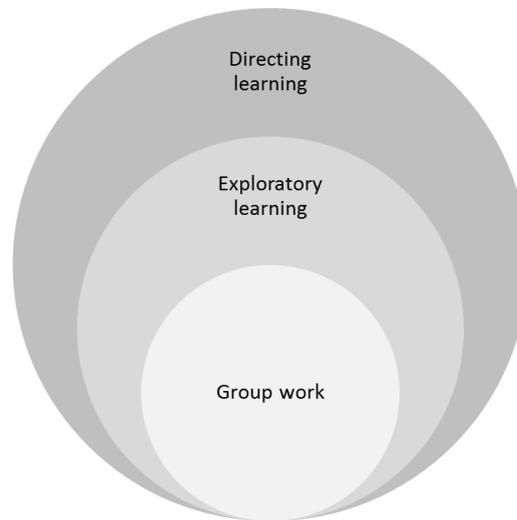
Figure 4.9 Outcome space – *Cooperation in Learning*

Group work was the least complex category: where cooperation was conceived as form of formal learning involving doing course project work – where setting targets to ensure that group members contributed determines to a great extent the purpose and the way of learning together in groups. Exploratory learning is a more complex category in which the focus of the conception is on a form of learning where friends come together outside the formal course structures and formed a learning group to explore a given topic in a way that aims to help individual students to perform better within the formal course. Directing learning, the category based around the most complex conception, emphasises learning processes in which students take control of their own learning and engage in learning with others in an online learning community.

The margin of awareness for all three categories was prior knowledge and experience. Participants might have some prior knowledge and experience about cooperation in learning, but it was not regarded as being appropriate for a given context that the participants were insisting on. Therefore, prior knowledge and experience was located in the margin of awareness. For this reason, the description of the categories' structures of awareness was primarily given to the theme and the thematic field of awareness.

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4.4.2 Group Work

4.4.2.1 Meaning Structure

In this category, cooperation in learning is perceived as *group work*: a form of learning to do project work. A group based assignment or report was the focus of this category:

> *"For me, cooperation in learning is working in groups. In some courses, working in groups was an integral part of learning."*
>
> *"I think cooperation in learning is about assigning students to groups and have them work together to complete a learning task."*

In a group setting the principles of goal setting seemed to determine the purpose and the way of learning together in groups. Responses in this category emphasised the aim of contributing their knowledge to solve a group-based project and assignment:

> *"Everyone contributed in different ways to the completion of a project, but learning occurred in groups. It took place in group discussions of concepts or finding solutions to problems together."*

4.4.2.2 Structure of Awareness

Responses in this category brought a group-based project to the fore of the awareness. They referred to group work as a group of students working together towards the overall group goal:

> *"The teacher posted assignment topics and then groups were assigned…We looked towards working in groups on our assignment."*
>
> *"We had to write a group report together."*

The thematic field of awareness for this category was comprised of two aspects: a) an integral part of a course and b) a common goal. These aspects were simultaneously present in awareness and were associated with the experience in the sense that they provided a means for why and how students working together in groups, but not in focus. More specifically, awareness concerning to an integral part of a course referred to a particular learning context (a required part of a course) in which cooperation in learning was situated. Similarly, this form of learning was directed towards working in groups to solve a common goal.

The structure of awareness of *group work* is presented in Figure 4.10.
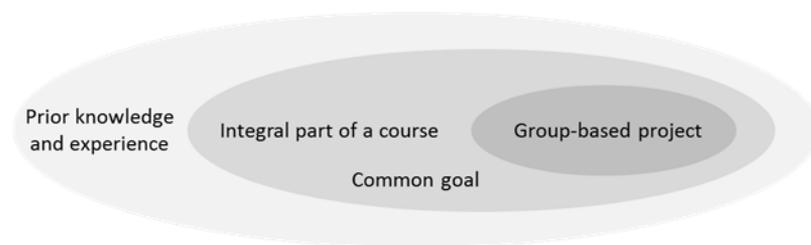
Figure 4.10 Structure of awareness for *group work*

4.4.2.3 Dimensions of Variation

1. **Learning context**

   This dimension of variation describes the learning context within which cooperation in learning is situated. There are certain conditions necessary for this form of learning to occur. One such condition is that this form of learning took place in the formal learning setting, e.g., being a part of a course. Another condition is that all group members work on the same project and share a common goal. For this reason, group members are encouraged to work together in achieving the overall group goal. The following quotations illustrate the meaning associated with this point:

"In some courses, working in groups was an integral part of learning."

"When groups have been assigned by the course teacher, I might not know each other well...But I tried to build social relationships to other group members because the purpose was to learn together and support each other to work towards the assignment objectives and course requirements."

2. Learning outcomes

The focus here was on cooperation in learning in order to achieve a common goal such as a group report:

"We had to write a group report together."

"Everyone contributed in different ways to the completion of a project, but learning occurred in groups. It took place in group discussions of concepts or finding solutions to problems together."

Those responses indicating this conception expressed a sense of a 'goal' as follows:

"I think it is important that one can contribute to the group project because we have to submit our report on time."

"It is important to work with others and helping other members to achieve our goal."

3. Role of teachers

The role of teachers within this conception was on asking students to work together on a project:

"The teacher posted assignment topics and then groups were assigned…We looked towards working in groups on our assignment."

The group formation could happen in two different ways, depending on the task set for the groups. The first one allows students to choose from a number of pre-set topics. Groups are formed based on these pre-set topics. The second one is based on random appointment. Teachers may use some form of random appointment to organise groups. This point is illustrated by the following quotation:

"The group formation is determined by many factors. Sometimes each group is associated with a pre-defined topic. For example, students who are interested in the same topic are assigned in the same group. On the other hand, some teachers use a random method to assign students into groups. For example, groups are formed by combinations of random numbers."

The role of teachers was also considered for the purposes of supporting and advising:

"If we got stuck on an issue, we can ask our teacher."

4. **Role of students**

The role of students within this conception was on working together for achieving the overall group goal:

"As a group member, I have always seen my role as a contributor, working with others and helping other members to achieve our goal."

Those responses indicating this conception focussed on group members' contribution to the group task:

"Although each member was expected to take on different responsibilities of the assignment, but some were passive recipients due to the expectation that others would take a leadership role in the group."

"The interactions with others were sometimes formal, participating in group meetings and sometimes informal such as email, chat, discussions on a forum or phone calls. Phone calls and Facebook were most used."

They also described a dominant role in group work:

"There is always one who is responsible for co-ordinating the group assignment… he/she unites group members in working towards the completion of the group assignment."

4.4.2.4 Summary

The category of description *group work* is summarised in Table 4.8.

Group Work	
Meaning Structure	*Key quotes*
Learning in (small) project-based groups	The teacher posted assignment topics and then groups were assigned…We looked towards working in groups on our assignment. We had to write a group report together.
Structure of Awareness	
Theme: Group-based project *Thematic field*: Integral part of a course and common goal *Margin*: Prior knowledge and experience	
Dimensions of variation	
Learning context	
Group work takes place in the formal learning setting (e.g., a part of a course).	
Learning outcomes	
Achieving an overall group goal	
Role of teachers	
Allocating students into groups	

Supporting and advising students
Role of students
Group members are assigned a particular project.
Participating in the learning process with others

<div align="center">Table 4.8 Summary for category of description – group work</div>

4.4.3 Exploratory Learning

4.4.3.1 Meaning Structure

This category differed from the previous category primarily in that the focus was on a form of learning in which some friends came together and formed a learning group to explore a given topic, rather than focusing on working in groups in a formal academic setting.

A group of friends discussing a lecture is an example of this form of learning:

> *"I discuss the course materials with my friends."*

Those responses indicating this category perceived friendships as opportunities to cooperate in learning:

> *"The purpose of our group learning is to explore a given subject together…If I asked others for help, some of them helped me either in forms of information or sharing experience with me."*

4.4.3.2 Structure of Awareness

The theme of awareness found in this category was *exploratory learning. Exploratory learning* in this category could be seen as a learning process, engaging a group of

friends in working together, to study or examine new material with the purpose of exploring a particular matter:

"We [a group of friends] explore a topic of interest together."

The friendship was probably presented as an important factor for this form of learning to occur but as thematic, because it was not in focus. Rather, it was part of the relevant context for the theme. This perception is illustrated by the following quotations:

"Learning with friends on a particular subject can be a valuable learning experience."

"My friends and I created a learning group. We help together to understand difficult materials."

The structure of awareness of *exploratory learning* is shown in Figure 4.11.
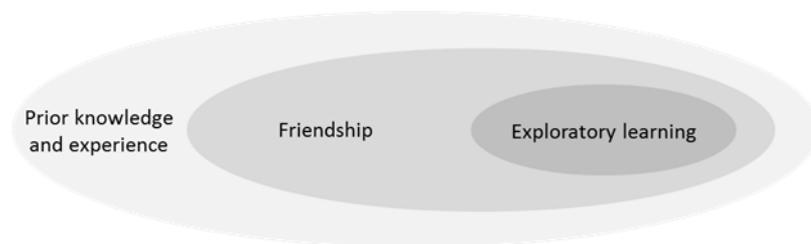
Figure 4.11 Structure of awareness for *exploratory learning*

4.4.3.3 Dimensions of Variation

1. **Learning context**

   This dimension of variation concerns the relationship between students. The friendships among them were found to be an important factor for *exploratory learning* to occur. The following quotation provides an example associated with this meaning:

"I like to share ideas, experiences and resources with my friends…I actually enjoy learning with them."

2. Learning outcomes

The focus here was on exploring a given topic together such as difficult materials:

"My friends and I created a learning group. We help together to understand difficult materials."
"We learn together on a given subject such as a course material."

Sharing and exchanging information and knowledge were seen as important characteristics in this view of cooperation in learning:

"Learning in groups of friends brought some benefits to me..., at least, I could ask those who have more knowledge or experience of a subject than mine."
"Retrieving others' information and learning with others were necessary for my learning experience."
"Learning with others [friends] has clear benefits, because it provides an opportunity to receive or exchange information and knowledge with one another. As a result, it could help to understand the course materials better, particularly, for those who are new students or those who do not understand the materials well."

There was recognition that group members could bring their own prior experience and knowledge to the group:

"All group members have the chance to contribute to the group. All group members benefit from others' information and knowledge."

3. Role of teachers

The learning situation within this conception are not structured and given by the teacher. Rather, the learning situation are organised by a group of friends:

"My friends and I created a learning group. We help together to understand difficult materials."

4. Role of students

The role of students within this conception was on engaging in a learning group of two or more friends to explore a given topic. Sharing knowledge and information were considered as critical elements for *exploratory learning* to occur:

"Each member was expected to contribute in different ways, but sharing knowledge and information were important to support the growth of individual knowledge."

Group meetings, email, phone, text messaging and social media emerged as common ways for them to communicate with one another:

"We share information on Facebook."
"We have group meetings and also communicate by cell phones and email."

4.4.3.4 Summary

The category of description *exploratory learning* is summarised in Table 4.9.

Exploratory Learning	
Meaning Structure	*Key quotes*
Some friends come together and form a learning group to explore a given topic together.	My friends and I created a learning group. I like to share ideas, experiences and resources with my friends. We help together to understand difficult materials.

Structure of Awareness
Theme: Exploratory learning
Thematic field: Friendship
Margin: Prior knowledge and experience
Dimensions of variation
Learning context
The learning situation is organised by a group of friends (cooperation among friends to explore a particular topic together).
Learning outcomes
Sharing and exchanging information and knowledge Exploring a given topic together, e.g., difficult materials
Role of teachers
The role of the teacher in supporting this form of learning is less attention. Rather, an emphasis is placed on students who take the initiative without guidance of the teacher.
Role of students
Students take the initiative to participate in learning with their friends.

Table 4.9 Summary for category of description – *exploratory learning*

4.4.4 Directing Learning

4.4.4.1 Meaning Structure

In this category cooperation in learning is perceived as a means of *directing learning*: a learning process in which students take control of their own learning and engage in learning with others in an online learning community. The term 'community' here is seen as a group of students who are connected by a particular subject or topic. The following quotations illustrate the meaning associated with this perception:

> *"Cooperation in learning is about participating in a learning community that focuses on a particular subject such as a course. It allows community members helping together to explore and discuss the subject. This form of learning may help to understand the subject better."*
>
> *"Cooperation in learning is about an interest group on Facebook."*

Social media appeared to be important for exchanging and sharing knowledge within an online learning community:

> *"We organised a group on Facebook that encouraged members in participating in discussions by posting information or ideas on Facebook so everyone could read, answer and comment on the posts."*
>
> *"We created a learning community on Facebook in order to discover a subject together. Facebook offers an opportunity to connect with each other on the subject."*
>
> *"An online learning community is a virtual place where we can share, exchange and discover the subject together. For example, someone found a good article; he/she might share this article to each other by posting it to the Facebook."*

What was distinctive about this category was that participants took the initiative to address their learning needs and identify resources for learning:

> *"I am interested in participating in online learning communities if they have relevance to my interests or my subjects of study."*
>
> *"My reasons for learning with others in online communities are opportunities for participating in discussions, and sharing information and ideas."*

Those responses indicating this category valued learning with others in an online learning community because they believed that this form of learning might bring more benefits to them than learning alone:

> *"We could benefit when exploring diverse viewpoints from others with varied backgrounds."*
>
> *"We share our experience and information on Facebook."*

4.4.4.2 Structure of Awareness

Directing learning was the distinctive characteristic of this category. Participants' attention was directed towards learning with others in online learning communities:

> *"My reasons for learning with others in online communities are opportunities for participating in discussions, and sharing information and ideas."*

The thematic field of awareness for this category was *learning needs*. Awareness concerning *learning needs* referred to an aspect related to the theme but not in focus. In this category, the *learning needs* could be described as, for example "sharing information", where participants used an online community to share information and ideas, or "discussion", where participants perceived an online community as a means of a virtual space for discussing a given subject. The following quotations illustrate the meaning associated with this point:

> *"An online learning community is a virtual place where we can share, exchange and discover the subject together."*
> *"My reasons for learning with others in online communities are opportunities for participating in discussions, and sharing information and ideas."*

The structure of awareness of *directing learning* is presented in Figure 4.12.


Figure 4.12 Structure of awareness for *directing learning*

4.4.4.3 Dimensions of Variation

1. **Learning context**

   This dimension of variation concerns a learning context in which a student sets out learning goals and identifies an online learning community familiar to them:

   "My reasons for learning with others in online communities are opportunities for participating in discussions, and sharing information and ideas."

2. **Learning outcomes**

   Those responses indicating this conception valued learning with others in an online learning community:

   "We could benefit when exploring diverse viewpoints from others with varied backgrounds."

   "We organised a group on Facebook that encouraged members in participating in discussions by posting information or ideas on Facebook so everyone could read, answer and comment on the posts."

   "We practise communication skills in English in a learning community."

3. **Role of teachers**

   Participants took the initiative to learn with others independently, without the assistance of the teacher:

   "We organised a group on Facebook around a particular subject."

   "My reasons for learning with others in online communities are opportunities for participating in discussions, and sharing information and ideas."

4. Role of students

The role of the student here was to take the initiative to engage in learning with others in an online learning community such as a group of students on Facebook (either related to course materials or related to similar interests). Those responses indicating this conception understood their learning needs and sought interactions with other members on the online learning community. "*Participating in discussions*" or "*we can share, exchange and discover the subject together.*" are examples that illustrate this point.

Students described engaging in learning with others in online learning communities such as:

"*We practise communication skills in English in a learning community.*"
"*My reasons for learning with others in online communities are opportunities for participating in discussions.*"

4.4.4.4 Summary

The category of description *directing learning* is summarised in Table 4.10.

Directing Learning	
Meaning Structure	*Key quotes*
A learning process in which individuals take control of their own learning and engage in learning with others in online learning communities.	We organised a group on Facebook that encouraged members in participating in discussions by posting information or ideas on Facebook so everyone could read, answer and comment on the posts. Cooperation in learning is about an interest group on Facebook.
Structure of Awareness	
Theme: Directing learning *Thematic field*: Learning needs	

Margin: Prior knowledge and experience
Dimensions of variation
Learning context
Learning takes place in online communities such as a group on Facebook. An individual takes the initiative and the responsibility for his or her learning.
Learning outcomes
Satisfying the learning needs of the individual.
Role of teachers
Directing learning takes place outside the formal academic setting. Emphasis is given to individuals who engage in online learning communities without the assistance of the teacher.
Role of students
Individuals take responsibility for their own learning. They could decide to participate in online learning communities by themselves. There are little or no cooperation between members of an online community in a sense of common learning goals.

Table 4.10 Summary for category of description – *directing learning*

4.4.5 Conclusion

The analysis of the data revealed three qualitatively different categories in which cooperation in learning was perceived. These categories of description focussed on cooperation in learning; and are related within a hierarchy of inclusiveness (Figure 4.9). *Group work* conceived cooperation in learning as working in groups in achieving the overall group goal. Those responses indicating this category described this view of cooperation in learning as: *"working in groups"*, *"write a group report together"* and *"work together to complete a learning task"*. This category was frequently present in the data, being coded 20 times, meaning that it was among the most frequently occurring categories of cooperation in learning.

Exploratory learning centred on a form of learning in which some friends come together and form a learning group to explore a given topic together. The friendship was probably presented as an important factor for this form of learning to occur. This

category was rarely present in the data, being coded 3 times, meaning that it was among the least frequently occurring categories of cooperation in learning.

Directing learning, the category based around the most complex conception, focussed on learning processes in which students take control of their own learning and engage in learning with others in an online learning community.

4.5 Working towards a Common Goal

4.5.1 Overview of the Findings

The categories of description for conceiving working towards a common goal are as follows:

- *Technologically-mediated cooperation*;

- *Interpersonal cooperation*; and

- *Relationship between 'personal' and 'common' goals*.

Those categories vary in the extent to which the participants focussed on *technological aspect*, *interpersonal cooperation*, and *relationship between personal and common goals*. They are also differentiated from each other by the variation of two dimensions: benefits to students and challenges to students.

Although the relationships between the categories are not clear, they are able to be arranged in ascending order by the *explanatory power*. The term 'explanatory power' is chosen to describe the variations across the categories in which working together towards a common goal emerge. The explanatory power is about the ability to explain the matter related to the benefits or challenges of working towards a common goal. In

this way, the category of description, *relationship between 'personal' and 'common' goals*, was relatively considered as the most explanatory power, and the category of description, *technologically-mediated cooperation*, had the least explanatory power, because the category, *relationship between 'personal' and 'common' goals*, provided more facts than another about the same matter "working towards a common goal". Figure 4.13 shows the *explanatory power* relationship between the categories in a form that provides an outcome space. In this outcome space, each successive category explains more than others and so might be considered as "better". The *green* eclipse represents a benefit, and the *red* eclipse symbolises a challenge. The qualitatively different categories of description were based on their structures of awareness and dimensions of variation. In this case, the focus was differentiated in terms of whether working together towards a common goal was perceived from the technological, interpersonal, or the relationship between 'personal' and 'common' goals aspects.
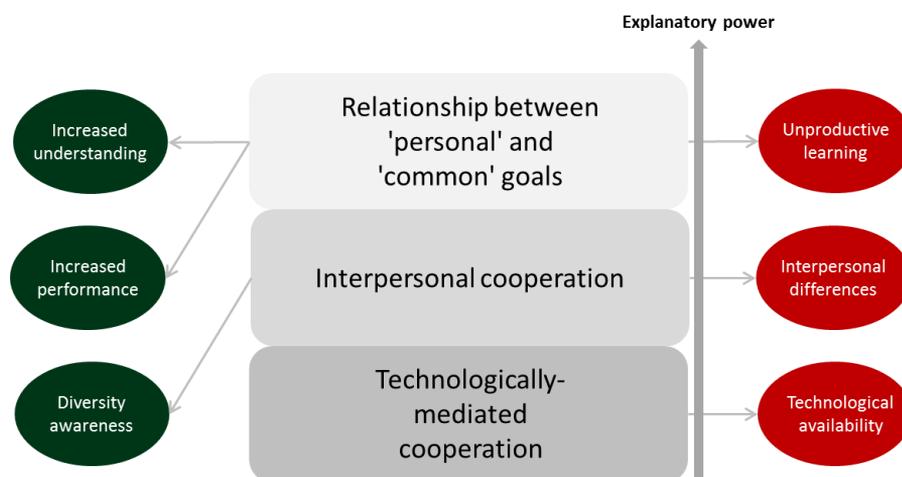
Figure 4.13 Outcome space – *Working towards a Common Goal*

As shown in the outcome space, the first category of description focussed on technological availability as a constraint on the ability to work together with others to form common goals: in terms of broadband Internet access and computers being

available to use. The category describes a conception in which working towards a common goal is severely constrained by issues related to resources, time and space. The second category of description differed from the previous category primarily in that the focus was now on interpersonal cooperation, rather than technological aspects of cooperation. This category of interpersonal cooperation involves an emphasis on benefiting from possibilities of diversity while also suffering from problems relating to interpersonal differences. In the last category of description, the focal point was the relationship between 'personal' and 'common' goals.

The analysis of the data led to three main benefits associated with working towards a common goal: *diversity awareness, increased understanding* and *increased performance*.

The respondents did, however, also perceive some challenges associated with working towards a common goal: *technological availability*, *interpersonal differences* and *unproductive learning*.

4.5.2 Technologically-Mediated Cooperation

4.5.2.1 Meaning Structure

In this category, Internet access and computers available for students to use were perceived by the participants as a challenge not only to establish connections to course materials, but also to interact and communicate with others online. Responses in this category explained a number of areas of impact of technology on working together including resource access (particularly resources on the LMS), communication and the dimension of time and place as an influence on cooperation:

"Access to Internet is too slow, especially in the beginning of a term when the students need to log into the LMS in order to register courses and read materials."

"Internet access influences online activities."

"I don't have a computer and Internet access at home."

"The number of computers available to students is low."

"The challenging things I see are the Internet access and the number of computers available to students on campus."

"Students have limited computer access on the university campus."

Additionally, broadband Internet enabled at home appeared to be not equal among students. An emphasis was placed on limited access to broadband Internet at home:

"There is not equal Internet access to all students. A number of students do not have any Internet access at home."

4.5.2.2 Structure of Awareness

When describing technological aspect of working towards a common goal, participants' attention was directed towards *online communication*. Those responses indicating this category perceived that the lack of broadband Internet or computers being available might influence online activities:

"Internet access influences online activities."

"It is difficult to use email and social media for communication when I don't have Internet access at home."

"Some students don't have personal computers."

The background of awareness for this category was technological availability. Awareness concerning technological availability referred to Internet access and computer available for students to work together. This related aspect of the theme was therefore located in the thematic field.

Participants might have some prior experience about using technology as a medium for communication, but it was not regarded as being appropriate for the particular context that the participants were contending with. In this way, prior experience pertaining to the theme was not considered as being relevant, and was located in the margin of awareness.

Figure 4.14 shows the structure of awareness for this category.
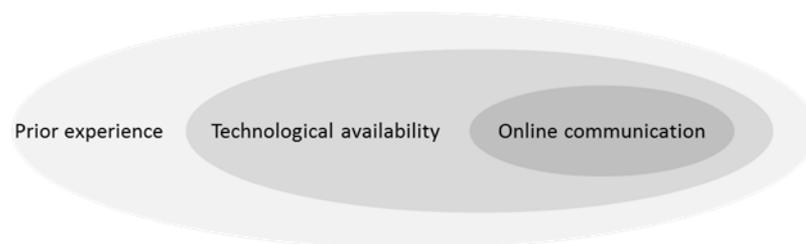
Figure 4.14 Structure of awareness for *technologically-mediated cooperation*

4.5.2.3 Dimensions of Variation

1. **Benefits to students**

   In this category, technology was perceived as the key to online communication. Those responses indicating this conception focussed less on the benefits of technologically-mediated cooperation. Rather, an emphasis was placed on the challenges of technologically-mediated cooperation.

2. Challenges to students

This dimension of variation describes two challenges regarding the impact of technology on working together: broadband Internet access and computers available for students to use. The following quotations illustrate the meaning associated with this perception:

"There is not equal Internet access to all students. A number of students do not have any Internet access at home."

"Access to Internet is too slow. It is difficult to chat with others online."

"Students have limited computer access on the university campus."

"The number of computers available to students is low."

4.5.2.4 Summary

The category of description *technologically-mediated cooperation* is summarised in Table 4.11.

Technologically-Mediated Cooperation	
Meaning Structure	*Key quotes*
The challenges of *technologically-mediated cooperation* such as Internet access and computers available for students to use	Internet access influences online activities. There is not equal Internet access to all students. A number of students do not have any Internet access at home. Students have limited computer access on the university campus.
Structure of Awareness	
Theme: Online communication *Thematic field*: Technological availability *Margin*: Prior experience	
Dimensions of variation	
Benefits to students	

The benefits to students in this conception are less attention. Rather, an emphasis is placed on the challenges of technologically-mediated cooperation.
Challenges to students
Focusing on two challenges regarding the impact of technology on working together: Internet access and computer available for students to use

Table 4.11 Summary for category of description – *technologically-mediated cooperation*

4.5.3 Interpersonal Cooperation

4.5.3.1 Meaning Structure

Unlike the previous category that focussed on technological aspects in mediating cooperation, this category did focus on interpersonal aspects of cooperation in terms of *diversity awareness* and *interpersonal differences*.

Diversity was found to be effective in developing social skills in terms of dealing with different points of view, different personalities, and levels of confidence and knowledge:

> *"Aside from academic issues, there are many social aspects of learning with others. Learning together challenges me to consider different points of view and perspectives, and I am willing to get to know one another, particularly those who have different interests and backgrounds."*
>
> *"Acknowledgment of individual differences during group interactions is important because different members may have a variety of opinions and perspectives."*
>
> *"Acknowledging and considering others' feelings were important when making decisions. This was true if I didn't want to isolate myself."*

Diversity awareness appeared to be an important social skill not only for learning but also for working in the future:

> *"Working with others helps me to develop social skills which are important for my employment in the future."*

In describing such perceptions, responses in this category illuminated the importance of respect and recognition of differences in other students:

> *"I always talk to others with respect. I also take others' emotions into account when communicating with them... Open communication can strengthen social relationships, I think."*
>
> *"Although some might have wrong opinions about a particular subject, we should be positive in discussions because everyone needed to have a chance to say his/her ideas."*
>
> *"I think social skills may be developed through exchanging perspectives and beliefs. This can be helpful to understand others' points of view and increase aware of the differences."*

However, the interpersonal differences might cause challenges for cooperation. Disagreements and different attitudes towards working towards a common goal emerged as a result of *interpersonal differences*. Those responses indicating this category perceived that different attitudes, knowledge and experience among members in a group environment might lead to disagreements, but those disagreements could be solvable in order to complete the overall group goal:

> *"Disagreements occurred in groups when we had different backgrounds."*

> *"Different people have different efforts in the learning process. Different attitudes towards learning and motivation influenced the way we learnt together."*

4.5.3.2 Structure of Awareness

In this category, participants brought *interpersonal aspects* such as diversity awareness and interpersonal differences to the fore of their awareness. The focus of interpersonal aspects is illustrated by the following quotations:

> *"Differences within the group need to be recognised."*
> *"Disagreements occurred in groups when we had different backgrounds."*
> *"Different people have different efforts in the learning process."*

The thematic field of awareness for this category was different types of people. Awareness concerning different types of people referred to diversity with respect to different attitudes, perspectives, interests, points of views and backgrounds. Responses in this category perceived different attitudes, perspectives, interests, points of views and backgrounds as essential aspects of interpersonal cooperation. In this sense, different types of people formed the background for the theme of awareness but not in focus.

Participants' prior experience about the interpersonal cooperation was not considered as being an essential part of the theme, but it was co-present with the theme, and was located in the margin of awareness.

Figure 4.15 depicts the structure of awareness for this category.
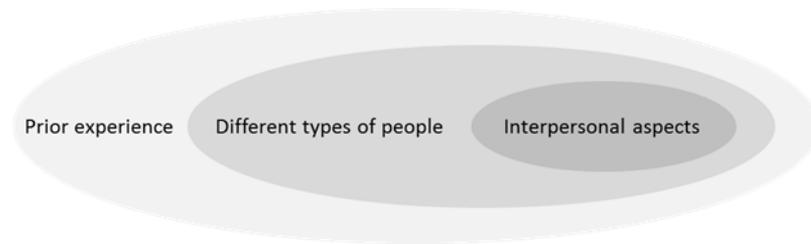
Figure 4.15 Structure of awareness for *interpersonal cooperation*

4.5.3.3 Dimensions of Variation

1. **Benefits to students**

The focus here was on learning to respect and acknowledge each other's point of view, perspective and belief:

"Acknowledgment of individual differences during group interactions is important because different members may have a variety of opinions and perspectives."
"Differences within the group need to be recognised. Social interaction grows as group members interact in a way that respects each other."

The opportunity to learn in a diverse group was seen as an opportunity for developing diversity awareness. Those responses indicating this conception paid their attention to *"acknowledgment of individual differences"*, *"respect"*, *"exchanging perspectives and beliefs"*, or *"open communication"*.

Diversity awareness was considered as an important social skill not only for learning but also for working in the future:

"Group work is preparation for my future employability because I can develop team-working skills."

2. Challenges to students

This dimension of variation concerns *interpersonal differences* in groups in terms of power relations and disagreements. Examples to illustrate the power relations in groups would be different interests, different capacities (such as knowledge and experience) to exert power:

"Disagreements occurred in groups when we had different backgrounds.... Sometimes we had different opinions and viewpoints of a subject. In these situations, the group agreed according to the majority of the members or listen to one who was a master of the subject [A master of a subject is one who is emerged as group leader or who has extensive knowledge of the subject.]."
"Some members tried to push responsibility on to everyone else."
"While some group members actively contribute to group work, some others are followers. When some members had negative attitudes towards learning together, they didn't share knowledge or did very little. They were likely passive followers."

Those responses indicating this conception also reported disagreements as a result of interpersonal differences:

"The effects of individual differences, prior experience and ways of learning may cause the learning process more difficult such as disagreements."

4.5.3.4 Summary

The category of description *interpersonal cooperation* is summarised in Table 4.12.

Interpersonal Cooperation	
Meaning Structure	*Key quotes*
Focusing on *interpersonal cooperation*: The benefits and challenges inherent to working towards a common goal reside in the interpersonal cooperation.	Differences within the group need to be recognised. Acknowledgment of individual differences Respect Exchanging perspectives and beliefs The effects of individual differences, prior experience and ways of learning may cause the learning process more difficult. Disagreements occurred in groups when we had different backgrounds. Some members tried to push responsibility on to everyone else.
Structure of Awareness	
Theme: Interpersonal aspects *Thematic field*: Different types of people *Margin*: Prior experience	
Dimensions of variation	
Benefits to students	
This dimension of variation concerns diversity awareness.	
Challenges to students	
Focusing on interpersonal differences	

Table 4.12 Summary for category of description – *interpersonal cooperation*

4.5.4 Relationship between 'Personal' and 'Common' Goals

4.5.4.1 Meaning Structure

The qualitative difference between this category and the two previous categories was the focus on the relationship between 'personal' and 'common' goals in this category. In this category working towards a common goal is perceived as the relationship between 'personal' and 'common' goals. Responses in this category perceived that two primary benefits associated with working towards a common goal resided in the

relationship between 'personal' and 'common' goals: a) *increased performance*; and b) *increased understanding*.

Increased performance was described through *"two heads are better than one"*. The emphasis here was on the value of the diverse knowledge and experience of each other. This was especially the case if working towards a common goal was an integral part of a course:

> *"Our project could not be accomplished if we didn't work well together. Effective interaction was a way to ensure good problem solving."*

Those responses indicating this conception also perceived that effective interaction among group members as the way to achieve their common goal. They argued that group performance improves as the degree of effective interaction increases:

> *"Effective interaction is important for successful group work. To succeed with the group project, the group needs all group members' contribution to the project. The effective interaction such as sharing knowledge and experience helps the learning process. Each group member contributes to the group and all group members need to act as a unit."*

With regard to *increased understanding*, those responses indicating this category perceived discussion and dialogue as key elements in increasing understanding:

> *"Participating in discussions plays an important role in deepening my understanding of a particular topic."*
>
> *"I supplemented my understanding by discussing and validating my knowledge with other group members."*

"I think learning in groups can be helpful for all members. From my experience, for example, we helped together to understand course materials. We also learned social skills such as sharing knowledge to each other and taking more responsibility for our own learning...as such, increasing our understanding."

"Learning with others gave me opportunities to revise my knowledge and understanding."

Furthermore, a sense of achievement was perceived as a motivation for learning with others, particularly when the *'personal'* goals are aligned to the *'common'* goals:

"Getting a good result is always a good feeling. My experience was that good feelings were a source of motivation for me."

"A good feeling puts me entering groups, and then learning with them. It also helps me to take responsibility and work together on a task."

However, working towards a common goal could end up in *unproductive learning*, because negative attitudes and behaviours towards cooperation and collaboration might lead to unproductive learning outcomes:

"Sometimes, different understandings may cause uncertainties. Different students have different understandings. These different understandings may lead to misunderstandings and disagreements between us, and, in turn, this can cause unproductive learning outcomes."

Unproductive learning also involved time and effort that group work consumed, for example the time for arranging group meetings and handling group work:

"It is difficult to arrange a time to a group meeting when I live far away from the university and I have part-time jobs."

"Learning in relation to others can be broken down when some students like talking and playing instead of focusing on the learning mater."

4.5.4.2 Structure of Awareness

The focus of this category centred on *'personal'* and *'common'* goals. Participants' attention was directed towards the benefits and challenges associated with the *relationship between 'personal' and 'common' goals*, for example *increased performance*, *increased understanding*, and *unproductive learning*. The focus of awareness in this category is illustrated by the following quotation:

"For me, I participated in learning activities with others, because we had to work together on a project. Learning with others gave me opportunities to revise my knowledge and understanding."

The thematic field of awareness for this category was comprised of two aspects: a) a common goal; and b) cost focus. Awareness concerning a common goal referred to a required learning task; for example, a group-based project. Similarly, cost focus was relevant to the theme in the sense that students were aware of time and effort spent on working towards a common goal. Together these two aspects were simultaneously present in awareness, and formed the background for the focus of awareness.

Students' years of study and majors of study were not an essential part of this experience, but they were co-present with the focus of awareness. In this sense, they were not regarded as being relevant for the particular context that participants were contending with, and were therefore situated in the margin of awareness.

The structure of awareness for this category is shown in Figure 4.16.
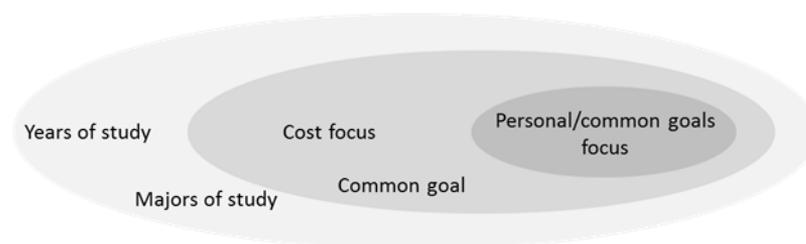
Figure 4.16 Structure of awareness for *relationship between 'personal' and 'common' goals*

4.5.4.3 Dimensions of Variation

1. Benefits to students

This dimension of variation concerns *increased performance* and *increased understanding*.

With regard to increased performance, the focus was on being able to achieve a common goal; for example, completing a group-based project:

"Our project could not be accomplished if we didn't work well together."

Effective interaction was seen as important in increasing the group performance level:

"Effective interaction was a way to ensure good problem solving."
"Effective interaction is important for successful group work."

Furthermore, those responses indicating this conception valued the diverse knowledge and experience of each individual that might combine together to increase performance:

"Diversity in the group might lead to a better solution. The diversity may enhance the problem-solving ability because different points of view provide a better understanding of a subject and as a result lead to a better solution."

"Working together can get work done faster."

With regard to *increased understanding*, the focus was on gaining a deeper understanding of a particular subject:

"I benefited from learning with others because we could understand a subject much more than I could learn alone."

"Group work can help me understand the course material better."

Those responses indicating this conception perceived the importance of participating in discussions, and exchanging ideas and perspectives as the way to increase their understanding of a particular subject. It was argued that working with others provides opportunities for putting a particular subject in discussion. In this way, they could view and assess their understanding of the subject from a different light. The following quotations illustrate the meaning associated with this point:

"Learning with others can reflect my understanding through discussions."

"Participating in discussions plays an important role in deepening my understanding of a particular topic."

2. Challenges to students

Unproductive learning was considered as a challenge of working towards a common goal. Emphasis here was given on two aspects: a) negative attitudes and behaviours towards collaboration; and b) time and effort spent on working with others.

Negative attributes and behaviours towards collaboration referred to being passive in learning with others or lacking a focus on given subject:

"Some students were passive in learning activities because of either lacking knowledge of a discussion topic or may be...because of personality. These students more or less influenced the progress of the project."

Time and effort spent on working with others involved allocating time for meetings and time spent on meetings, discussions, or on making decisions collectively:

"It is difficult to arrange a time to a group meeting when I live far away from the university and I have part-time jobs."

"Working in groups on assignments could be time-consuming. It might require more time and sometimes it could turn into an unproductive learning process when group members do not get along well."

"I use to connect with others online. I check mails, Facebook and forums when I could... Reading and replying posts on the forums are time-consuming. Sometimes, meetings are also time-consuming."

"Students involve in learning in relation to others often struggle with allocating their time for learning activities. Learning activities include group meetings, discussion of a topic, etc. Sometimes, the learning was not really productive because some students lacked a focus on a subject...talking but not real learning ...discussions did not lead to a solution of a problem or related to the subject."

"Unproductive meetings were a major source of time-consuming. The unproductive meetings might appear when students did not prepare for the meetings. Indeed, they relied on others' responsibility for the entire learning group."

As a result, those responses indicating this conception preferred learning alone and would have the teacher-centred instruction:

"I prefer a free learning environment, not depending on others. I learn course materials by myself. I could complete the course work faster if I learn alone."

"I wanted to learn at my own pace. Learning in relation to others is unproductive if collaboration doesn't work."

"I would have the teacher-centred instruction, because this instruction allows the teachers do a number of assessments of each student's progress. These assessments help us evaluate our understanding. As a result, we can understand what is wrong and right in order to develop ourselves."

4.5.4.4 Summary

The category of description *relationship between 'personal' and 'common' goals* is summarised in Table 4.13.

Relationship between 'Personal' and 'Common' Goals	
Meaning Structure	*Key quotes*
Focusing on the *relationship between 'personal' and 'common' goals*: The benefits and challenges inherent to working towards a common goal reside in the relationship between 'personal' and 'common' goals.	Working together can get work done faster. Learning with others can reflect my understanding through discussions. Group work can help me understand the course material better. Our project could not be accomplished if we didn't work well together. Working in groups on assignments could be time-consuming. Unproductive meetings were a major source of time-consuming.
Structure of Awareness	
Theme: Personal/common goals focus	

Thematic field: Common goal and cost focus
Margin: Years of study and majors of study
Dimensions of variation
Benefits to students
This dimension of variation concerns increased performance and increased understanding.
Challenges to students
Focusing on unproductive learning.

Table 4.13 Summary for category of description – *relationship between 'personal' and 'common' goals*

4.5.5 Conclusion

The analysis of the data identified three qualitatively different categories as follows:

- *Technologically-mediated cooperation*;

- *Interpersonal cooperation*; and

- *Relationship between 'personal' and 'common' goals*.

These categories of description focussed on working towards a common goal; and are related within a hierarchy of a developmental progression, where each successive category relatively explains more than others and so might be considered as "better" (Figure 4.13).

Technologically-mediated cooperation addressed the challenges of Internet access and computers being available. This category was rarely presented in the data, being coded 4 times, meaning that it was among the least frequently occurring categories.

Interpersonal cooperation focussed on *diversity awareness* and *interpersonal differences*. This category was frequently presented in the data, being coded 12 times, meaning that it was among the most frequently occurring categories.

Relationship between 'personal' and 'common' goals generated both benefits and challenges related to the relationship between 'personal' and 'common' goals in terms of *increased performance, increased understanding* and *unproductive learning*.

Taken together, the benefits and challenges of working towards a common goal can be summarised as follows:

- *Benefits:* diversity awareness, increased understanding and increased performance.
- *Challenges:* technological availability, interpersonal differences and unproductive learning.

4.6 Conclusion

The present study has resulted in the identification of categories of description of the various conceptions of networked learning. It also identified the underlying meanings and the logical relationships between the categories of description. The main results of this study are summarised as follows:

With regard to learning through relations, three categories of description were presented. *Resource access* denotes a connection that both relatively unidirectional and whose duration can be determined by one of the connected elements: the students. In the second category of description, *knowledge transmission*, learning through relations is conceived as being about information that moves from place to place, rather than as a stationary resource to be accessed at will. The third category of description, *knowledge construction*, is embodied by making meaning through interactions that are bi-directional and involve various forms of dependency between the elements that are being connected.

With regard to the roles of technology in mediating learning through connections, three categories of description were found. The first category of description, *flexibility,* is exemplified by the flexibility of time and place. Effectively what is being conceived is the opening up of a greater range of possibilities or opportunities, or conversely the removal of prior constraints, in a relatively generic way – actual practices are not foregrounded. The second category of description, *tool*, is epitomised by the use of the LMS as a tool for mediating learning through connections. This category of description is based around a conception that highlights the tool itself and advocates the necessity of tool use for functional purposes. The third category of description, *medium*, involves an emphasis on two-way communication with a focus on the social aspects of communication.

With regard to cooperation with others in learning, three categories of description were identified. The first category of description, *group work*, is dominated by cooperation as form of formal learning involving doing course project work – where setting targets to ensure that group members contributed determines to a great extent the purpose and the way of learning together in groups. The second category of description, *exploratory learning*, is embodied by a form of learning where friends come together outside the formal course structures and formed a learning group to explore a given topic in a way that aims to help individual students to perform better within the formal course. The third category of description, *directing learning*, emphasises learning processes in which students take control of their own learning and engage in learning with others in an online learning community.

With regard to working towards a common goal, three categories of description were identified. The first category of description, *technologically-mediated cooperation*, is

characterised by a constraint on the ability to work together with others to form common goals: in terms of broadband Internet access and computers being available to use. The category describes a conception in which working towards a common goal is severely constrained by issues related to resources, time and space. The second category of description, *interpersonal cooperation*, involves an emphasis on benefiting from possibilities of diversity while also suffering from problems relating to interpersonal differences. The third category of description, *relationship between 'personal' and 'common' goals*, is distinguished by focusing on the relationship between 'personal' and 'common' goals.

Moreover, qualitative differences in students' accounts on their conceptions of benefits and challenges of working together towards a common goal were constituted by three issues related to benefits (*diversity awareness*, *increased understanding* and *increased performance*) and three issues related to challenges (*technological availability*, *interpersonal differences* and *unproductive learning*).

In order to capture the logical relationships between the categories of description, a diagrammatical outcome space for the present study has been constructed to reflect the qualitatively different (but relationally related) ways that a group of undergraduate students *collectively* experienced and perceived networked learning phenomena in a Vietnamese university context.
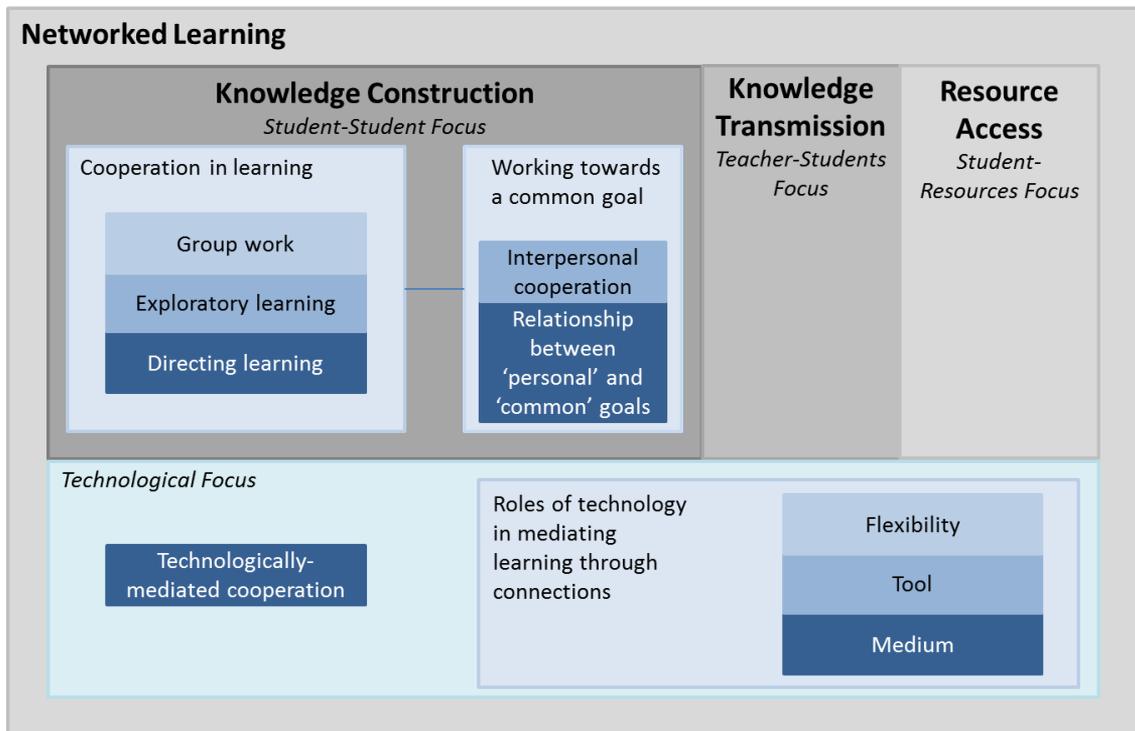
Figure 4.17 Overall outcome space for the phenomenon of networked learning

As shown in the overall outcome space, the categories of description could be arranged into four groups: 1) student-resources focus; 2) teacher-students focus; 3) student-student focus; and 4) technological focus. This overall outcome space is a hierarchical structure in the sense that the qualitatively different ways of experiencing and perceiving networked learning range from simple to more complex. Different colours reflect the hierarchical relationship between the categories, with darker colour being higher in the hierarchy and being associated with a more complex category. These are summarised as follows:

1. *Student-resources focus*

   The main category of description *resource access* was the basis for students' experiences and conceptions about student-resources interaction. This meant that, students' accounts about learning through relations perceived networked learning as a way of accessing learning resources in order to fulfil their learning needs. The

rational for accessing the materials was partly to access required materials provided by teachers, and partly to gain access to useful materials shared by other students on the LMS. Students also searched and accessed other sources of information on the wider Internet, although the focus was on learning resources on the LMS.

2. *Teacher-students focus*

The emergence of category of description *knowledge transmission* represented a conception in which students conceptualised learning through relations as the *transmission of knowledge* from the teacher to students. This meant that students' attention here was directed to the teacher as source of knowledge. Collectively, students seemed to be passive leaners, whereas the teacher became the main authority whose primary role was to transmit the knowledge to them.

3. *Student-student focus*

The analysis of the data identified one main category of description *knowledge construction*. Five sub-categories of description (*group work*, *exploratory learning*, *directing learning*, *interpersonal cooperation* and *relationship between personal and common goals*) have also been placed here, because students described learning through relations with other students. As a whole was a conception of networked learning with an emphasis on student-student interaction. The five sub-categories were organised based on characteristics such as *cooperation in learning* and *working towards a common goal*.

Concerning cooperation in learning, three qualitatively different ways of cooperation in learning were identified, ranging from *group work* to *exploratory learning* and *directing learning*. Group work was the least complex category: where cooperation was conceived as form of formal learning involving doing course

project work – where setting targets to ensure that group members contributed determines to a great extent the purpose and the way of learning together in groups. Exploratory learning is a more complex category in which the focus of the conception is on a form of learning where friends come together outside the formal course structures and formed a learning group to explore a given topic in a way that aims to help individual students to perform better within the formal course. Directing learning, the category based around the most complex conception, emphasises learning processes in which students take control of their own learning and engage in learning with others in an online learning community.

In describing working towards a common goal, students' attention was directed towards *interpersonal cooperation* and the *relationship between 'personal' and 'common' goals*. In the first, students, on the one hand, focussed on *diversity awareness*. This was particularly promoted through developing social skills, and was to help develop interpersonal awareness (e.g., the importance of respect and recognition of differences in other students). On the other hand, the interpersonal cooperation appeared to cause challenges for cooperation in terms of disagreements and different attitudes towards cooperation. In the second, the relationship between 'personal' and 'common' goals was described in terms of *increased understanding*, *increased performance* and *unproductive learning*. When, the notion of *increased understanding* reflected the value of discussion and dialogue in working towards a common goal, *increased performance* emerged from the fact that the diverse knowledge, perspectives and experience of each other were important to the success of the group. Additionally, as described earlier in this chapter, *unproductive learning* placed emphasis on negative attitudes and behaviours towards working together.

Table 4.14 summarises learning through relations by interacting with other students that were collectively reported by students.

Knowledge Construction	was directed at *making meaning*

Cooperation in learning	was perceived as
	
	- Group work
	  Focus: (small) groups in a formal academic setting
	- Exploratory learning
	  Focus: a group of some friends to explore a given topic together
	- Directing learning
	  Focus: participating and engaging in learning with others in an online learning community

Working towards a common goal	was perceived as
	
	- Interpersonal cooperation
	  Focus: Diversity awareness and interpersonal differences
	- Relationship between 'personal' and 'common' goals
	  Focus: Increased understanding, increased performance and unproductive learning

Table 4.14 Learning through relations – *student-student focus*

4. *Technological focus*

The study identified four categories of description, *flexibility*, *tool*, *medium* and *technologically-mediated cooperation* that reflected variation in how undergraduate students collectively experienced the role of technology in networked learning environments. Although these categories were qualitatively different, the emphasis was on using technology to establish, develop and maintain connections, both human-human and human-resources connections. While the first three categories showed the varying ways of experiencing the roles of technology in mediating learning through connections, the fourth category of description focussed on

technological availability in terms of broadband Internet access and computers available for students to use.

Altogether, the findings present the variation in how undergraduate students *collectively* experienced and perceived networked learning in a Vietnamese university context. In the following chapter, the findings are systematically discussed and explained, with a focus on the research questions.

Chapter 5 Discussion

5.1 Introduction

The primary purpose of this study was to examine variation in collective experience of networked learning in a Vietnamese university setting. As stated in Chapter 1, the present study was conducted in order to answer the main research question "*What is the extent of variation in how undergraduate students collectively experience networked learning phenomena when they are introduced in a higher education institution in a developing country?*".

More specifically, the study sought to discover the variety of ways in which students have experienced, understood and perceived four particular phenomena as expressed in four research sub-questions:

1. *What is the extent of variation in students' collective experience of learning through relations?*

2. *What is the extent of variation in students' collective experience of the roles of technology in mediating learning through connections?*

3. *What is the extent of variation in students' collective experience of cooperation with others in learning?*

4. *What is the extent of variation in students' collective experience of working together towards a common goal?*

One underlying motivation was to investigate in what ways students' conceptions of networked learning in the Vietnamese context are similar to and different from how those issues are discussed in the existing literature.

Seventeen students volunteered to participate in the present study. Data gathered from the sample was subjected to a phenomenographic analysis resulting in variation of ways of experiencing the phenomena of study, which were interpreted in relation to their structures of awareness and meaning structures.

The analysis of the data resulted in the emergence of three qualitatively different categories of description for conceptions of learning in relation to others and resources, three qualitatively different categories of description for conceptions of the roles of technology in mediating learning through connections, three qualitatively different categories of description for conceptions of cooperation in learning and three qualitatively different categories of description for conceptions of working towards a common goal.

Taken together, these categories of description constituted the phenomenon of networked learning as it was experienced and perceived by the participants in an institutional setting in a particular developing country. Table 5.1 provides an overview of all the categories of description of the present study.

	Learning through Relations (with Resources, Tutors and Students)	Roles of Technology in Mediating Learning through Connections	Cooperation in Learning	Working towards a Common Goal
Student-Student Focus	Knowledge construction		Directing learning	Relationship between 'personal' and 'common' goals
			Exploratory learning	Interpersonal cooperation
			Group work	

Teacher-Students Focus	Knowledge transmission			
Student-Resources Focus	Resource access			
Technological Focus		Medium Tool Flexibility		Technologically-mediated cooperation

Table 5.1 Overview of all the categories of description *(Different colours reflect the hierarchical relationship between the categories, with darker colour being higher in the hierarchy and being associated with a more complex category.)*

As shown in Table 5.1, there were logical relationships between four phenomena as they were conceived by the participants. These categories have been arranged on different levels so that they formed an inclusive hierarchical structure. It was assumed that higher-order categories encompassed lover-order categories; for example, the category of description *knowledge construction* was relatively the most complex category of three categories as it incorporates the other two conceptions below it (*knowledge transmission* and *resource access*).

All the categories of description in this study were considered to meet the criteria for ensuring the quality of each set of categories of description for conceptions suggested by Marton and Booth (1997). These criteria are as follows:

- The individual categories should each stand in clear relation to the phenomenon of the investigation so that each category tells us something distinct about a particular way of experiencing the phenomenon.
- The categories have to stand in a logical relationship with one another, a relationship that is frequently hierarchical.

- The system should be parsimonious, which is to say that as few categories should be explicated as is feasible and reasonable, for capturing the critical variation in the data. (p. 125)

The rest of this chapter is organised as follows. In Section 5.2, a critical discussion of conceptions of learning through relations is provided. This provides insight into students' conceptions on learning through relations with resources, tutors and students in response to the first research sub-question.

Section 5.3 deals with the roles of technology in mediating learning through connections to answer the second research sub-question.

Section 5.4 presents a critical discussion of the different ways in which students conceived cooperation in learning in order to address the third research sub-question.

To answer the fourth research sub-question, it is necessary to present a critical discussion of qualitatively different conceptions of working towards a common goal with a focus on the benefits and challenges of working together towards a common goal. This critical discussion is presented in Section 5.5.

Section 5.6 of the chapter examines the significance of the present study's findings in relation to the main research question, and examines the similarities and differences between students' conceptions of networked learning in this study and those reported in the literature. This section begins with a discussion of the extent of variation in how undergraduate students collectively experienced and perceived networked learning phenomena when they are introduced in a higher education institution in a particular developing country setting (in this case the Vietnamese setting). It then describes a comparison between the findings of the present study and those reported by Cutajar

(2014) for "qualitative differences in post-compulsory pre-university Maltese students' accounts of their networked learning experiences".

The chapter concludes by summarising the main findings of the present study in Section 5.7.

In each case, the findings will be summarised first in their own terms before being set against the context of the literature's examination of analogous issues.

5.2 Learning through Relations

5.2.1 Overview

In response to the first research sub-question *"What is the extent of variation in students' collective experience of learning through relations?"*, the data analysis found three categories of description for conceptions: *resource access* (a conceptualisation focusing on learning through relations with resources), *knowledge transmission* (focusing on relations with teachers) and *knowledge construction* (focusing on relations with other learners). Four dimensions of variation were identified to make a distinction between the three categories. They were *role of technology, role of teachers, role of students,* and *location of knowledge.*

The three categories could be arranged into an outcome space (Figure 4.1). The outcome space illustrated the hierarchical relationship between the categories from a least complex conception (*resource access*) to more complex conceptions (*knowledge transmission* and *knowledge construction*). The category of description *knowledge construction* was relatively the most complex conception of the three conceptions as it incorporated the other two conceptions, but not vice versa. In other words, students'

conceptualisation of learning through relations with teachers was *more complex* than their conception of learning through relations with resources – but also *encompassed* those connections with resources and therefore in some sense relied upon it. Similarly, the conceptualisation of learning through relations with other learners was both *more complex than* and *encompassing of* the conceptualisations of learning through relations with resources and teachers.

Although there are various specific points of difference (discussed in turn below), the fact that students' conceptualisation of 'learning through relations' resulted in three categories of description that do broadly reflect a focus on resources, teachers, and other students does indicate some underlying similarity to conceptions in the existing literature that have largely been derived from 'Western' sources.

The details of the three categories are discussed in the subsequent subheadings.

5.2.2 Resource Access

In this category, learning through relations with resources, tutors and students was conceived as accessing knowledge and information from knowledgeable sources. Those responses indicating this conception highlighted the fact that students access a range of learning sources on the LMS. This supports studies by Escobar-Rodriguez and Monge-Lozano (2012), and Nair and Patil (2012) who found evidence that students use the LMS to access online learning materials.

The focus of students in this category was on knowledge and information residing in course materials; information shared by others and sources on the Internet. Course materials and other sources shared by peers were frequently viewed by students as the main valuable sources available to them. They perceived the LMS as a means to connect

to those sources. The key attribute was to involve technology in the human-resources interaction; for example, using LMS for accessing resources. It would appear that the LMS provided students a networked learning environment that promotes connections between students and resources. This is in line with the role of the LMS indicated in Retalis, Papasalouros, Psaromiligkos, Siscos and Kargidis' (2006) study. The power of the LMS seems to be that it could create possibilities for students to access valuable sources such as learning materials or information shared by others. Students reported that they had to access resources provided by teachers and information shared by peers on the LMS.

Additionally, students also valued sources of information on the Internet. These sources might take a variety of forms, but the main purpose was accessing a range of sources of information on the Internet for learning. In this way, this conception would be driven by information and knowledge that were resided in knowledgeable sources. That is to say, this conception was similar to the findings of Cutajar's (2014) phenomenographic study in a Western context, where an emphasis was given to accessing valuable resources via a student conception called "Experiencing NL as the online accessibility of learning resources when required". However, the conception of the learners in this study focussed somewhat more on learning resources on the LMS. In other words, while the literature points to 'learning with resources' as being about connections with a *variety* of resources (e.g., Jones, 2015), the learners in this setting tended to conceptualise the issue in terms of *institutionally-provided* resources – even though their discussion of *other* issues made clear that they did use other resources, for example from the wider Internet.

5.2.3 Knowledge Transmission

This category represented a conception of learning through relations with resources, tutors and students, where the teacher-students connection was in focus. In this category, students relied on the teacher to transmit knowledge to them. The relation between the teacher and students was broadly conceptualised as one-way communication, with an emphasis on transmitting knowledge from the teacher to students. Responses in this category had a tendency to accept the authority of the teacher as a source of knowledge. From this perspective, what seems to be different about how students perceived this conception is the teacher-centred approach in which the teacher is the primary information giver and the primary evaluator of learning. That conception differs from the existing literature because "the fundamental principles underlying networked learning are learner-centred where the learning is outcome-focussed and requires engagement, group collaboration and the creation of communities of inquiry" (Caravias, 2015, p. 10). Bowden and Marton (2004) state that, "the learning environment has a significant effect on students' approaches to learning" (p. 66). In this sense, aspects of the environment are likely influencing the way students experienced, understood and perceived the role of teachers within networked learning. This finding supports studies (e.g., Burns, 1991; Ballard & Clanchy, 1994) that have found that the teacher-centred approach is still widely adopted in developing countries, particularly in Vietnam. The finding is also consistent with a recent study from Fahmy et al. (2013) who found that learning in higher education in Vietnam still relies on the transmission of knowledge from the teacher to students.

Once again, students' conceptions of other, more specific, issues (in the outcome spaces presented subsequently) does indicate that more recognisably 'collaborative' learning

was occurring. But that does not alter the fact that a prominent conception of 'learning through relations' involved one-way transmission from teachers to students. This is even though 'networked learning' practices are being supported within initiatives within the institution that are usually described using the term 'cooperation in learning'.

This evidence highlights the importance of Rungwaraphong's (2012) findings of "student readiness for learner autonomy". It also resonates with Pham and Renshaw's (2013) findings about how Asian teachers might *empower* students to adopt student-centred learning, finding particular ways to do so that might be different from typical (Western) practices. That is because historic approaches to instruction have influenced the way students learn. When the teacher is the centre of the learning process, students are dependent on the lecture for knowledge. As a result, students are likely passive recipients of knowledge transmitted by the teacher. Another key point to remember is that most students in Vietnam have been trained to listen to their teachers across much of their personal history.

5.2.4 Knowledge Construction

In this category, students perceived learning through relations as *knowledge construction*. This conception highlighted the importance of students actively engaging in knowledge construction. Knowledge construction was expressed in terms of making meaning through connections with a focus on participation, interaction and discussion. The finding in this category found that students made meaning when they were actively engaged in the learning process. A distinct characteristic in this category was the two-way communication and interaction *among students*. Indeed, this category of description primarily represents a conception of relations with other students, rather than with teachers or resources. The finding in this category brought to light the

importance of social interaction in the learning process such as discussion and dialogue. Significantly, learning was perceived as a social process as it involves students in co-constructing knowledge through social interactions with their peers.

Aligned with various empirical studies (e.g., Booth & Hulten, 2004; Smith, 2012; Cutajar, 2014), social interaction emerged as an important element in networked learning environments. Such a focus on interaction is common in the networked learning literature. For example, according to McConnell (2000), Hodgson et al. (2012), and Ryberg et al. (2012), people learn best when they have the opportunity to learn with others.

Where this category is in common with the existing literature is because of the situation of learning that points to human-human interactions. From a networked learning perspective, aspects of human-human interaction are critical for knowledge construction (e.g., Goodyear et al., 2004, Hodgson et al., 2012; Jones, 2015). Goodyear et al. (2004) claimed, "There is no point to networked learning if you do not value learning through co-operation, collaboration, dialog, and/or participation in a community" (p. 2). It is clear that the students here *do* value those aspects of learning – though mainly in their relations with other students.

Furthermore, when students expressed this conception, their attention centred on knowledge construction within small groups in an academic setting or on social media. In this sense, networked learning environments were associated with small groups and social media groups, usually groups having a particular purpose (for some project) rather than a more broad purpose (within some community). This conception is slightly different from that dominant in the literature. For example, according to Jones (2013), networked learning is "less concerned with face-to-face collaboration around

technology and is generally more concerned with remote interaction. It also tends to the large scale and is less concerned with small-scale collaboration such as pairs and small groups" (p. 210).

However, the students here conceived networked learning as tending to focus on small groups, and the learning environment pointed to a combination of both face-to-face and online interactions. It is therefore not applicable to view networked learning as simply a 'large' network with fully online interactions in this particular developing country setting. Rather, networked learning environments might be considered as *all* aspects of a particular setting, within which learning with others can take place. Jones (2012a) stated that a networked learning environment "is always selectively appropriated by students and tutors participating in it to make their own learning contexts" (p. 103). This conception of learning through relations supports that of Zenios and Goodyear (2008) who have highlighted the fact that students construct knowledge through social interactions. This also supports one of the most important elements underlying the networked learning concept, namely learning through human-human connections (see Goodyear et al., 2004).

5.3 Roles of Technology in Mediating Learning through Connections

5.3.1 Overview

To answer the second research sub-question *"What is the extent of variation in students' collective experience of the roles of technology in mediating learning through connections?"*, the analysis of the data set out three conceptualisations of such roles: a) *flexibility*; b) *tool*; and c) *medium*. Those conceptualisations range from less

sophisticated experience, emphasising the flexibility of time and place, to more sophisticated experience, focusing on the role of technology as a tool and a medium.

5.3.2 Flexibility

The first category of description was characterised by recognising the value of technology in mediating connection and interaction by altering the constraints of time and place. This was the least sophisticated conception emerged and was concerned with giving students 'freedom' in time, space and pace of learning through connections. Students indicating this conception valued the broad set of technology applications and tools to enable them to more 'flexibly' access course materials, share content or connect to others. As a result, the students could benefit from flexibility in learning with potential for combining face-to-face with online learning through connections. For example, students viewed social media as a means of facilitating learning with others. This finding resonates with that of Kumar (2012), who found evidence for the role of technology in giving students flexibility in the time and place of learning.

Within the context of the networked learning literature, ICT is important for several reasons – but a particularly important one is its role in mediating connections (e.g., McConnell et al., 2012; Jones, 2015). In this sense, the present finding seems to be reasonably consistent with other studies which found that technology provides a platform for accessing learning resources (human-resources connection) 'flexibly'. For example, the finding supports that of Boon, Johnston and Webber (2007), Smith and Hepworth (2012), and Cutajar (2014) who have found the use of ICT as a means to quickly and easily access information and resources.

In addition to facilitating access information and resources, collaboration and human-human interaction also benefit greatly from the variety of ICT tools. The advent of new ICT, particularly the Internet and social media, makes it possible for learning through connections without the constraints of time and place. Asynchronous communication (e.g., email, discussion forum) can be helpful in connecting with others in offline contexts, whereas synchronous communication (phones, instant messaging) allows for interpersonal communication at a distance in real time. Thus, the use of ICT to mediate learning through connections is not only to human-resources connections, but also to increase the degrees of flexibility in time, space and pace of collaboration and human-human interaction. In this way the use of ICT tools could be considered as a means of providing the infrastructure for networked learning environments in which students could benefit from flexibility in learning through connections. Students' conception, here, of ICT tools as providing for 'flexibility' therefore closely resonates with the existing literature.

5.3.3 Tool

The focus of this category was particularly on the LMS as a tool for learning through connections. The forms of interaction and collaboration being conceived here are limited; they are generally short episodes such as 'finding' or 'contacting'. But that does not mean that students did not value their importance. What's more, the LMS was recognised as providing a central space for interaction and collaboration because it is the university's central virtual learning space that is shared by teachers and students. All students have to use it in the university setting. In short, it is where students go to find students and their teachers online. The *membership* of the LMS seemed to contribute significantly to the interaction that occurred among students and between

teachers and students. This evidence is in line with other studies in the literature that highlight how LMSs are so important to access learning materials (e.g., Steel, 2007; Bates & Sangra, 2011; Escobar-Rodriguez & Monge-Lozano, 2012) and to provide virtual learning spaces for communication and interaction (Martin-Blas & Serrano-Fernández,2009; Heinrich & Bozhko, 2012). As highlighted earlier (when considering learning through relations), students' conceptions of learning through relations with resources, teachers and other students are related.

The conceived sophistication of the LMS varied from simple accessing materials or finding others' contact information to integrated applications enabling interaction and communication among students and between teachers and students (e.g., sharing information and connecting to teachers and others). Importantly, the LMS was conceived as providing *integrated* functionalities for collaborative activities and interactions: for example, a virtual group work space for sharing information and discussion; or a course space for connecting between teachers and students, and between students and students.

Given the importance of LMS to mediate learning through connections in university settings, it is necessary to consider how the LMS can be used to provide a networked learning environment through which teachers, students and learning resources can be linked together. According to Jones (2012a), a networked learning environment can be composed of the "totality of surrounding conditions" that allows access to a range of resources and facilitates human-human interactions. Those 'surrounding conditions' include the LMS and other institutional provision, but are not limited to them. For the students here, however, it was the *integrated* nature of the LMS provision that was seen as being useful for supporting the short, episodic forms of interaction, cooperation and

collaboration that were being described. In this sense, the LMS is being conceived as a tool that provides one 'networked learning environment' where teachers, students and learning materials are *linked together*. Likewise, the LMS is being conceived as providing an integrated environment in a way that diverges to some extent from the (Western-grounded) literature.

5.3.4 Medium

Unlike the two previous categories, this category placed an emphasis on the role of technology in mediating *two-way* communication and interaction. The Internet and new ICT was conceived as supporting multiple communication channels for synchronous and asynchronous communication among students, and between students and teachers (e.g., Goodyear et al., 2004; Oztok et al., 2013). Those more extended, two-way examples of communication and interaction did use a variety of online tools – including ones not provided by the institution.

One of the main reasons for the usage of technology in mediating communication seemed to be related to the potential of the ICT opportunities in spreading and sharing information and ideas among its members. For example, social media were considered as virtual spaces for communication, discussion and information sharing. Those students indicating this conception recognised the value of social media for facilitating social interaction between students in terms of two-way communication with a focus on social aspects of communication. In this sense, students' conception here captured an important aspect of the role of technology in networked learning: the role of technology as a medium in supporting social interactions (e.g., Jones & Steeples, 2002; Fulantelli, 2009; Firth, 2010; McConnell et al., 2012; Jones, 2015). To provide one useful example, Hodgson et al. (2012) expanded the 'human-human interaction' focus

of the networked learning literature further to include more social interaction (such as collaboration and cooperation) as follows:

> "Knowledge emerges or is constructed in relational dialogue or collaborative interaction – knowledge is not a property but a social construction/way of knowing from our experience of the world." (p. 293)

Therefore, students' conception here is aligned with previous research (in mainly Western settings) that has found the role of technology in supporting social interactions useful for students (e.g., Agarwal, Liu & Zhang, 2010; Moyle, Wijngaards & Owen, 2012; Martin, 2013; Cutajar, 2014; Goodyear & Carvalho, 2014).

Another fundamental opportunity offered by ICT was to support interaction and collaboration in relation to a particular learning requirement such as representing ideas, perspectives and arguments in digital formats. For example, through the use of presentation and multimedia software (e.g., PowerPoint, Word), students could communicate their ideas and work to a wider range of audience. Similarly, technology also allowed students to post, read, as well as discuss topics of interest in particular contexts such as learning languages.

5.4 Cooperation in Learning

5.4.1 Overview

The key focus of this section is students' conceptions of the notion of 'cooperation in learning'. In response to the third research sub-question *"What is the extent of variation in students' collective experience of cooperation with others in learning?"*, three qualitatively different categories of description were identified for the qualitative

variation in the students' accounts: a) *group work;* b) *exploratory learning*; and c) *directing learning*.

Those qualitatively different categories of description have a hierarchical relation with each other, from a less to a more complex experience of cooperation in learning according to the structures of awareness and meaning structures expressed. The three categories represented a limited number of qualitatively different ways in which an individual category constituted a particular way of experiencing cooperation in learning.

The category *group work* is here positioned as the least complex conception in terms of its multiplicity of implication – directly highlighting aspects of the learning context, learning outcomes, role of teachers and role of students. It was frequently coded, being present within the responses of 15 of the participants.

The category *exploratory learning* was characterised by a conception of learning that involves a group of friends exploring a given topic together.

The category *directing learning* focussed on another form of learning in which students take control of their own learning and so engage in learning with others in online learning communities. The term *directing learning* referred to a view of cooperation in learning in which students take the initiative to address their learning needs and identify resources for learning.

Each of these three categories is described in detail in the following sections.

5.4.2 Group Work

A distinct characteristic of this category was the conception of cooperation in learning as a form of learning that involves students in (small) groups working towards a (given) learning task. The centrality of this category was *group work*. Where this category is in common with the existing literature is in focusing on working together towards a common goal (McConnell, 2002; McInnerney & Robert, 2004). It was widely conceived that cooperation in learning was working together to achieve an overall group goal. In this category, group work was based on the idea that students work in (small) groups in the university context. In this way, cooperative activities were undertaken around a group-based project. Students' conception was that they depended on each other's contribution in order to achieve the overall group goal. This finding pointed to cooperation as an important aspect for the success of the group work. There were four key attributes associated with this conception of cooperation in learning: a university context, a goal, cooperation and discussion.

With regard to a university context, this view of cooperation in learning was based on group work that operated in a formal academic context; for example, as an integral part of a course. An emphasis was therefore on *formal* learning groups that had been created to complete a given learning function. To put it another way, the conception of 'cooperation' here was usually directed towards a goal derived externally to the group – usually provided by the teacher. The overall group goal contributed significantly to directing the interaction and cooperation that occurred among group members. For successful completion of the overall group goal, group members needed to establish a sense of a common goal that was often quite strongly directional.

Furthermore, learning in this context was also underpinned by two other elements: cooperation and *discussion*. Cooperation could develop through *"finding solutions to problems together"*, *"participating in group meetings"* or *"working on our assignment"*, whereas discussion took place in social interactions between group members. The purpose of discussion was to explore, recognise and value the contributions made by other group members.

Thus, the finding demonstrated that students placed a high value on directional goals, cooperation and discussion in this conception of cooperation in learning. In one sense, this conception is in keeping with the existing literature. Research has shown that students learn better when they engage in learning with others (e.g., McConnell, 2000; Hung & Nichani, 2001; Reynolds, Caley & Masson, 2002; Ryberg et al., 2012). For example, Hung and Nichani (2001) argued learning is not an isolated activity; rather, it is a social process, because "people learn best when they have the opportunity to work with other people through processes of cooperation and collaboration" (McConnell, 2000, pp. 1-2). In another sense, this conception is at odds with those distinctions between 'collaborative' and 'cooperative' learning in the literature (discussed in Chapter 2). Section 5.5 will examine the conceptions of 'common goals' with regard to that distinction in more detail.

5.4.3 Exploratory Learning

In this category, cooperation in learning developed around the need to explore a particular subject together. The difference between this category and the previous category was that in the latter the focus was on a form of learning that involved students in groups *to do project work*, whereas here the focus is on a form of learning in which some friends come together and form a learning group *to explore a given topic*. Another

difference is that in the previous one it was essential to work together in order to achieve a goal (i.e. an integral part of a course), whereas in this category a primary focus of cooperation was on exploring a particular topic together more informally (and with a less strongly directional focus).

This conception of cooperation takes place within a group of friends exploring a particular topic. Due to the *friendships* for cooperation, this form of cooperation in learning tended to place an emphasis on strong personal ties found in cooperation. Within the networked learning literature, cooperation is not seen as restricted to the strong relationships between learners. It may concern "relationships involving weak ties and looser and less focussed groupings" (Jones et al., 2008). Clearly, the conception of exploratory learning in evidence here is more restrictive in extent than that perspective.

Furthermore, within the context of networked learning, a key aspect of learning is human-human interaction. As a group of friends engaged in cooperative activities, such as sharing information or participating in discussions and dialogues, they can form a friendship oriented network in which they could feel safe and trust to each other. In such friendship oriented network students explored a particular topic together.

In general, this 'exploratory' conception of cooperation in learning depended on the *strong* relationships found in the learning community. The conception of exploratory learning reflected the sense in which a group of friends came together to share information, knowledge, ideas and experience between group members in order to *explore together*.

5.4.4 Directing Learning

The emphasis of this conception was on a form of learning in which students took the initiative to engage with others on virtual learning environments, without the assistance of the teacher and peers. The learning that took place for students participated in these virtual learning environments was facilitated with the use of ICT, particularly social media. Such technologies allowed students to learn with others with shared interests. As such, the key distinctions between this conception and that of exploratory learning are that the cooperation discussed here was often initiated via the technological medium, and that the social ties could be 'weak'.

The use of technology to support this form of learning still provided students with opportunities to engage with others in cooperative activities in which they could participate in discussions, or share information to one another. Such ways of learning were characterised by the ability to bring students together to create a learning 'community' in which they could share their interests.

Given the potential of social media for cooperation, students recognised the value of learning with others on social media. For example, their attention has paid to a Facebook group as a learning community in which students could discuss a given subject such as a course and share content with others. The key purpose of participating in learning with others was therefore participating in discussions, as well as sharing, exchanging and discovering the subject together. Learning was derived from social interactions with others.

This view of cooperation in learning seemed to combine two important aspects of networked learning: human-human interaction mediated by ICT and establishing weak

relationships in networked learning environments. While the previous category focussed on establishing connections with strong ties (e.g., friends), this category referred to connections with weak ties (e.g., other students on social media). In this manner, the student was at the centre of this form of cooperation in learning, when he/she took the initiative to identify and participate in online communities in order to satisfy his/her learning needs. Social media sites such as Facebook provided virtual spaces for students to connect online. Students could join online communities, participate in discussions and take part in other activities such as sharing information and experience. Thus, this finding identified the value of weak ties in connecting diverse students in an online community. According to Jones et al. (2008), "Strong and weak ties are relative conceptions, and strong and weak ties may co-exist in any given set of relationships". However, the conceptions here do seem to imply a relative separation between how students engaged in 'exploration' with their friends, and how they were 'directing' their own learning in online 'communities'.

Although the role of technology was recognised in supporting students in making connections, it was not only the technology that made this form of cooperation in learning happen. Rather, students conceptualised that they took responsibility for setting out their learning goals and identifying an online learning community relevant to those goals. In other words, students controlled the learning process by themselves, and cooperation and interaction could be designed and shaped by individuals who took the initiative to engage in learning with others. This conception of cooperation in learning supports the findings in studies by Cutajar and Zenios (2012), and Cutajar (2014) about using ICT for learning in connectivity with others.

5.5 Working towards a Common Goal

5.5.1 Overview

With regard to the fourth research sub-question *"What is the extent of variation in students' collective experience of working together towards a common goal?"*, it needs to be made clear immediately that it was not easy to answer this question in a straightforward manner. This is partly due to the difficulty of getting students to discuss 'goals' in ways that are differentiated from 'tasks set'. However, an answer to this question can be discussed in three categories, with a focus on the benefits and challenges of working towards a common goal. The first category conceived of *technologically-mediated cooperation*. The second category focussed on the *interpersonal cooperation*, whereas the third category considered *the relationship between 'personal' and 'common' goals*. Each of these is described in detail in the following sections.

5.5.2 Technologically-Mediated Cooperation

The conception in this category addressed the role of technology in mediating connections. Many researchers have stated the importance of ICT in mediating the connections within networked learning contexts (e.g., Goodyear et al., 2004; Jones, 2015). Yet much of the material encompassed by this category was focussed on describing experienced *challenges* that were associated with the technologically-mediated cooperation in this particular developing country setting.

For example, responses in this category perceived that broadband Internet and computers available for students to use caused a range of difficulties dealing with the

use of ICT tools and resources for cooperation and collaboration among students, and for connecting to resources. Without such technological availability, it could be hard to facilitate connections between students and resources and among students over the Internet.

The importance of broadband Internet or computers being available was not in the technology itself, but in the opportunities that availability provided or constrained for establishing interactions, because the use of technology might impact the way students work together. Those students indicating this conception often remarked on difficulties they experienced with *technological availability* in terms of broadband Internet access and computers being available to use both at home and on the university campus. That is to say, this finding presented two interconnected issues of technological availability: broadband Internet access and computers being available to use. Conceivably, these issues are related to a particular developing country (in this case Vietnam), because the technological issues vary from context to context, and change rapidly. Data on the world internet penetration (as illustrated in Figure 5.1) show the difference between developed and developing countries.
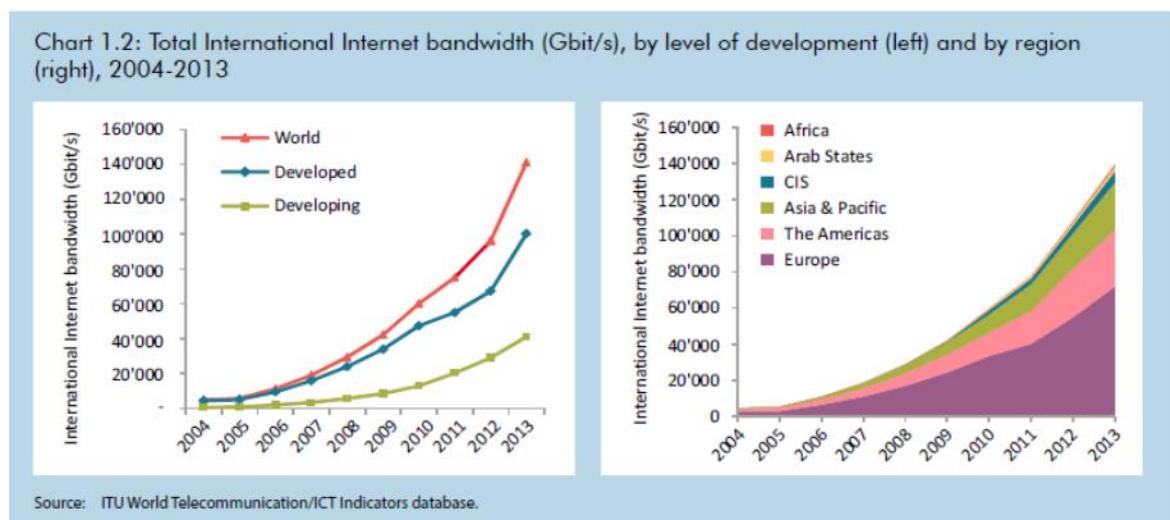
Figure 5.1 Internet penetration (Source: ITU, 2014)

Although the growth in Internet bandwidth has been increasing steadily over the past decade in developing countries, it is still extremely low compared to the developed world. But the hope of positively increasing the ICT access in developing countries has been appeared. It reflects the continual ICT performance across the developing world (as shown in Figure 5.1).

We should not assume, of course, that web connectivity is always good, uniformly, across developed country settings. However, in the developing world, Internet access is sometimes very limited *even at educational institutions*, service is slow and unreliable and costs are high, especially in rural and remote regions (International Telecommunication Union, 2014; UNESCO 2014). That issue of pricing may be important in this context. As the International Telecommunication Union (ITU) report 2014 indicated,

> One reason for the limited uptake of ICT in the developing world is the price of the service, which is often unaffordable for poor segments of the population. While the prices of fixed and mobile services continue to decrease globally, in most developing countries the cost of a fixed-broadband plan represents more than 5 per cent of GNI per capita, and mobile broadband is six times more affordable in developed countries than in developing countries (p. iii).

It is perhaps necessary to emphasise that this situation does not merely represent the developing world 'lagging behind' but following similar trends. According to the report of International Telecommunication Union (2014), fixed-broadband penetration in most developed countries has reached 27.5 per cent, whereas *fixed*-broadband in developing countries is actually *on the decline*, from 18 per cent in 2011 to 6 per cent

in 2014 (the situation for mobile devices is different). Figure 5.2 illustrates the growth in 'households' with Internet access in developing countries.
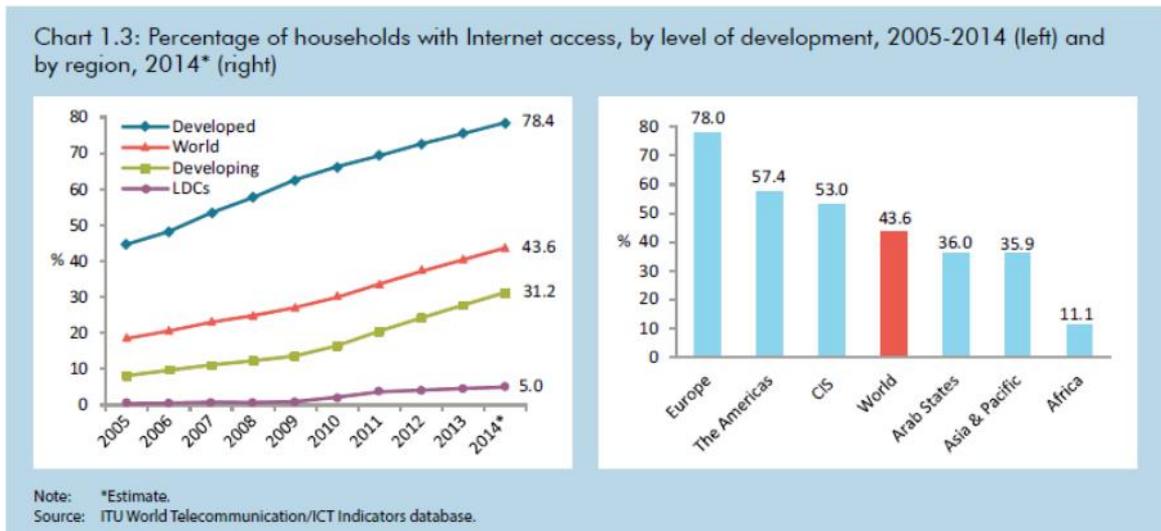
Figure 5.2 Internet access (Source: ITU, 2014)

The finding in this category found that the technological factors such as broadband Internet access and computers being available to use could be challenging to collaboration and cooperation because of the lack of supporting ICT infrastructure and resources. Therefore, it might be not applicable to view networked learning as fully digital networks, within which learning could take place through connections in a developing country context. Rather, as mentioned previously in relation to other student conceptions, a networked learning environment might be consisted of all surrounding conditions such as human, social and technological aspects in which sociocultural interactions could take place, although only a subset of these interactions might be mediated through digital technologies.

5.5.3 Interpersonal Cooperation

What distinguishes this category from the previous category is that students described a number of issues related to *interpersonal cooperation* in their perceptions of working

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together towards a common goal, including *diversity awareness* and *interpersonal differences*.

Diversity awareness refers to the fact that a 'diverse' group was considered as an opportunity to develop social skills. Students recognised the importance of dealing with different points of view, different personalities, and different levels of confidence and knowledge, not only for learning but also for working in the future. This category reflects a conception of the social nature of working together in a diverse group that places the emphasis on dealing with interpersonal differences. Students considered what it meant to develop social skills: emphasising respect and recognition of differences in group members. In this sense, social interaction seemed to be one of the most important factors in working in a diverse group. Within a context of networked learning, many researchers have argued the importance of social interactions in learning with others in a learning community (e.g., Goodyear et al., 2004; Abdullah, Embi & Nordin, 2011; Hodgson et al., 2012). This conception therefore resonates with the existing literature on networked learning.

Furthermore, students' accounts recognised that interpersonal differences (characterised as different attitudes, study goals, prior knowledge and experience) might lead to disagreements. Their narratives expressed the importance of communication, dialogue and negotiation in solving such disagreements. This view of the students is in line with a social constructivist theory of learning where negotiation among students is considered as an essential aspect of knowledge construction (Zenios, 2011; Nielsen & Danielsen, 2012). Therefore, this finding supports the idea of making meaning through social interactions (e.g., Vygotsky, 1978; Hein, 1991; Johnson & Johnson, 2008; Jones, 2015), and the development of valuable social skills in a learning

community (Abdullah et al., 2011). According to Sclater and Bolander (2004), there are a number of factors that can influence the quality of collaborative enterprise. These factors include access to the technology, individual styles of working, personal crises, group dynamics, prior experience of collaborative working, language, different timetables and time availability, personality and motivation. Although the meaning making practices of learning together seemed to be influenced by social interaction and communication among students with respect to interpersonal differences, students should be to or have to work together for a common goal in order to achieve the overall group goal. The overall group goal cannot be achieved without the collaboration among students.

5.5.4 Relationship between 'Personal' and 'Common' Goals

The focus of this section is on a critical discussion of the benefits and challenges associated with the relationship between 'personal' and 'common' goals. A significant difference between this category and the other two categories lies in the way working towards a *common* goal was perceived.

The nature of working towards a common goal had a number of inherent benefits such as *increased understanding* and *increased performance*. Firstly, working together was seen by students as a way to gain a deeper understanding of a particular subject. Students holding this conception perceived that learning together could enable them to open opportunities for participating in discussions, exchanging ideas and perspectives. As such they could enjoy these opportunities to ask questions, receive feedback or participate in discussions in order to increase understanding of a particular topic. This finding is in line with the networked learning practices where discussion, dialogue and

co-construction of knowledge emerge as important components of learning in relation to others (Hodgson et al., 2012; Jones, 2015).

Secondly, the diverse knowledge and experience of each other provided opportunities for *increased performance*. Students appeared to have awareness surrounding the importance of achieving the overall group goal. This brought everyone together in pursuit of this goal. Thus, the finding is in line with collaborative learning practices that encourage collective responsibility for common goals (e.g., McConnell, 2002; McInnerney & Robert, 2004). Valkanos (2008), for example, argued, "The purpose of collaboration is to combine expertise and resources in order to meet the needs of all learners". Similarly, Goodyear et al. (2004) and Jones (2015) have also stated that collaboration and community are the underpinning values of networked learning practices. In other words, group members working together towards a common goal could be able to combine the diverse knowledge and experience of each other to increase the performance of the whole group.

Additionally, a sense of achievement played into students' motivations that encouraged them to work together towards a common goal. The focus here was on the reward of working with others towards the common goal.

However, within the conception here was also a tension between *personal* and *common* goals. That relationship between *personal* and *common* goals was often discussed in terms of an *unproductive learning*. The term *unproductive learning* here is meant to refer to negative attitudes and behaviours towards learning together. In a setting of working together towards a common goal, students are required to take responsibility, not only for their own learning, but also for other group members' learning – underpinned by the sense of sharing a common goal (Valkanos, 2008). This sense of

group responsibility and solidarity was sometimes conceived by students challengingly, because of different possible attitudes and behaviours towards cooperation and collaboration. This view of *unproductive learning* could be explained through an implicit cost to both an individual student and to the possibility of developing a common goal. Rienties, Nanclares, Hommes and Veermans (2014) have found evidence that sharing knowledge and expertise with others may be related to an implicit cost in terms of spending time and energy to explain and help one another in groups while the expected returns were considered unknown. In this sense, some students might be less willing to learning with others. It is perhaps interesting that such reservations in the ('Western') literature resonate so closely with students' conceptions here – because of the often repeated assumptions about the more-'collective' cultural assumptions in settings like South-East Asia compared with the West.

It is worth emphasising that this conception might also be influenced by the fact that teacher-centred learning approaches are still widely adopted and preferred in higher educational systems in the developing world (Danker, 2015). These learning approaches might cause a resistance to working together towards a common goal due to a shift away from the typical passive recipients of knowledge to more active participants in their learning with others, or to value other students as sources of learning goals. This finding supports that of Rungwaraphong (2012) and Fahmy et al. (2013) who have found evidence that the majority of students in the developing world are not yet ready for learner autonomy, particularly in Vietnam (Humphreys & Wyatt, 2014). Though the methodology and data here allow for little certainty on this point, it is plausible that while some elements of this conception bear similarity with the occasional scepticism towards 'collaborative learning' of some Western students, the underlying reasons might be quite different.

5.6 Summary of Findings

The analysis of the data captured variation in collective experience of students' accounts of four particular phenomena of networked learning in a Vietnamese university setting, namely learning through relations with resources, tutors and students; the roles of technology in mediating learning through connections; cooperation with others in learning; and working together towards a common goal. Taken all together, the findings present the answer to the main research question "*What is the extent of variation in how undergraduate students collectively experience networked learning phenomena when they are introduced in a higher education institution in a developing country?*", which is discussed throughout this section in the light of the existing literature on networked learning.

Given the two *fundamental* components of networked learning: connections and technology, it would seem that the findings of the present study provide evidence for an alternative view of networked learning in the Vietnamese setting. These two components, although discussed separately, are interrelated in networked learning environments. As Jones and de Laat (2016) stated that the key terms of networked learning is "connections and the emphasis is on the interactions between people mediated by technology and between people and resources" (p.44).

To consider the first component *connections*, the present study identified three qualitatively different categories (*resource access*, *knowledge transmission*, and *knowledge construction*) that described variation in ways of experiencing learning through relations. These categories show a shift of focus from student-resources to student-teacher and student-student connections. Different conceptions have different aims, but they converge in encouraging students in their learning through relations with

resources, teachers and students. In short, students perceived networked learning in a Vietnamese university setting as:

- *Resource access*

- *Knowledge Transmission*

- *Knowledge Construction*

In the first category of description *resource access*, the connection between students and resources was described in terms of accessing learning resources. The focal point was course materials provided by teachers or useful materials shared by other students. The emphasis here was on a range of learning sources made available on the LMS, which was used to promote connections between students and learning resources. This finding is similar to the findings of previous studies (e.g., Goodyear et al., 2004; Cutajar, 2014), which found that students access resources through digital networks.

In the second category of description *knowledge transmission*, the view of networked learning focussed on teacher-student interaction. When constituting learning through relations with teachers, students perceived learning as one-way of transmitting knowledge from the teacher to students. This category of description appeared to be different about how networked learning is described in the literature, because the fundamental aspects of networked learning rely on the learner's ability to establish connections. As the literature review indicates, networked learning highlights the importance of taking responsibility in the learning process (e.g., Nielsen & Danielsen, 2012), rather than becoming 'passive' learners, waiting for the transmission of knowledge from the teacher. At the same time, this category is more understandable in light of the fact that the teacher-centred approach is still widely used in higher education in Vietnam (Fahmy, et al., 2013).

In the third category of description *knowledge construction*, students focussed on student-student interaction as reflected in making meaning. What seems to be most important in this category of description is co-constructing knowledge through social interactions. This category of description seems to be relatively consistent with those of other studies that have shown values of collaboration and cooperation associated with networked learning (e.g., Hodgson et al., 2012; Raffaghelli & Richieri, 2012; Cutajar, 2014). Goodyear et al. (2004), among others, have highlighted human-human interaction, particularly social interactions as follows: "There is no point to networked learning if you do not value learning through co-operation, collaboration, dialog, and/or participation in a community" (p. 2). So how do collaboration and cooperation in learning in the Vietnamese context differ from those described in the literature? As mentioned earlier, this category of description can be scrutinised in more depth by discussing two phenomena: cooperation in learning and working towards a common goal.

On the subject of cooperation in learning, the analysis of data uncovered three categories of description which describe the various ways in which students perceived and experienced cooperation in learning. These categories were organised hierarchically ranging from a less to a more complex experience of cooperation in learning according to the structures of awareness and meaning structures expressed. In a formal academic setting, students developed and maintained connections through group work. They cooperated in the learning process by participating in discussions and dialogues, and sharing knowledge and learning sources. A common goal such as a group-based project was crucial to developing and maintaining connections between students. This form of learning was well structured, because it was appropriately structured by the teacher and took place in a formal academic setting.

On the other hand, in informal learning environments, learning in relation to other students might take many different forms such as exploratory or directing learning, but all referred to engaging or participating in learning activities with others of similar interests. The term 'exploratory' was used to reflect a form of learning in which some friends came together and formed a learning group to explore a given topic, e.g., studying difficult course materials together. Doing so is, of course, important because one underlying motivation for mentioning this issue to students was to unpick any conceived differences between 'collaboration' and 'cooperation'.

In contrast to exploratory learning, the term 'directing learning' referred to an unstructured form of learning with others in an online learning community. This form of learning was given by individual students. The individual students were driven by their learning needs. The learning situation was, therefore, very open, because the individual students took the initiative to engage with others on virtual learning environments by themselves.

In looking at working towards a common goal, students focussed their attention on some benefits and challenges of learning in relations to other students, which is then discussed in greater depth by examining interpersonal cooperation and relationship between 'personal' and 'common' goals.

The former gives student the opportunity to develop their knowledge of diversity awareness. Diversity awareness here reflects the ability to effectively interact with those from different backgrounds. Students who focussed on interpersonal cooperation believed that the diversity servers as a way for developing social skills that were of importance to students, not only for learning in groups but also for working in the future. However, they also identified links between the diversity and interpersonal

differences. They perceived that working with students with different backgrounds might lead to disagreements and negative impacts on cooperation and collaboration due to different attitudes towards working towards a common goal.

On the topic of the relationship between 'personal' and 'common' goals, students had different views of working together towards a common goal: increased understanding, increased performance and unproductive learning.

Increased understanding means that working with students with different backgrounds could help to improve understanding of a particular subject due to opportunities for participating in discussions, exchanging ideas and perspectives.

Increased performance is concerned with combining diverse knowledge, experiences and ideas to come up with better solutions to a given learning task and more specifically to achieve a common goal. The sense of the importance of achieving the overall group goal brings students together in an effort to combine their knowledge and ideas in order to achieve their overall group goal. Such a conception carries with it some beliefs about learning through relations with other students, with a focus on co-constructing knowledge. As the basis of this conception is that learning is characterised by cooperation and/or collaboration in the learning process rather than on the individual learner. It has been argued in the literature review, "Learning is not confined to the individual mind or the individual learner. Rather, learning and knowledge construction is located in the connections and interactions between learners, teachers and resources, and seen as emerging from critical dialogues and enquiries" (Ryberg et al., 2012, p. 45).

With regard to the view of unproductive learning, the relationship between 'personal' and 'common' goals was described in terms of negative attitudes and behaviours

towards collaboration; and time and effort spent on working with others. This finding has not been highlighted by previous studies on networked learning that tend to stress the importance of collaboration and cooperation (e.g., Goodyear et al., 2004; Jones, 2015).

To consider the second component *technology*, there are two main areas of discussion that address two phenomena: *the roles of technology in mediating learning through connections*; and *technologically-mediated cooperation*.

Looking first at the former, the findings identified three conceptualisations of the roles of technology in mediating learning through connections: *flexibility*, *tool* and *medium*. Those conceptualisations range from less sophisticated experience, emphasising the flexibility of time and place, to more sophisticated experience, focusing on the role of technology as a tool and a medium. The roles of technology in mediating learning through connections have been described in a range of contexts, from learning through connections with different constraints of time, pace and place, to situations that focussed on learning through connections mediated by ICT in a particular task context. The flexibility of technology – in the form of 'freedom' in time, space and pace – that supports communication and interaction may influence the way students interact, cooperate or collaborate with others, whereas the LMS was seen as the most influential tool for setting up learning through connections in the university setting, or ICT was perceived as a medium to facilitate learning through connections. However, although there were some differences between the three conceptions of the roles of technology in mediating learning through connections, there were also several similarities. An LMS, for example, might be used and become a communication medium of information sharing and cooperation/collaboration among group members. In contrast, a social

media group such as Facebook could be considered as a collaborative tool for a given project – though the arrangements for that project might well have been set up earlier via the LMS. This kind of transformation illustrates that the border line between different categories is not clear-cut. Rather, the similarities and differences of the categories were based on their structures of awareness and meaning structures. In other words, students brought different aspects to the fore of their awareness in describing the roles of technology in mediating learning through connections (as described in Chapter 4).

In looking to technologically-mediated cooperation, the findings of this study revealed broadband Internet access and computers being available to use that were of importance to working together to be successful in online learning environments. However, there was not equal broadband Internet access and computers being available to use among students. This should reflect a technological challenge to those of students who might need to interact and communicate online with their peers.

Regardless, advanced technology appeared to be an important component of networked learning. With the use of technology, students had opportunities to link with peers, teachers and learning resources online. In so doing, the students were able to learn through relations with resources, teachers and students at any time. Although the roles of technology were perceived in a variety of ways, but, in general, technology might be used to enable students to establish, develop and maintain connections with resources and people. However, there appeared to be a technological challenge in terms of broadband Internet access and computers being available to use in the Vietnamese context.

In comparing the findings of this study with those of Cutajar (2014), it seems that networked learning has been perceived in many different ways depending on the view taken by students and the context involved. Explanations of findings from the present study and Cutajar's study may account for the differences in the two samples in two different contexts. Table 5.2 presents the difference between two samples and their contexts, whereas Table 5.3 illustrates the similarities and differences in the findings of the two studies.

	Students' experiences of networked learning (Cutajar's study, 2014)	Students' conceptions of networked learning (this study)
Context	Malta: a developed country	Vietnam: a developing country
Sample	Thirty-two post-compulsory pre-university students	Seventeen undergraduate students
Research approach	Phenomenography	Phenomenography

Table 5.2 Differences between Cutajar's study and present study

Focus	Students' experiences of networked learning (Cutajar's study, 2014)	Students' conceptions of networked learning (this study)
Student-Resources Focus	Experiencing NL as the online accessibility of learning resources when required	Resource access
Teacher-Students Focus		Knowledge transmission
Student-Student Focus	Experiencing NL as using the Internet to follow through individual self-managed learning Experiencing NL as using the Internet for learning in connectivity with others Experiencing NL as using the Internet for learning in community with others	Knowledge construction

Table 5.3 Conceptions – similarities and differences between Cutajar's study and present study

When Cutajar's (2014) study was situated in a developed country, this study was carried out in a developing country where the teacher-centred approach is still dominant in higher institutions (Danker, 2015). Additionally, there are significant differences in the two samples in terms of size and student profiles. In contrast to Cutajar's (2014) sample, the participants in this study were a range of undergraduate students with different majors and years of study. It can be posited that the characteristics of a sample could influence the findings of a phenomenographic study, because different people could experience, understand and perceive a given phenomenon in different ways (see Marton, 1981; Marton & Booth, 1997).

When discussing the differences and similarities in the findings between the two studies, it would be worth keeping in mind that the aims of the two studies have been different. Cutajar's (2014) study was guided by the following single research question *"What are the qualitative differences in Maltese post-compulsory pre-university students' accounts of their Networked Learning experiences?"*. The present study, on the other hand, attempted to identify students' conceptions of networked learning by asking learners about the experiences of four different phenomena – each of which are both recognised as important within the networked learning literature, and mandated within Can Tho University as an institution.

Cutajar (2014) in her study found four different conceptions of networked learning as presented in Table 5.3. The first conception *"Experiencing NL as the online accessibility of learning resources when required"* seems to be reasonably consistent with the conception *resource access* identified in this study because both categories have similar characteristics: using technology to establish connections to resources; however, category of description *resource access* in the present study focussed more

on learning resources and contact information to others on LMS. As Jones and Dirckinck-Holmfeld (2009) argued, "Networked learning can take on a variety of meanings especially as it is taken up in different contexts" (p. 280).

Likewise, there are interesting similarities between Cutajar's (2014) other conceptions and the conception *knowledge construction* found in this study. Perhaps, one of the most significant similarities between these conceptions in two studies is that the importance of co-constructing knowledge through connections. On the other hand, key differences between these conceptions would centre on the way students have perceived learning in relation to others. An explanation of this could be found in the object of study. In phenomenographic research, the object of study is the variation in ways students experienced a particular phenomenon of study (Marton & Booth, 1997; Åkerlind, 2012). In this sense, different students might experience, understand and perceive the phenomenon in different ways, because they might have different perspectives in different contexts. As a result, they would perceive the world differently in different situations.

Additionally, this study found a distinct category of description which was labelled *knowledge transmission*. This conception focussed on the transmission of knowledge from the teacher to students. It differed from Cutajar's (2014) findings in that it reflected learning in relation to teachers in a particular developing country setting where the teacher-centred paradigm of teaching is still widely preferred in higher education (Danker, 2015). As described in Chapter 4, the conception *knowledge transmission* highlighted the learning process as one-way of transmitting knowledge from the teacher to students.

Drawing all the points above together, this study has provided an alternative view of networked learning in the Vietnamese context, because to some extent students' conceptions of networked learning were contextual. In the Vietnamese context, networked learning could be any learning that students learned by themselves or in (small) groups either in a formal academic or informal academic setting. This ranged from tasks such as accessing knowledgeable sources, collaboration/cooperation in group work, to exploring a topic together or participating in an online learning community. That is to say, students' conceptions of networked learning are shaped in a variety of ways by the contexts in which they are embedded. Thus, the findings of the present study support that of Eklund-Myrskog (1998) who found evidence about "conceptions and approaches are to some extent contextually dependent" (p. 299).

5.7 Conclusion

This chapter has discussed how the findings addressed the main research question and its sub-questions, and considered how the results of the present study extend knowledge about the field of networked learning. To put it in a nutshell, the outcome of the present study is an outcome space comprising of two components: connections and technology.

As described earlier in this chapter, connections have been argued as important elements of networked learning (Hodgson et al., 2012; Jones & de Laat, 2016). Such connections engage students and make them taking more responsibility for their learning. Considered in this light, although there were many similarities between students' conceptions of networked learning in the Vietnamese context and in the literature, it was obvious that networked learning is not perceived *uniformly* within particular settings. Different contexts may result in different ways of experiencing, understanding and perceiving networked learning (Jones & Dirckinck-Holmfeld,

2009). Students who participated in this study tended to focus on small groups, and the learning environment pointed to a combination of both face-to-face and online interactions, rather than large networks mediated by digital technologies.

Moreover, from a networked learning perspective, with a focus on human-resources interaction, learners engage in learning through their connections with a variety of resources made available for learning, especially a range of learning resources made available via digital networks (Hodgson et al., 2012; Jones, 2015). Interestingly, the findings of the present study differed to some extent from those of previous studies (e.g., Jones, 2013; Cutajar, 2014). Students in this study's setting tended to conceptualise human-resources interaction as accessing institutionally-provided resources, particularly on the LMS, although they also pointed to other resources from the wider Internet when discussing other aspects of networked learning.

In looking at the second component *technology*, this study identified three qualitatively different ways in which students perceived and experienced the roles of technology in mediating learning through connections, namely *flexibility*, *tool* and *medium*. This finding provides further evidence for the role of technology in mediating connections in light of the literature in the field of networked learning. Another important finding was that technological availability for mediating connections was perceived to be a challenge in the study context, because there was not equal broadband Internet access and computers being available to use among students.

The next chapter draws the thesis to a conclusion by reflecting on the study, discussing contributions, making brief recommendations, as well as outlining future research directions and the study's limitations.

Chapter 6 Conclusion

6.1 Introduction

The final chapter reflects on the study and considers the contributions this study has brought to the literature. On the basis of the findings of this study, a number of recommendations are made. Limitations of the study are also discussed. Finally, suggestions for future research are presented.

6.2 Reflecting on the Study

The aim of this study was to contribute to the knowledge and understanding about students' conceptions of networked learning in a particular developing country setting. The approach taken was to address students' conceptions of a number of aspects of networked learning that are considered important both in the peer-reviewed literature on the topic (which usually is based on analyses of data from Western contexts) and in the local institution (via education technology 'cooperation in learning' initiatives). In particular, the aspects addressed were as follows: learning through relations with resources, tutors and students; the roles of technology in mediating learning through connections; cooperation with others in learning; and working together towards a common goal. Doing so has allowed for linking a theoretical discussion with the present empirical study of local conceptions.

Using phenomenography, this study has identified qualitatively different conceptions that a group of undergraduate students had for those aspects of networked learning. The main outcomes of this phenomenographic study are categories of description for students' conceptions of the phenomena of study and the proposal of logical relations among these categories. It should be noted that the use of such a research approach

sought to identify qualitative different ways in which a sample of students experienced, understood, perceived and conceptualised networked learning at a *collective* level, so that the categories of description reflected a *collective* level of conceptions.

To summarise the findings in response to the research questions, there are four main points to be made as follows:

In response to the first research sub-question, the three categories of description (*resource access*, *knowledge transmission* and *knowledge construction*) explained the qualitatively different ways in which undergraduate students experienced, understood and perceived learning through relations with resources, tutors and students.

The answer to the second research sub-question indicated that the roles of technology in mediating learning through connections were perceived as *flexibility*, a *tool* and a *medium*. Moreover, students placed an emphasis on the university LMS because it provides the opportunity to bring different educational actors (teachers, students and learning resources) together for learning.

With regard to the third research sub-question, the analysis yielded three qualitatively distinct categories of description (*group work*, *exploratory learning* and *directing learning*) representing variation in ways students experienced and perceived cooperation in learning, ranging from a structured form of cooperation (*group work*) in a formal academic setting to an unstructured form of learning with either some friends to explore a given topic (*exploratory learning*) or with other students in an online learning community (*directing learning*). Those categories were differentiated from each other by the variation of different combinations of four dimensions: a) *learning context*; b) *learning outcomes*; c) *role of teachers*; and d) *role of students*.

For the fourth research sub-question, the findings of this study revealed that there was a variety of ways in which different students experienced, understood and perceived working together towards a common goal, namely *technologically-mediated cooperation*, *interpersonal cooperation* and *relationship between 'personal' and 'common' goals*. When constituting the benefits, rewards were considered as being not only in the personal development such as *diversity awareness* and *increased understanding*, but also in the *group's performance*, such as combining the diverse knowledge and experience of each other to increase the performance of the whole group. Despite a number of benefits associated with working together towards a common goal, there were some challenges that were perceived by students. Those challenges included *technological availability*, *interpersonal differences* and *unproductive learning*.

The answers to the four research sub-questions have provided a holistic picture of undergraduate students' conceptions of networked learning in a particular developing country setting.

When this study was situated in the Vietnamese context, the findings found some similarities and differences between students' conceptions of networked learning in the existing literature and in this study. The study found that students in the Vietnamese context increasingly have access to, and use a variety of ICT tools to support their learning with others and to access resources. They perceived the potential of those tools, particularly LMS, to improve the way they engage in learning with others and resources. For example, LMS and social media were perceived as tools that offer possibilities for establishing connections in a manner that would be impossible in an offline context.

Differences in students' conceptions of networked learning between this study and the existing literature suggest that similarities and differences in findings do emerge from differences in contexts. The description of similarities and differences with the existing literature is categorised as either a) student-resources interactions; b) teacher-student interactions; c) student-student interactions; and d) learning mediated by ICT. Table 6.1 provides an outline of similarities and differences with the existing literature.

Category of description	Conception	Similarities with the literature	Differences with the literature
Student-resources interactions			
Resource Access	Accessing knowledgeable sources. The focus of this conception centred on the process of using ICT to establish connections to resources; for example, students find the information that has been provided to them on the LMS.	This conception is similar to the findings of previous studies (Goodyear et al., 2004; Roberts, 2004; Blignaut and Lillejord, 2005; Cutajar, 2014) on using technology to access resources. Goodyear, et al. (2004), for example, referred to using networked learning technologies in networked learning courses. In a recent study of post-compulsory pre-university students' experiences of networked learning in a Maltese context, Cutajar (2014) reported that students use the Internet to access learning resources when required. This finding was found in the present study – students use a variety of ICT tools to establish connections to resources, particularly learning resources on the LMS.	This conception of the learners in this study focussed somewhat more on learning resources on the LMS. In other words, while 'learning with resources', from a networked learning point of view, is considered as connections with a variety of resources, the learners in this setting tended to conceptualise the issue in terms of institutionally-provided resources – even though their discussion of *other* issues made clear that they did use other resources, for example from the wider Internet.
Teacher-student interactions			
Knowledge Transmission	Transmitting knowledge from the teacher to students.		This category of description has not been highlighted in the existing literature, perhaps because (as highlighted in Chapter 2) that

			networked learning literature is often set up to
			examine (and normatively committed to) active
			and social conceptions of learning.
			When going about networked learning this way,
			students see networked learning as the act of
			transmitting knowledge from the teacher to
			students. In this sense, the role of students is
			actually being perceived as passive. Thus, this
			finding was in contrast to the findings by Nielsen
			and Danielsen (2012) who indicated that "students
			should not just passively receive teaching but be
			actively involved as learners" (p. 260) in a project-
			based networked learning environment. They also
			argued that networked learning changes the role of
			the teacher from a traditional knowledge provider
			into an academic supervisor and a social mediator.
			As stated in the literature, issues of active
			participation and student-centred approach in the
			learning process take on practical importance to
			networked learning (e.g., Hodgson et al., 2012).
			Unlike in student-centred educational systems,
			students in Vietnam have been trained to listen to

			their teachers (e.g., Fahmy, et al., 2013). The ways that they receive knowledge are therefore different. When the teacher is the centre of the learning process, students are encouraged to receive knowledge from their teachers. This finding is in line with other previous studies (e.g., Rungwaraphong, 2012; Pham & Renshaw, 2013), showing historic approaches to instruction have influenced the way students learn.
Student-student interactions			
Knowledge Construction	Constructing knowledge through social interactions This category represents a conception of relations to other students, rather than with teachers or resources.	This category of students' conceptions of networked learning seems to be reasonably consistent with those identified in the existing literature. It is clear that students who expressed this conception _do_ value those aspects of learning – though mainly in their relations with other students. For example, this conception shared some aspects of Cutajar's (2014) findings about learning with others where the focus was on connections with others for learning.	Students who participated in this study conceived networked learning as tending to focus on small groups, and the learning environment pointed to a combination of both face-to-face and online interactions, rather than a more broad purpose (within some community). This conception is slightly different from that dominant in the existing literature in that networked learning is viewed as large-scale collaboration through networked learning technologies (see Jones, 2013).

Group work	Cooperation in learning as a form of learning that involves students in (small) groups working towards a (given) learning task.	The conception in this category is slightly similar to the concept of collaborative learning. Where this category is in common with the literature is in focusing on working together towards a common goal.	This conception is at odds with those distinctions between 'collaborative' and 'cooperative' learning in the literature.
Exploratory learning	Cooperation in learning as a form of learning in which some friends come together and form a learning group to explore a given topic.	In this category, connecting with others (friends) for learning is a way experienced by students who see cooperation in learning as a friendship oriented network in which they explore a particular topic together.	Due to the friendships for cooperation, this form of cooperation in learning tends to place an emphasis on strong personal ties found in cooperation.
Directing learning	Cooperation in learning as a form of learning in which students take the initiative to engage with others on virtual learning environments.	Cooperation is initiated via the technological medium, and the social ties could be 'weak' (e.g., human-human interaction mediated by ICT and weak social relationships).	The conceptions in this category do seem to imply a relative separation between how students engage in 'exploration' with their friends, and how they are 'directing' their own learning in online 'communities'.
Interpersonal cooperation	Diversity awareness and interpersonal differences	This category reflects a conception of the social nature of working together in a diverse group that not only recognises diversity awareness, but also places an emphasis on dealing with interpersonal differences.	

		In this sense, social interaction seems to be one of the most important factors in learning with others in a diverse group.	
Relationship between 'personal' and 'common' goals	Increased understanding Increased performance Unproductive learning	Social interactions such as discussion, dialogue and co-construction are essential aspects of learning together. Collective responsibility for common goals	A tension between personal and common goals
Learning mediated by ICT			
Medium	Medium	As a medium in mediating learning through connections (mediating two-way communication and interaction)	
Tool	Tool (with an emphasis on LMS)	As a tool for interaction, communication and cooperation	The LMS is being conceived as a tool that provides one 'networked learning environment', where teachers, students and learning materials are linked together. In this way, the LMS is being conceived as providing an *integrated* environment in a way that diverges to some extent from the existing literature.
Flexibility	Flexibility	The role of technology as a means to increase the degrees of flexibility in time, space and pace of interaction and communication.	

Technologically-mediated cooperation	The role of technology in mediating interactions	Connections and interactions mediated by digital technologies	Challenges associated with the technologically-mediated cooperation in a particular developing country setting such as broadband Internet access and computers being available for students to use.

Table 6.1 Outline of similarities and differences with the existing literature

Finally, from a phenomenographic standpoint, this study clearly demonstrated the phenomenographic approach and its application to practice in a given developing country context. Different students conceptualise networked learning from different perspectives; their interpretations reflect variation in how they see and conceive networked learning. These variations in interpretation of a phenomenon by students are what underpin phenomenographic research approaches.

As a research tradition in education, phenomenography seems well suited for investigating students' conceptions of a certain phenomenon in different contexts. One of the unique features of phenomenographic approach is the adoption of a non-dualist ontological stance and a second-order perspective. Therefore, it is a particular means of educational research because its ability to describe a variety of ways in which students understand and experience a particular educational phenomenon.

6.3 Contributions

The contributions of this study fall into three areas. Firstly, the study has added to the body of knowledge on networked learning. The literature review has shown that very little empirical research has been carried out on students' conceptions of networked learning in the developing world (Shah & Hodgson, 2014). Therefore, there is a special need to carry out studies to fill this gap. The real strength of this study lies in its ability to look at in what ways students' conceptions of networked learning in a Vietnamese university setting are similar to and different from how those issues are discussed in the existing literature, which has mostly considered the issue from a Western vantage point. It is therefore unique in the sense that no such study currently exists in the literature. As discussed in the findings and discussion chapters, the present study has demonstrated that there are similarities with previous studies in the literature in terms

of the use of ICT to create connections with others and resources, but also, remarkable differences. Approaches to teaching and learning, autonomous learning ability, and technological barriers within which networked learning practices are embedded have influenced students' conceptions of networked learning. For example, students who participated in this study tended to focus on small groups, and the learning environment pointed to a combination of both face-face and online interactions. To put it in another way, the findings of this study should make an important contribution to the field of networked learning, because "the application and affordances of networked learning are constantly changing and this type of research helps to critically inform practitioners and help them reflect on the variety in networked learning practices and experiences" (Jones & de Laat, 2016, p. 56).

Secondly, studies on students' conception of learning are one of the core research areas in the field of educational research (Bowden & Marton, 2004), to which the present study makes a significant contribution. The findings of this study have made a significant contribution to educational research with regard to students' conceptions of networked learning in a particular developing country setting. As Marton and Booth (1997) argue, the significance of phenomenographic research in the field of education is as follows:

> In order to make sense of how people handle problems, situations, the world, we have to understand the way in which they experience the problems, the situations, the world, that they are handling or in relation to which they are acting. (p. 111)

Since the main outcomes of this study offer new insight into the different conceptions that students had for networked learning in a particular developing country setting, it

may help educators who are considering ways of helping or improving their students' experiences of networked learning in similar contexts. Moreover, by uncovering variation in conceptions of networked learning, this study contributes to understandings of the nature of networked learning in a particular developing country context. For example, the study revealed how technology was used differently in line with different conceptions of the roles of technology in mediating learning through connections, or cooperation in learning was perceived differently in different learning contexts. According to Marton (1981), different students dealing with a particular phenomenon differently may have understood and experienced the phenomenon differently.

Thirdly, since this study was carried out in the Vietnamese context, the findings reported in this study would be valuable to both educators and practitioners, who are seeking to design and integrate the networked learning concept into the curriculum in similar contexts. The body of this study into aspects of networked learning may serve to stimulate interest and dialogue about how to utilise the strengths of the networked learning concept in higher education, particularly in the Vietnamese context. In this sense, this study makes a significant contribution to networked learning practices by providing an evidence base of students' conceptions of some important aspects of networked learning in a Vietnamese university setting, including learning through relations with resources, tutors and students, the roles of technology in mediating learning through connections, cooperation with others in learning, and working together towards a common goal.

6.4 Recommendations

In the light of the findings, a number of recommendations are made to educators interested in promoting and adopting networked learning in similar contexts:

1. *Networked learning practices*

   For networked learning to succeed in a developing country context, it would be essential to not only put the necessary technological infrastructure in place, but also to come up with practices and approaches suitable for networked learning to take place. Latchem and Jung (2010) argued, "The important point to bear in mind is that whatever technology or mix of technology is used, this only becomes truly effective when it is combined with innovative and effective instructional design" (p. 6). In this sense, students in a developing country might need to be 'empowered' in ways that differ from standard Western practices – because of their personal histories experiencing teacher-centric education, and because of the prevailing institutional norms that also are about teacher-centric education forms.

   From a developing country perspective, networked learning is not necessarily bound to the large scale of networks, and to remote interactions mediated by ICT. There are alternative views of networked learning such as cooperation in learning in small groups or learning in relation to others and resources through the use of LMS and social media, because the centrality of networked learning is connections with an emphasis on learning through human-human connections (see Goodyear et al., 2004; Jones & de Laat, 2016). Furthermore, what the present study has also demonstrated is the importance of making use of both offline and online practices as 'networked learning', because it is not applicable to view networked learning as a 'large' network with fully online interactions in a particular developing country.

   In a particular developing country setting, the adoption of networked learning in teaching and learning practices may raise issues about what changes in pedagogy, the teacher's role, autonomous learning ability and the technological availability.

Educators planning to incorporate networked learning into their curricula should consider these practical matters in order for this incorporation to be successful.

Aligned with previous studies investigating students' approaches to learning in the developing world (e.g., Pham, 2010; Rungwaraphong, 2012; Danker, 2015), it is suggested that the successful design, development and adoption of networked learning in a particular developing country may necessitate a paradigm shift from teacher-centred to student-centred methods. The shift will put the student at the centre, as an active learner rather than a passive recipient of knowledge. From this perspective, the concept of networked learning can provide a potential way of promoting learning through relations; particularly, as offering a model for facilitating the relationships and involvements between teachers and students, between students and students, and between students and resources.

2. *LMS*

The findings of this study provided new insights into how LMS could be embedded in the context of networked learning, not only as a tool for accessing learning materials but also as a virtual space for learning through connections. In order to increasingly engage students to connect with others and make connections to learning resources, LMS should be considered as an integral part of networked learning environments – one that provides an 'integrated' environment that is valued by students. Educators may consider this issue in designing new ways of teaching and learning through relations (with resources, tutors and students), because LMS could be a central virtual space in which different educational actors (e.g., teachers, students and resources) could be linked together. Fields of practice

in which LMS could be utilised include a tool for learning through connections, and a medium for communication.

3. *Cooperation in learning*

Leading researchers in the field of networked learning (e.g., Goodyear et al., 2004; Jones, 2015) have argued the importance of learning through cooperation in a community. In order to support students becoming more involved in and responsible for their learning, educators may consider adopting cooperation in learning in their courses. The findings of this study found a variety of ways in which students experienced, understood and perceived cooperation in learning. Cooperation in learning could take many forms from a structured form of cooperation in a formal academic setting *group work* to situations in which students take the initiative to engage in learning with others such as *exploratory learning* and *directing learning*. The range of conceptions indicated that, cooperation in learning is more than cooperation in a formal academic setting; it also reflects a form of learning in which some friends come together and form a learning group to explore a given topic. As this form of cooperation in learning takes place in the existence of strong connections in the form of personal friendships, there would be interest in fostering a culture of discovery and engagement, where a group of students, as a whole, explores a given topic together.

Also, there is in some conceptions a reluctance to accept other students as a valid source of educational goals, meaning that it is difficult to construct 'common' goals. The example of the reluctance is *interpersonal differences* and *unproductive learning*. Thus, educators may consider the findings of this study useful in helping their students to develop conceptions of what and how they learn with others in

order to improve the quality of cooperation in learning. Marton (1988) states, "a careful account of the different ways people think about phenomena may help uncover conditions that facilitate the transition from one way of thinking to a qualitatively 'better' perceptions of reality" (p. 145). He further claims, "If we understand the relationship that exists between an individual and what he or she is trying to learn, our pedagogical opportunities are greatly expanded" (p. 154).

Additionally, educators may consider the ways in which their students could go beyond their small groups for utilising the potential of networked learning to expand their learning networks. As Jones et al. (2008) argue the importance of weak ties in learning with others in the context of networked learning.

4. *Technological impacts and networked learning environments*

Findings indicate that the use and adoption of networked learning might raise a question regarding the technological gaps among students in terms of broadband Internet access and computers being available to use, making it a challenge to view networked learning as large-scale learning networks through networked technologies in a developing country context. The broadband Internet access and computers available to students in many developing countries are still extremely low compared to developed countries (MIS 2014; UNESCO 2014). However, networked learning is not about technological mediation, but really about *connections between people*. Within a developing country context, educators should pay attention to the totality of resources and conditions when attempting to foster learning through connections; for example, providing opportunities to connect face-to-face such as cooperation in learning. In this way, educators may enrich their students' learning with others and expand their learning networks. Jones (2012a)

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suggests that a networked learning "is always selectively appropriated by students and tutors participating in it to make their own learning contexts" (p. 103).

In summary, previous research has mainly examined students' experiences of networked learning in developed country contexts. It is less clear how students experience, understand and perceive networked learning in the developing world. As such, this study has offered an evidence base in the form of qualitatively different ways in which students had for some important aspects of networked learning in a particular developing country setting (in this case the Vietnamese setting). It would be noted that none of the qualitatively different ways can be seen as superior in which a given phenomenon can be experienced, understood and perceived, because it is irrelevant to consider which way is good or bad. Instead, the findings have offered insight into a limited number of different ways that students had for the phenomenon. Therefore, educators and researchers may consider the findings of this study to draw implications for practice or to develop research agenda. For example, teachers need to consider the pedagogical aspects of technology integration (Steel & Andrews, 2012).

6.5 Limitations of the Study

This study is not without its limitations. There are two noteworthy limitations of this study. Firstly, the scope of the research was constrained by the sampling and recruitment of the participants. Due to time constraints, the research was limited to a small sample size of campus-based undergraduate students. It is not possible to generalize the findings to other settings (such as online or blended learning students in Vietnamese settings) because the findings could be different in other contexts (Marton & Booth, 1997). For example, in a more student-centred approach environment, students may have other conceptions of networked learning. Moreover, the sample of

this study was restricted to undergraduate students; further research may require because it would be valuable to look at how networked learning is used in postgraduate courses in the Vietnamese context. There may be interesting differences between undergraduate students and postgraduate students about the use of technology for establishing connections and for cooperation in learning.

Another limitation is related to reliability from the second order perspective. As Marton (1988) argued, "The original finding of the categories of description is a form of discovery, and discoveries do not have to be replicable". In this sense, different researchers may discover different structures of awareness and, as a result, construct different categories of description. In other words, the outcomes of a phenomenographic study being specific to the particular context in which the study was carried out, because "awareness changes dynamically all the time and every situation is experienced against the background of previous experiences" (Marton, Runesson & Tsui, 2004, p. 19).

6.6 Future Research Directions

Based on the limitations of the study, further research may be required into understanding how students experience and perceive networked learning practices in other developing country contexts, because phenomenography's intent is to identify what has occurred and therefore, the present findings are not likely generalizable to all developing country contexts. But continuing this type of research will help those who are seeking to gain insights relevant to how students experience and perceive networked learning in a particular developing country.

The research methodology applied in this study could be used to similar phenomenographic investigations of students' conceptions of networked learning in developing countries, because this would help to identify aspects of networked learning which are experienced or perceived similarly or differently across developing countries and where there are educational systems and cultural influences which may impact students' conceptions.

Additionally, a number of questions arise for future research as follows:

> *To what extent is it useful to incorporate networked learning into teaching and learning practices in a developing country context?*
>
> *What is the extent of variation in how teachers collectively experience networked learning in a developing country context?*
>
> *What are good practices for learning with others in a developing country context?*

These questions are important because this phenomenographic study did not intend to identify which way of experience is good or bad. Rather, it is a matter of concern for those who want to determine what aspects of networked learning should be investigated further in order to adapt the concept of networked learning in a particular educational context; for example, in what ways teachers could adopt networked learning into their courses or what benefits social media may bring for connecting with others and for making meaning through social interaction. Also, the outcomes of these questions could enrich the discussion on the adoption of networked learning in higher education in a developing country context.

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Appendix A Participant Consent Form

Department of Educational Research
County South, Lancaster University, LA1 4YD, UK
Tel: +44 (0) 1524 592685

LANCASTER
UNIVERSITY
Department of
Educational Research

Consent Form

Title of Project: A Study of Students' Conceptions of Networked Learning in a Developing Country Setting

Name of Researcher: Tan Thinh Nguyen

		Please Tick
1.	I confirm that I have read and understand the information sheet dated _____for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	
2.	I understand that my participation in this research study is voluntary. If for any reason I wish to withdraw during the period of this study, I am free to do so without providing any reason. I understand that my anonymity will be ensured. I give consent for all my contributions to be included and/or quoted in this study.	
3.	I consent to the interview being audio-recorded	
4.	I understand that the information I provide will be used for a Ph.D research project and may be published. I understand that I have the right to review and comment on the information provided before the final submission	
5.	I agree to take part in the above study.	

Name of Participant:

Signature

Date

Appendix B Participant Information Sheet

Department of Educational Research
County South, Lancaster University, LA1 4YD, UK
Tel: +44 (0) 1524 592685

LANCASTER
UNIVERSITY

Participant Information Sheet

Title of Project: A Study of Students' Conceptions of Networked Learning in a Developing Country Setting

Researcher: **Tan Thinh Nguyen**

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Tel: +46(0) 700 730 117

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Supervisor: **Dr Brett Bligh**

County South, Lancaster University, Bailrigg, Lancaster, United Kingdom, LA1 4YL

Tel: +44 (0) 1524 592863

Email: b.bligh@lancaster.ac.uk

Date: March 2014,

Dear Student,

My name is Tan Thinh Nguyen. I am a PhD student in the Department of Educational Research at the University of Lancaster in United Kingdom under the supervision of Dr. Brett Bligh. I am conducting a research study as part of my doctoral studies, and I would like to invite you to participate. You have been invited because you are a student at the Can Tho University using the learning management system. Your participation is completely voluntary, and you may decide not to participate or to withdraw from participation at any time. Not participating or withdrawing will in no way affect your relationship with the Can Tho University.

The purpose of the study

This research is for my PhD thesis in the Department of Educational Research at Lancaster University. The research may also be used for journal articles and conference presentations.

My research aims to explore the ways in which students conceptualize some important areas of networked learning on a learning management system in a developing country context. The main points of focus for the investigation are learning in connections with others and resources, collaboration and the impact of technology on the building of ties on a learning management system.

1

If you agree to participate in this research, you would be interviewed for about one hour. The meeting will take place at the Can Tho University, via Skype, telephone or a mutually agreed upon time and place. The interview will be audio taped so that I can accurately reflect on what is discussed. The tapes will only be reviewed by me who will transcribe and analyse them. The interview includes questions about your experience and perceptions of networked learning on the Can Tho university's learning management system. You do not have to answer any questions that you do not wish to. You can withdraw or stop at any time without consequence of any kind. You can also decide to stop being a part of the research at any time without explanation. Your privacy and confidentiality will be guaranteed.

Protecting your data and identity

What will happen to the data?

All data will be stored in a safe and secure location. I will not lodge the data with a data archive. Audio recording will be transferred and stored on my personal laptop and deleted from partable media. The data may be kept for five years after the successful completion of the PhD Viva as per Lancaster University requirements and for the purpose of publication, and after any personal data will be destroyed.

Identifiable data on my personal laptop will be encrypted. With devices such as portable recorders where this is not possible identifiable data will be deleted as quickly as possible. In the mean time I will ensure the portable device will be kept safely until the data is deleted.

You can request to listen to the audio at the end of the interview and any parts you are unhappy with will be disregarded from the data. Data may be used in the reporting of the research in the thesis and then potentially in any papers or conference presentations, but your identity will not be revealed. You have the right to request this data is destroyed at any time during the study as well as having full protection via the UK Data Protection Act.

How will my identity be protected?

Your identity will be kept confidential. Participation is anonymous, which means that no one will know what your answers are. A pseudonym will be given to protect your identity in the research report and any identifying information about you will be removed from the report. Only non-identifiaable data will be published.

What participation involves and how to withdraw if you no longer wish to participate

Why have I been invited?

You have been invited because you are a student at the Can Tho University using the learning management system.

Do I have to take part?

No, your participation is entirely voluntary and you can refuse to participate with no consequences of any kind. If you do not wish to take part, then please let me know. If you do not wish to be observed or recorded, please indicate this. Every effort will then be taken to ensure that your data/voice is removed from recordings by editing out where possible or excluding such data from any transcription.

You cannot claim expenses for taking part. You may refuse or omit to answer any of the questions I ask you and you may stop or end the interview at any time.

You always have the right to withdraw at any time with no consequences of any kind. There is absolutely no obligation on you to continue nor penalty for withdrawing. Your related data (recordings, notes) can be destroyed and all reference removed at any time.

If you withdraw up to two weeks after your interview, your data will be destroyed and not used; but after this point the data will remain in the study.

Who to contact for further information or with any concerns

If you would like further information on this project, the programme within which the research is being conducted or have any concerns about the project, participation or my conduct as a researcher please contact:

Dr Paul Ashwin – Head of Department

Tel: +44 (0)1524 594443

Email: P.Ashwin@Lancaster.ac.uk

Room: County South, D32, Lancaster University, Lancaster, LA1 4YD, UK.

Thank you for reading this information sheet.

Best regards

Tan Thinh Nguyen

Appendix C Interview Protocol

Student Profile

Name:

Email:

Phone:

Sex:

Age:

Discipline:

Year of Study:

Study Modes (Full-time, Part-time):

Part A: Student Profile

- Please tell me about your background

- What is your field of study (department and major)?

- What is the title of your course?

- What year are you studying?

- How long have you studied at the Can Tho University (CTU)?

Part B: The interview guide

The interview guide included the following main questions which were simple because the primary focus stayed on the student.

Focus 1: Learning through Relations

- What do you think that learning means?

- Could you tell me about an example of something you have learned?

- Could you tell me ways of working/learning together?

- Could you tell me about your experiences of learning/working with other students?

- Please describe your experience of learning in relation to others and learning resources

- Could you give me an example of working together towards a common goal?

- Please tell me what you understand when you hear the phrase "cooperation in learning"

- What role do you think technology has in learning in relation to other people?

- What role do you think technology has in learning in relation to learning resources?

- How do you get learning resources?

- Please tell me about your experience of using technology for collaborative and interactive purposes

- What do you like about the use of technology in developing and sustaining interaction and collaborations?

- What are the benefits of utilizing technology for learning?

- What are the challenges of using technology?

- Could you tell me some benefits of working together towards a common goal?

- Could you tell me some challenges of working together towards a common goal?

- In your own words, would you please conceptualise networked learning?

- How do you get involved in networked learning?

- How do you conceptualise the way you learn with other students?

- How is the role of technology in learning through relations with learning resources, tutors and students?

- What are the major opportunities of networked learning?

Focus 2: The Roles of Technology in Mediating Learning through Connections

- In your own words, would you describe the use of ICT in learning and teaching at the Can Tho University?

- Can you give examples of ways you use technology to communicate (collaborate/cooperate) and interact with others?

- How do you use technology in learning?

- Can you give an example of using technology for collaboration/cooperation?

- Which technological tools do you use for interacting and communicating with others? Why?

- How do you think the roles of technology in mediating learning through connection?

- How do you perceive the role of technology in developing and sustaining collaborations and interactions?

Focus 3: Cooperation in Learning

- What do you think cooperation in learning is?

- In your own words, would you please describe cooperation in learning?
- How do you perceive cooperation in learning activities towards a common goal (group work discussions, solving problems together)?
- How long have you experienced working together on academic tasks towards a common goal (for example group projects or project-based learning)?
- How is cooperation in learning formed?
- How is cooperation in learning taken place in online settings?
- How is cooperation in learning taken place in face-to-face settings?
- How do you get involved in working together on an academic task?
- Is cooperation in learning working for you – why or why not?
- What are your main purposes for participating in cooperation in learning?
- What motivates you to participate in cooperative activities?
- What are the major opportunities of cooperation in learning?

Focus 4: Benefits/Challenges
- Can you give examples of benefits when working with others?
- What are the benefits of working together?
- Can you give examples of challenges when working with others?
- What are challenges you face in working together?
- How can these challenges be overcome?

Listen and respond to the interviewee by asking follow-up questions and probing.
- Please tell me more about …?

Post interview comments, discussions and observations!