How can a Community of Practice concept and process support undergraduates learning experiences?

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DECLARATION

I hereby certify that this material, which I now submit for assessment on the programme of study leading to the award of Ph.D., is entirely my own work, that I have exercised reasonable care to ensure that the work is original, and does not to the best of my knowledge breach any law of copyright, and has not been taken from the work of others save and to the extent that such work has been cited and acknowledged within the text of my work.

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LIST OF ABBREVIATIONS

CAO: Central Applications Office

CAP: Cognitive Affective Psychomotor

CCS: Classroom Community Scale

CGT: Classic Grounded Theory

CP: Cognitive Presence

CPD: Continuing Professional Development

COP: Community of Practice

DES: Department of Education and Skills

ICT: Information and Communication Technology

ITE: Initial Teacher Education

HE: Higher Education

HEA: Higher Education Authority

LMS: Learning Management System

OLC: Online Learning Community

PLE: Personal Learning Environment

SNS: Social Network Services

SP: Social Presence

TP: Teaching Presence

VLE: Virtual Learning Environment

GLOSSARY OF REFERENCES USED IN DATA ANALYSIS FOR ANONYMITY OF PARTICIPANTS

P0#   Designation for participant

FS   Final Survey (Case Study One and Two)

Int   Interview (Case Study One and Two)

Ref   Reflection on COP (Case Study Two)

FG   Focus Group (Case Study Two)

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ABSTRACT

The theory of Communities of Practice (COP) has evolved from an expression of the situated learning taking place in the relationship between apprentice and master (Lave and Wenger, 1991), to organisational knowledge capture and knowledge management (Rivera, 2011; Iverson and McPhee, 2002) to social learning containers in EU funded projects (Wenger, 2009) to sustainable development enterprises (Bradbury and Middlemiss, 2014). Increasingly, the concept of communities of practice within education is suggested as a valuable and useful tool for sharing of practice, resources and ideas.

This study focuses on the introduction of an online community of practice into the final year of an undergraduate degree in education and training. The research was undertaken through a collective case study using a mixed methods approach to examine two separate year groups of students' reactions to, and use of a COP. Data was collected through interview, survey, focus group and examination of Facebook and COP posts. Two quantitative instruments developed by Rovai - the Classroom Community Scale (2002) and The CAP Perceived Learning Scale (2009) - were used to ascertain students' sense of community and level of learning. Students' also completed the Kolb Learning Styles Inventory (2007) in order to identify the influence, if any, of learning styles on interaction online.

This study found that students perceived a number of benefits from participating in a COP. These included a greater connection with peers through sharing insights and resources; alleviation of stress through benchmarking with peers; high levels of affective, cognitive and psychomotor learning; direct and timely access to expert assistance and feedback, and recognition that collaboration and co-operation is not only useful but desirable when pursuing individual goals in a shared domain. There was no clear relationship between learning style, sense of community and levels of learning. Students who declared an Accommodating and/or Diverging learning style tended to interact more than those with Assimilating or Converging learning styles. This is consistent with the characteristics of these styles. The COP also provided a bridging online space for traditional and mature students to engage with each other, overcoming assumptions and stereotypical attitudes in the process.

"Given the unequivocal consensus from over two decades of learning community research, it is now time to move beyond the question 'Are student learning communities effective?' to the question of 'What design decisions can enhance the effectiveness of student learning communities?'" (Buch et al., 2013, p. 17).

1.1   CONTEXT OF THIS STUDY

This piece of research sets out to examine how a Community of Practice concept and process can support undergraduates learning experiences. Communities of Practice (COP) are "groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly" (Wenger, 1998).The combination of the three aspects of Communities of Practice: the domain, the community and the practice are what constitutes a Community of Practice and differentiates them from a neighbourhood community or a Community of Interest. COPs are being used as valuable tools for shared practice in business, government, schools and the Web. The aim of this research is to explore how undergraduate students undertaking a research module understand and apply the concept and process of a Community of Practice to their own learning and professional journey. As will be explained in subsequent chapters, the Community of Practice in this instance was provided online as a practical solution to issues of access and time. This thesis does not purport to use theories of e-learning or online learning in the design, provision or evaluation of the COP. The research is concerned with the learner experience of the COP concept and process and how that experience might contribute to the totality of their learning experience in higher education.

The National Forum for the Enhancement of Teaching and Learning in Higher Education, in their vision for digital capacity in Irish higher education, envisage a sector characterised by an environment in which "digital platforms, resources and tools are utilised to enhance teaching, learning and assessment, to connect teachers and students, and to increase the level and quality of learning related communication" (2015, p. vi). Increasing use of technology across our connected world is leading to debates on digital literacy, digital identity and the need to integrate technology tools and resources into our teaching and learning across all education settings. Experts in the NMC Horizon Report 2015 (Johnson et al, 2015) agree on two long term trends in higher education: "advancing learning environments that are flexible and drive innovation, as well as increasing the collaboration that takes place between higher education institutions" (p. 1). Research shows that social learning is a powerful tool for students to learn with and from each other in the physical classroom environment, through online cooperation in Social Networking Sites (SNS) or other online discussion forums (Dabbagh and Kitsantas, 2012; Dunlap, and Lowenthal, 2009; Deng and Yuen, 2011; Top, 2012).

Researchers also suggest that further research is necessary to explore students' views on the use of social networking sites in education and that there needs to be a recognition that any such use should not be universally imposed but take into consideration difference in culture and educational practice at local level (Crook, 2012; Manca and Ranlerit, 2013; Selwyn, 2012). Barnett, in his examination of the "universal in university" (2005), recognises that there is an ontological shift taking place. He conceptualises it as "from knowledge to being: instead of knowing the world, being-in-the-world has to take primary place in the conceptualizations that inform university teaching" (p. 795). This increasing openness to

learners as human beings who are connected to others through social networks and shared understandings of online environments and media can, this researcher believes, co-exist with traditional pedagogical practice. Indeed it is arguable that this co-existence is mutually beneficial and can be realised through constructivist approaches in teaching, facilitating self-directed learning, and enabling students to learn from each other through communication, cooperation, and collaboration.

1.2   BACKGROUND TO THIS STUDY

This research set out to examine the application of an online community of practice as a vehicle for peer support in a final year research module of an education and training degree. The research topic emerged from a realisation that not all students in class groups on a degree programme are using social media as a collaborative or peer support tool, and that mature members of the class group were forming a separate cohort of students within the overall class. This separation was apparent in the classroom and online when it emerged through class discussion that the traditional students were using Facebook as a social tool but mature students were actively avoiding it.

If we accept the feasibility of co-existence discussed above then the approaches to teaching and learning adopted are of real importance. Cercone (2008) notes that the instructivist and constructivist approaches to teaching and learning are considered to lie at either end of a continuum. "In an instructivist approach, the instructor sets performance objectives and develops a systematic approach to the learning content that is independent of the learner, while the constructivist philosophy places the emphasis on the learner and the learner's interpretations through self-directed explorations" (p. 142). One way of supporting a

constructivist approach is to provide opportunities for learners to explore and discuss issues and topics with each other through a forum or a discussion space. Coates (2005) defines learning as being influenced by "how an individual participates in educationally purposeful activities. Learning is seen as a 'joint proposition' ... [H]owever, it also depends on institutions and staff providing students with the conditions, opportunities and expectations to become involved". This researcher felt that an online community of practice may give learners the opportunity, as novice educators, to appreciate how a community of practice works and how it can support learning and debate on specific topics.

1.3   COMMUNITIES OF PRACTICE

The concept of a Community of Practice (COP) is informed by the work of Etienne Wenger and Jean Lave from their examination of ethnographic studies of apprenticeships. They noticed that the information and knowledge passing between mentor and mentee was much more than the sum of their parts. They wanted to articulate what it was about apprenticeship that seemed so compelling as a learning process (Lave and Wenger, 1991).

From this research they coined the term 'Community of Practice' or COP, which describes a group of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis. Liedtka (1999) describes communities of practice as ''individuals united in action'' (p. 5).

The communities of practice theory and concept have crossed boundaries into a range of sectors beginning in apprenticeships and moving through organisations and large scale corporations such as Xerox and IBM (Probst and Borzillo, 2008), education and training

(Albion, 2008; Polin, 2010; Evans and Powell, 2007), health and education, computer mediated communication (CMC) (DeSouza and Preece, 2004; Zhao and Bishop, 2011), and sustainable development (Morgan, 2011; Bradbury and Middlemiss, 2014). Increasingly, the concept of communities of practice within education is suggested as a valuable and useful tool for sharing of practice, resources and ideas. An online community of practice is supported with "technology-based platforms, tools, features and configurations, removing barriers of time and space" (U.S. Department of Education, 2011, p. 5).

Wenger, Trayner, and de Laat explain that communities and networks (2011) are often thought of as two different types of social structure. They regard them as two aspects of social structures in which learning takes place:

> The **network** aspect refers to the set of relationships, personal interactions, and connections among participants who have personal reasons to connect. It is viewed as a set of nodes and links with affordances for learning, such as information flows, helpful linkages, joint problem solving, and knowledge creation. The **community** aspect refers to the development of a shared identity around a topic or set of challenges. It represents a collective intention – however tacit and distributed – to steward a domain of knowledge and to sustain learning about it (p. 9).

The range of terminology and definitions of communities and networks as social structures that has evolved in education, computer mediated communication, and other sectors will be addressed in greater detail in Chapter Two – Literature Review.

1.4   RESEARCH SETTING

The research setting was Dublin City University, established in 1989, which currently has a student population of almost 11,500 (TopUniversities 2016). Participants were drawn from an undergraduate degree, the BSc in Education and Training, which is offered as a three year and four year option. Students graduating after three years receive an honours degree in education and training but are not recognised by the Teaching Council as teachers. The degree in its four year option is an applied initial teacher education (ITE) qualification that focuses on providing students with the knowledge, skills, and professional approach required to work as a tutor in the Further Education sector in Ireland. Students graduating from the four degree option may register as teachers for the Further Education sector with the Teaching Council. (See Table 1.1 below for the academic structure of the programme.)

Year One	
Semester 1	*Semester 2*
Academic Writing and Reading	
Curriculum Development	Concepts and Contexts in Education and Training
ICT-enabled Ed. For Sustainable Development	Microteaching and Teaching Preparation
Lifespan Development	Citizenship, Diversity and Inclusion
Social & Personal Development with Communication Skills	Entrepreneurship in Education and Training
Human Development – Power and Politics	
Year Two	
Semester 1	*Semester 2*
Assessment and Feedback	Mediation Skills for the Learning Context
Advanced Teaching Strategies	Project Management
Professional Skills and Practice	Reflective Work-based Practice
Psych. of Individual Difference & Diversity	Policy & Structures in Education & Training
Creative Instructional Design	Sociology of Education and Training
Optional Placement Year Further Education and Training Settings (FET)	
Placement in FET setting	Placement in FET setting
Year Three/Four	
Semester 1	*Semester 2*
Values, Identity and Intercultural Learning	Enterprise Education & Team Learning
Equality, Access and Inclusion	Creating Learning Environments Using ICT
Developing a Research Perspective	Research Project 2
Research Project 1	Philosophical Perspectives on Education
Learning Organisation & Professional Development	

Table 1.1   Modules on the BSc in Education and Training over 3 or 4 years

By the start of year three, students have completed 20 modules on a variety of topics related to education and training, including curriculum development, citizenship, diversity and inclusion, microteaching and teaching preparation, entrepreneurship in education, and training and mediation skills for the learning context. Each of these modules offers assessment in a variety of forms including examination, essays, reflective diary entries, critiques, and group work. Students learn about group work through cooperative learning strategies and aspects of project management and pedagogy, as well as by participating in self-selected or lecturer directed groupings.

Final year students take three modules related to research over two semesters: the first two modules in Semester 1 – Research Project 1 and Developing a Research Project – and a module in Semester 2 called Research Project 2. The students carry out field work on their chosen topic in Semester 2 and write a qualitative research thesis for submission in May. The module Research Project 1 in Semester 1 aims to provide students with the theoretical knowledge and skills of understanding and conducting a comprehensive literature review. It enables students to critically reflect, evaluate, and synthesise from a variety of sources in academic literature. This provides students with literature review skills that are academic, rigorous, and valid in an education and/or training context. In addition, students are required to research and present a detailed project proposal and a rationale for the proposed methodology. See Appendix A for the learning outcomes of this module.

1.5   RESEARCH QUESTIONS

Chelimsky (2007) observed that a research study does not begin with a design or method, but rather with a well-defined and well-justified purpose and a clearly delineated set of

inquiry questions (cited in Greene, 2007, p. 97). Yin recommends the use of How? or Why? questions when devising a research question as they are more explanatory and can give an overview of practice and process over time "rather than mere frequencies or incidence" (2014, p. 10).

The research question that guides this study is:

How can an online community of practice support an undergraduate's learning experience on a research module?

The exploration of this question led to the development of a number of research sub-questions:

R1: How does an online community of practice support the learning of undergraduate students?

R2: What are the benefits for students who participate in online communities of practice?

R3: Can an online community of practice improve the social cohesion of an undergraduate class group?

R4: How important is the level of participation of the lecturer in the Community?

R5: How important is the selection of technology that hosts the online COP for the students?

The research is primarily qualitative in nature, as qualitative research is "an umbrella term covering an array of interpretive techniques which seek to describe, decode, translate, and otherwise come to terms with the meaning, not the frequency, of certain more or less naturally occurring phenomena in the social world" (Van Mannen, 1979, cited in Merriam, 2009, p. 13). An examination of the literature in the area of online communities shows that many researchers have a pragmatic attitude to the application of methodologies used to examine interaction and other aspects within COPs and online communities: Toral et al. (2009) used social network theory to examine the driving theory behind online communities; Akyol and Garrison, (2011) used transcript analysis to assess meta-cognition in an online community of inquiry; Nandi, Hamilton, and Harland (2012) used case study methodology to evaluate asynchronous discussions in fully online courses; and a study of an academic COP within the National Digital Learning Resources (Dundon, Diggins, and Exton, 2012) used a combination of online questionnaire and individual interview to explore how academics share knowledge. Ke and Hoadley's (2009) review of how online learning communities are evaluated in the literature found that "choices of evaluation approach measures, and techniques are linked not only to the particular goals of the OLC [Online Learning Community] researchers but also to the researchers' theoretical assumptions" (p. 504). This study's theoretical assumptions will be described in the methodology chapter, section 3.4, phase two: theoretical assumptions.

This study adopts a case study as its core methodological structure and presents the outcomes of two discrete though linked case studies describing the use of COPs with two student groups, with the latter building iteratively on the former. The study, although primarily qualitative in approach and method, employs two self-reporting tools to quantify a

sense of learnedness and a sense of community. As such, this study may be regarded as utilising a mixed methods approach. This will be explored further in Chapter Three – Methodology.

1.6 FINDINGS FROM THIS STUDY

The findings of this study show that the introduction of a community of practice (COP) to final year students encouraged them to engage with each other in a more academically focused manner, share resources and discuss course work objectives through online chat and video. The 'cliques' of first year and second year dissipated in the online COP overcoming perceived age boundaries and allowing students to make new connections with peers. Students reported that the COP benefited them by providing: support from peers and the lecturer; the ability to discuss coursework without judgement; the opportunity to share resources, ideas and tips; and a safe and comforting space for communication. A study of interactions on the online COP and on Facebook revealed patterns of behaviour related to student concerns around judgement, identity and practicalities. These findings and their relevance to existing literature will be discussed in chapters four, five and six.

1.7 THESIS SYNOPSIS

This thesis is composed of seven chapters which will follow the standard organisation of a humanities thesis. The content of each chapter is as follows:

This chapter, Introduction, presented the context of this study and the background to communities of practice. It described the research setting where the research study took

place and provided the research questions which guided the study. The main findings of the study were highlighted and the thesis described briefly in chapter format.

In Chapter Two, the literature review will examine relevant literature relating to communities of practice, theories informing the concept, and applications of communities of practice in education.

In Chapter Three, Methodology, the chapter will follow a five phase model for a research process proposed by Denzin and Lincoln (2005, p. 23). This model will present the viewpoint of the researcher, the theoretical paradigm in which the research is located, the research strategy chosen, the methods of data collection, and analysis. The chapter will also address the timeframe in which data was gathered and will conclude with an explanation of research reliability and validity and ethics in both online research and qualitative research.

Chapter Four will present the findings of Case Study One through the lens of a customer relations model structure: people, process, and technology (Christopher, Payne, and Ballantyne, 1991). This model was adapted to provide a clear, linear structure for the presentation of findings from a range of data collection methods.

Chapter Five will present the findings of Case Study Two through the same lens of people, process, and technology (Christopher, Payne, and Ballantyne, 1991). This model will allow the reader to view findings from Case Study Two through a structured presentation under themes.

Chapter Six will bring together the findings of Chapters Three and Four and discuss them under thematic headings drawn from the data. The discussion will rationalise the findings and present plausible explanations and/or relationships between the themes. Relevant literature from the fields of educational research and e-learning will be presented where appropriate.

Chapter Six will also propose a set of recommendations drawn from the discussion in order to improve the educational experience of students and lecturers on the degree programme.

Chapter Seven will revisit the research questions outlined in Chapter One (Introduction) and examine whether the case study has successfully provided answers to these questions. It will also present recommendations from the study and opportunities for further research.

1.7   CONCLUSION

The following chapter, literature review, will contextualise the purpose of this study by locating it in the existing body of knowledge and peer reviewed literature relating to communities of practice, online learning, and learning theories. It will present and discuss a wide range of literature that relate to communities of practice from journal articles, PhDs, conference proceedings and books that link aspects of learning theory, types of communities, the importance of social and community activities in e-learning and pedagogical considerations.

CHAPTER TWO: LITERATURE REVIEW

2.1 INTRODUCTION

This literature review is divided into four parts: Communities of Practice; Learning Theories and Concepts; Community in online spaces; and Communities and students. The review explores concepts of community and learning communities in practice and the importance of a sense of community in learning. "Learning theories and concepts" outlines the relationship between learning theory and e-learning, including concepts such as social presence and cognitive presence in blended learning. "Community in online spaces" examines emotions in online interactions and explores virtual learning environments and personal learning environments in higher education. The final section comments on the use of COPs in initial teacher education, the demographic of students, and their readiness to learn through an online mediated space.

2.2 COMMUNITIES AND HOW THEY ARE USED IN EDUCATION

This section will present the concept of communities of practice, their origin, and how they work. It will also examine learning communities, professional learning communities, and online learning communities and how social capital and a sense of community can impact on learning.

2.2.1 Communities of Practice

The concept of a Community of Practice (COP) as described previously evolved from the work of Wenger and Lave in the early 1990s. A community of practice can be defined along three dimensions (Wenger, 1998): What it is about – its *joint enterprise* as understood and continually renegotiated by its members; How it functions – mutual engagements that binds

members together into a social entity; and what capability it has produced – the shared repertoire of communal resources (routines, sensibilities, artefacts, vocabulary, styles, etc.) that members have developed over time (see, also Wenger, 1999, pp.73–84). Participation is the key to communities of practice, with negotiation of meaning and reification the outcomes of such participation between members. Wenger, McDermott, and Snyder (2002) developed this theory further through case study research in organisations that explored work practice and communication, both formal and informal, in order to provide practical models and methods for stewarding COPs (p. 104). Stewardship in the context of COPs refers to managing a mature community in order to maintain it: maintaining the relevance of a domain and finding a voice in the wider context; keeping the tone and intellectual focus of the community lively and engaging; and keeping the community on the cutting edge of practice (Wenger, McDermott, and Snyder, 2002, p. 104).

2.2.2   Learning in shared spaces – issues of definition

An examination of the literature in the area of communities of practice will reveal a range of terms and definitions of community in education for students, teachers, staff, schools, higher education, and government departments. Dawson (2006, p. 154) found that "the term learning communities and communities of practice are often used interchangeably, as both concepts relate to the process of learning and the socialisation that serves to facilitate learning." Various terms reflecting nuances in membership, structure, and content of communities in the literature have produced a variety of terms such as knowledge building communities (Hoadley and Kilner, 2005), Community of Practitioners (Gherardi, 2006), and Collectivity of Practice (Lindkvist, 2005).

2.2.2.1 Learning Communities

Riel and Fulton's (2001) definition of a learning community is of a group of people who "share a way of knowing, a set of practices, and the shared value of the knowledge that these procedures generate. There are ways for novices and experts to work in the same system to accomplish similar goals" (p. 519). In contrast, Carlen and Jobring's (2005) definition of a learning community is as a learning atmosphere, "a context providing a supportive system from which sustainable learning processes are gained through a dialogue and collaborative construction of knowledge by acquiring, generating, analyzing and structuring information" (p. 273), clearly indicates that learning is gained through dialogue and structure rather than through a goal oriented process. McConnell (2006, p. 19) defines learning community as "a cohesive community that embodies a culture of learning and members are involved in a collective effort of understanding".

Learning communities (LCs) in some form are being used at more than 500 education institutions internationally, and their scope is matched by their variety in terms of size, structure, methods, and focus (Barron et al., 2010). Reilly et al. (2012) found that learning communities, also referred to as communities of practice, provide an active, connected approach with the potential to enhance and expand professional growth opportunities in university faculties (p. 102). Key aspects of learning communities are that they are "infinitely adaptable to different kinds of curricular and co-curricular settings … educators can shape and reshape the strategy around specific curricular or student needs" (Smith et al., 2004, p. 22).

2.2.2.2   Professional Learning Communities

Professional communities and learning communities are terms used separately and conjoined as professional learning communities to represent a wide variety of school, teacher, and student interaction. Curry (2008) defines the term 'professional community' as referring to "various configurations of school staff (most prominently teachers) characterized by some measure of interdependent joint work and some level of shared values, norms, and orientations toward schooling, teaching, and students" (p. 737).

The Teaching Council in Ireland (2010) envisages reflective practice as part of a professional learning community as a key component of teaching: "Reflective practice is essential for each teacher and for teachers as a professional learning community, in enabling professionals to make the best decisions in the interests of their students" (p. 5). Additionally, the practice of mentoring all teachers including newly qualified teachers is being promoted to a more prominent place in a school's workload, which in turn "promotes the idea of the school as a professional learning community, where mentoring and the sharing of ideas for good practice become normal features of teachers' professional work" (p. 18).

2.2.3   Online Learning Community

The Pearson Social Media for Teaching and Learning Report (Seaman and Tinti-Kane, 2013) defines a virtual community as: "A community of people sharing common interests, experiences, ideas, and feelings over the Internet or other online collaborative networks. Virtual communities take on different forms and may leverage social media, forums, and

blogs. Examples include: a LinkedIn or Google Group, Message Board, Chat Room, or User Group" (p. 16).

Yuan and Kim (2014, p. 222) define an online learning community as a community of practice in which a group of online learners come together for a common goal. Learning communities are groups of people that share the common interests of learning and sharing knowledge (Snyder, 2009, p. 50). Murdock and Williams (2011) in their study of learning communities both online and on campus found no significant difference in student perceptions' of learning communities based on course format. Student viewed the instructor's role as crucial to the development of the learning community. (p. 312).

Andrews (2002) found that "the design of an online community and the strategies used to draw people into that community might vary dramatically based upon age characteristics as well as attitudes, beliefs, and behavior toward the Internet" (p. 65). In other words, the strategies to encourage participation must take into consideration a variety of variables including age, attitudes to, and use of the Internet – the space, like any classroom, must aim to be inclusive. Ritter et al. (2010) agree that the learning space must provide for all students "to be connected by participating in a classroom where students are valued and respected and a climate of trust and acceptance is established" (p. 98).

Wang, Sierra, and Folger (2003, p. 59) found in their study of an adult learning community that their participants did not engage in 'negotiation and argumentation' and as such had limited interaction in the community. They recommend that moderators should structure online learning spaces so that "meaningful negotiation in online discussions is a necessity

for success" (ibid.). The building of relationships in an online learning community enables the development of a supportive peer network, brings together the social and academic roles for students, and facilitates collaborative and interactive learning (Motteram and Forrester, 2005, p. 291).

2.2.4 Community participation

Wenger (1998) describes participation as the social experience of living in the world in terms of membership in social communities and active involvement in social enterprises. For him, participation is an active process that is not the same as collaboration. It has a broader application than 'just mere engagement in practice' and also shapes a person's experience of communities and the shape the community takes. Participation is a process of being active participants in the practices of social communities and constructing identities in relation to these communities. (p. 4). "The key to good community participation and a healthy degree of movement between levels is to design community activities that allow participants at all levels to feel like full members. Rather than force participation, successful communities 'build benches' for those on the side-lines" (Wenger et al., 2002, p. 57).

This relationship between participation and identity relates fundamentally to the experience of a person as a social participant in a Community of Practice. They are a member of a community as a whole person with their experiences, knowledge, values, ambitions, and abilities to make meaning for themselves and through their interaction with others. "Learning is not just acquiring skills and information; it is becoming a certain person—a knower in a context where what it means to know is negotiated with respect to the regime of competence of a community" (Wenger, 2010, p.181). They contribute and they take from

the pool of social capital that exists in a community, and through this participation and reification their identity is negotiated with other members to constitute a community. Dundon, Diggins, and Exton assert that "people who have an innate sense of community spirit are intrinsically motivated to share knowledge for the good of the community drawing satisfaction from helping others and a feeling of belonging to a community" (2012, p. 3). McLure Wasko and Faraj (2000) have also observed that when people feel that knowledge is managed for the public good, they feel a moral obligation to participate and share (p. 171).

2.2.5   Social Capital

The concept of social capital can inform an examination of student perceptions, experiences, and interactions within a learning community or community of practice. Bourdieu (1986) defined social capital as "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition" (p. 249). Mathwick et al. (2008, p. 834) define social capital as "an intangible resource from which instrumental and expressive benefits will flow, benefits that are available at the individual or communal level, embedded in and accumulated through a specific social structure and governed by relational norms of voluntarism, reciprocity, and social trust."

O'Brien and Ó Fathaigh (2005) contend that "Social capital exists as a set of lasting social relations, networks and contacts." They point out that "in educational terms there may be significant 'others' in one's life that are in a position to enable material (and/or symbolic) access to new areas of expertise, resources and support" (p. 69).

According to Putnam (2001), there are two forms of social capital: 'Bridging' and 'Bonding'. 'Bonding' – or internal – social capital pertains to intra-community ties, which provide the foundation for bringing individuals together, whereas 'Bridging' – or external – social capital relates to inter-community ties (Adler and Kwon, 2002). Oztok et al. (2015) found that social capital and social presence are highly correlated in online learning communities. They note that bridging social capital impacted more on social presence than bonding social capital for three reasons: "measurement of social presence may be focusing on diversity of relationships rather than quality of relationships; online learning practices may inherently privilege diverse relationships over dense social ties; and students may simply not value or may deliberately refuse to develop close relationships and stronger social ties with their peers" (p. 23). Tseng and Kuo (2010) found in their study of a professional online learning community that "online social capital is not passively formed and applied, because the members have to know the expertise or skills possessed by other people and [be] are confident that they will be able to get assistance from other members as well as acquire necessary resources and support when [the] situation demands" (p. 1050).

Researchers have found that internal cultural views can influence how and why an individual will connect with another. Vaisey and Lizardo (2010), drawing on two waves of nationally representative panel data on youth and religion, found that world views are strong predictors of changes in network composition in US youth, but that in contrast there is little evidence that network ties play a strong role in shaping world views (p. 1595). They suggest that "internalized cultural dispositions play an important role in shaping the interpersonal environment" (p. 1605).

Individual self-perceptions of ability and status also have an impact on bridging and bonding capital. In education, "students at the high end of the ability distribution experience the largest peer effects from high ability peers" (Sacerdote, 2011, p. 260). Smith, Menon, and Thompson (2012) found that one's perception of one's own status also influences whether one decides to use social capital or not (p. 418). The implications of social capital theory can manifest when one explores the demographics of students accessing courses online and offline. Piccianno, Seaman, and Allen (2010, p. 31), in their examination of educational transformation through online learning, point out that "online learning was often ushered into higher education through the alternative (e.g., distance, adult, continuing) education units of colleges and universities rather than by mainstream academic departments." The importance of social capital is increasingly recognised in access routes to higher education, the resourcing of courses for part-time students and mature students, and the acknowledgement of cultural viewpoints and perceptions of status that can inhibit the forming of relationships.

2.2.6   The importance of a sense of Community

A sense of community can be defined as "a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members' needs will be met through their commitment to be together" (McMillan and Chavis, 1986, p. 9). Ni and Aust develop this for an educational context and argue that a "sense of classroom community refers to the feeling of belonging, trust and commitment in the interaction between and among students" (2008, p. 481).

Rovai (2001) contends that community is setting specific, and theorised four components of 'classroom community' as spirit (feeling of group identity), trust (feeling of safety and support), interaction (task-related and socio-emotional), and learning (the construction of shared knowledge). Woodruff (2001) further suggested that community "is held together by four cohesion factors: (1) function, (2) identity, (3) discursive participation, and (4) shared values" (p. 158). Although Rovai and Woodruff were referring to traditional classroom settings, Rovai (2202b) subsequently defines community in online environments as:

consisting of two components: feelings of connectedness among community members and commonality of learning expectations and goals. Classroom community is strong when learners (a) feel connected to each other and to the instructor, (b) manifest the immediate communication behaviours that reduce social and psychological distance between people, (c) share common interests and values, (d) trust and help each other, (e) actively engage in two-way communications, and (f) pursue common learning objectives (p. 322).

Shea, Li, and Pickett (2006) suggest that "good learning environments are learner-centered, knowledge-centered, assessment-centered and community-centered" (p. 176). Biasutti (2011) found in her study of collaborative learning in an e-learning module that "the development of teamwork skills, the attitude to collaborate, the development of cognitive processes such as analyzing and integrating different points of view, understanding of own and other people's limits, and the development of the sense of responsibility and respect for the others" were important benefits from collaborative activity helping to build a sense of community (p. 1874).

These findings concur with Yuan and Kim's study (2014) of how to develop online communities in online courses where they state that the "critical element of a learning community is a sense of community, which is the feeling that group members matter and that one's needs are satisfied through the collective effort of the group" (p. 221). In Guldberg's (2008) study of peer-to-peer learning in a networked community, it was discovered that students established their roles in the community through disclosure of their thoughts and experiences. Guldberg contends that the "success of the community and these discussions may well be tied up with the fact that the individual goals overlap with the goals of the community in a way that can meet most students' needs" (p. 47).

2.3   LEARNING THEORIES AND CONCEPTS

This section will present learning theories such as situated learning and legitimate peripheral participation as part of a range of social learning theories. It will review social presence and cognitive presence in the community of inquiry model used in blended learning and e-learning and reference the literature on student interaction and emotions in online learning.

2.3.1   Social Learning Theory

Wenger (2001) contends that the social aspect of learning "is an emphasis on the person as a social participant, as a meaning-making entity for whom the social world is a resource for constituting an identity" (p. 2). Social learning is one way that people learn from others in social contexts and also simultaneously change their environment in a two-way process (Blackmore, 2010; Wals and van der Leij, 2007). In COP theory, learning is not just acquiring skills and information; it contributes to the growing identity of a person: "a knower in a

context where what it means to know is negotiated with respect to the regime of competence of a community" (p. 2). Consequently, if social learning theory "focuses on learning that occurs within a social context and involves personal experiences, observations, and interactions with other individuals" (Rovai, 2007, p. 77), then it is a key component of how COPs work. Reed et al. (2010, p. 6) define social learning "as a change in understanding that goes beyond the individual to become situated within wider social units or communities of practice through social interactions between actors within social networks."

Polin (2010), in her study of communities of practice in graduate professional education, notes that there is a family of social learning theories (Cole and Engestrom, 1993; Lave and Wenger, 1991; Vygotsky, 1978) based on Russian psychology and research work that encompasses situated learning, cognitive apprenticeship, distributed cognition, activity theory, sociocultural historical theory, and communities of practice. She explains that the first three focus on the 'situativity' of learning and its scaffolding power and how learning is experienced in the context of its use. In her view, activity theory, sociocultural historical theory, and the Community of Practice model view learning as a kind of enculturation of the individual into a system of practice (p. 164). Morgan (2011) found that, in COP theory, learning is "a de-centred process in the sense that knowledge is found in, and built from, shared practice, rather than being transferred" (p. 101).

There is a distinction then between social learning as concerned with the ways in which different individuals or groups (actors) within society engage with each other to understand, contest, and influence the direction of social change (Woodhill, 2002, p. 323) and learning that occurs in a social setting in different ways depending on the situation and the

individuals you are with. This difference can be expressed as practice: the combination of knowing, learning, and identity as a member of a community of practice.

2.3.2 Situated Learning

Concepts of social learning and situated learning are relevant to any group working on a common focus even where structured learning content is not present. Lave and Wenger (1991) contend that the theory of situated learning claims that learning, thinking, and knowing are relations among people engaged in activity in, with, and arising from the socially and culturally structured world" (p. 67). The concept is described as "learning processes arising when the learner interacts with members of and participates in shared activities in a community of practice" (Aadala et al., 2014, p. 349).

From their examination of apprenticeship and situated learning, Lave and Wenger (1991) assert that it is the context of the knowledge, including traditions and relationships as well as knowledge itself, that is important. The setup of the COP and the way that individuals relate to each other within it is key: Lave and Wenger (1991) state that:

To take a *de-centred view* of the master-apprentice relations leads to an understanding that mastery resides not in the master but in the organization of the community of practice of which the master is a part. The master as the locus of authority (in several senses) is, after all, as much a product of the conventional centred theory of learning as is the individual learner (p. 94).

Hotho et al. suggest that "Learning and knowing are seen as social processes that are based on mutual engagement in activities and situated in a wider community. Learning is therefore seen to manifest itself in collectively shared practices and identities, rather than in individual cognitive capacities or organizational repositories of knowledge" (2014, p. 59).

2.3.3 Legitimate Peripheral Participation

As has already been stated, participation is key to COPs; however, the theory seeks to expand our understanding of what it means to take part, suggesting that there are different types of participation in any learning event. In this context, Lave and Wenger (1991) contend that 'peripherality' and 'legitimacy' are two types of modification required to make actual participation possible. (p. 35). Wenger (1998) further explains that "peripherality provides an approximation of full participation that gives exposure to actual practice". This means that a person endeavouring to join a community must be allowed "access to all three dimensions of practice in a community: mutual engagement with other members, to their actions and their negotiation of the enterprise, and to the repertoire in use" (p. 100).

Legitimacy refers to the need for communities to "grant newcomers enough legitimacy so they can be treated as potential members" (p. 101). Although this legitimacy can be granted in many ways, the purpose is to ensure that a person entering a community has the opportunity to engage fully with the community. In COPs as a model of learning, "the practices surrounding education (both proximal and distal to the student) and the learning identity of the student are mutually constitutive" (O'Donnell and Tobbell, 2007, p. 315). O'Donnell and Tobbell's study found that there are "complex power relations" within peripherality. It is important to evaluate whether an individual within a COP is empowered

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to move towards fuller participation or prevented, which is disempowering (p. 326). Hou (2015), in his study of what makes an online community of practice work, states that the COP:

mediated by online mode of communication has greatly impacted, and ultimately reshaped, a hierarchical social behaviour pattern that Chinese student teachers and supervisors adopt, leading to a revolutionary change towards a more equal student teacher relationship which would be unacceptable or even unimaginable in the traditional Chinese views of learning (p. 14).

2.3.4 Collaborative Learning

Konstantinidis, Tsiatsos, and Pomportsis (2009) define Collaborative Learning (CL) as a "general term used for the description of educational practices based on the simultaneous cognitive and mental effort of multiple students or/and educators" (p. 280). Roschelle and Teasley (1995), in their seminal work, define collaboration and cooperative problem solving as follows:

Collaboration is a coordinated, synchronous activity that is the result of a continued attempt to construct and maintain a shared conception of a problem. We make a distinction between 'collaborative' versus 'cooperative' problem solving. Cooperative work is accomplished by the division of labour among participants, as an activity where each person is responsible for a portion of the problem solving. We focus on collaboration as the mutual engagement of participants in a coordinated effort to solve the problem together (p. 70).

Baker (2015) contends that the attempt by educators to encourage collaboration and cooperation between students can depend on the collaborative situation, and presents six assumptions about collaborative situations that can influence learning. (See Table 2.1 below):

Situation	Assumption	Explanation
Students working together	Assumed to be equals in terms of their statuses and rights, with the social status of students	Not necessarily the case when there is a teacher or manager present: teachers have the right to make negative evaluations but students rarely have the right to criticize teachers
Group work where group is producing a single shared production or solution to a problem	Engineering tasks where it is necessary for students to work together	Crook (2013) has argued that the desire to 'share', to achieve 'mutuality' is a basic and defining drive of human beings
Not all 'group work' is collaborative or cooperative	Group work is not constant; there are instances where people are working alone	Collaboration pre-supposes a high degree of joint attention and mostly synchronous interaction
The extent to which a known procedure exists for solving the problem	Can have a known solution so collaboration concerns the applied procedure or else the process is exploratory with no clear plan or procedure	This is collaboration as 'co-elaboration' of knowledge and understanding of the joint problem space
The point of the collaboration itself	The point in educational situations is for students to learn together, as well as finding a solution	Related to the processes of co-elaboration of conceptual understanding and knowledge relating to the task domain
The role of the teacher differs from one-to-one or whole class situations	Teachers' role is one of designing the task, organising the groups, monitoring the group work and evaluating students' work.	Vygotskian notion of "scaffolding", where a more capable person provides indirect support for a less capable person's problem solving (Woods, Bruner, and Ross, 1978), within the latter's "zone of proximal development" (Vygotsky, 1978)

Table 2.1:   Six assumptions about collaborative situations adapted from Baker (2015, pp. 453–456)

These assumptions illustrate the complexity of collaborative learning, cooperative learning, and collective activity, and it is important to take them into consideration when designing community activities in an online learning space. So et al. (2010), in their research on designing collaborative knowledge building environments accessible to all learners, found that "fostering a collaborative knowledge building culture is a difficult endeavour, especially in classrooms where students have little exposure to student-centered learning approaches" (p. 488). It may be that all learners, whether student or teacher, need further training and guidance on how to collaborate effectively within an online community space.

Dixon (2000) states that the "successful functioning of a knowledge-sharing COP is impossible without an active participation of a substantial part (ideally, all) of its members". In their study with the purpose of operationally defining collaboration, Hathorn and Ingram (2002, p. 343) identify three key elements: interdependence, synthesis of information, and independence from the instructor. Interdependence is seen when students support each other's learning rather than competing and thus obstructing or ignoring the learning of others. Synthesis of information means generating a joint product that is different from the contribution of any individual. Independence means looking to each other for confirmation and support rather than to the instructor. Cooperation occurs when individuals in a group divide the work so that each member solves a portion of the problem. In contrast, collaboration is the interdependence of the group members as they share ideas and reach a conclusion (Hathorn and Ingram, 2002, p. 326).

2.3.5   E-Learning

E-learning is an area where social learning and sense of community are key components of the learning experience. Sangrà, Vlachopoulos, and Cabrera (2012), in their attempt to build an inclusive definition of e-learning, found that the discussion of the definition and practices of e-learning focuses on the intersection of education, teaching, and learning with ICT (Friesen, 2009). Their research defines e-learning under four paradigms: 1) technology-driven; 2) delivery-system-oriented; 3) communication-oriented; and 4) educational-paradigm-oriented (p. 9). Sangrà et al.'s definition is: "E-learning is an approach to teaching and learning, representing all or part of the educational model applied, that is based on the use of electronic media and devices as tools for improving access to training, communication and interaction and that facilitates the adoption of new ways of understanding and developing learning" (2012, p. 7).

"Grade Change Tracking Online Education in the United States", the annual report of the Babson Survey Research Group along with the Sloan Consortium and Pearson (Allen and Seaman, 2014), defines an online course as one in which at least 80 percent of the course content is delivered online. Face-to-face instruction includes courses in which zero to 29 % of the content is delivered online; this category includes both traditional and web facilitated courses. The remaining alternative, blended (or hybrid) instruction, has between 30% and 80% of the course content delivered online (p. 6). (See Table 2.2 below.)

Proportion of content delivered online	Type of course	Typical Description
0%	Traditional	Course where no online technology is used – content is delivered in writing or orally
1 to 29%	Web Facilitated	Course that uses web-based technology to facilitate what is essentially a face-to-face course. May use a course-management system (CMS) or web pages to post the syllabus and assignments
30% to 79%	Blended/Hybrid	Course that blends online and face-to-face delivery. Substantial proportion of the content is delivered online, typically uses online discussions, and typically has a reduced number of face-to-face meetings
80+%	Online	A course where most or all of the content is delivered online. Typically has no face-to-face meetings

Table 2.2:   Types of online learning (Babson Research Group, 2014, p. 6)

Dziuban and Picciano (2015) explain that online learning as conceived today began in the 1990s with the Internet and World Wide Web. "Online learning applications using local and wide-area networks existed before the Internet, but the model that evolved over the past 20 or so years relies on ubiquitous data communications that are owned and operated routinely by all segments of the population" (p. 1). Critics of the quality of online educational experiences often say online learning is impersonal, not rigorous, marked by learning distractions, not able to support group work, void of affective communication, and vulnerable to the health of the technologies needed to house such courses (DeMaria and Bongiovanni, 2010, http://er.educause.edu/articles/2010/9/the-10-biggest-myths-about-synchronous-online-teaching).

The Online Learning Consortium, formally the Sloan Consortium (Sloan-C), encourages the collaborative sharing of knowledge and effective practices to improve online education in

learning effectiveness, access, affordability for learners and providers, and student and faculty satisfaction with the goal of making higher education "an ordinary part of everyday life". (Gomory, 2001, cited in Moore, 2005, p.1). Five principles, the pillars of quality, guide the continuous quality improvement process of identifying goals and benchmarks, refining methods, measuring progress, and improving outcomes. The five pillars are presented in the context of effective practice in the figure below:

Fig 2.1:   **Online Learning Consortium Five Pillars of Quality**

A sense of community and an understanding of how learners learn in physical and online spaces can contribute to the effectiveness of a learning experience for students. Any discussion on digital environments must also take into consideration the fact that technologies' abilities and capabilities are 'neutral' and are always context and teacher dependent (Guri-Rosenblit, 2009, p. 119).

The influence of learning styles as an indicator of how a student might respond to a learning environment has grown in recent decades, although it has been found that "the term learning styles is often used inappropriately as an umbrella term to include cognitive and learning styles and approaches to studying" (Evans, Cools, and Charlesworth, 2010, p. 467). An overview of learning styles and in particular Kolb's Learning Styles Inventory (2007) will be presented in the next section.

2.3.6   Learning Styles

The dominant perception of learning styles of the European Learning Styles Information Network (ELSIN) is that they represent: "an individual's preferred way of responding (cognitively and behaviourally) to learning tasks which change depending on the environment or context and are thus seen as malleable" (Peterson, Rayner, and Armstrong, 2009b, p. 11). Massey, Kim and Mitchell (2011) suggest that Kolb's Experimental Learning Model "offers a system for instructors who are attempting to reach all students in their classrooms" (p. 298). The Learning Style Inventory (LSI) was developed by David Kolb (1976, 1984) to assess individual learning styles. Kolb's concept of learning style is based on his theory of experiential learning, referred to as the Experiential Learning Model (ELM). Kolb's work reflects Lewin's theories (dialectical tension between analytical thinking and concrete experience), Piaget's research (developmental studies), Dewey (experiential learning), and Jung (ideas of types and non-preferred modes of learning) (Kolb, 1976). Experiential Learning Theory (ELT) defines learning as "the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience" (Kolb, 1984, p. 41).

Kolb and Kolb (2008) define ELT as "a dynamic view of learning based on a learning cycle driven by the resolution of the dual dialectics of action/reflection and experience/abstraction. It is a holistic theory that defines learning as the major process of human adaptation involving the whole person" (p. 2).

When it is used in the simple, straightforward, and open way intended, the LSI usually provides an interesting self-examination and discussion that recognises the uniqueness, complexity and variability in individual approaches to learning. The danger lies in the reification of learning styles into fixed traits, such that learning styles become stereotypes used to pigeonhole individuals and their behaviour" (Kolb, 1981, pp. 290–291).

Kolb addressed the 'danger' inherent in reification of learning styles into fixed traits in later research, where he found that educational experiences shape learning styles and so there will be relations between specialisation and learning style. Subsequently he found that undergraduate students of business, management, and education administration have Accommodative learning styles; engineering and economics students are Convergers; history, English, and psychology students are Divergers; mathematicians, sociologists, educational researchers, theologians, and chemists are predominantly Assimilators; while physicists are on the border between Convergers and Assimilators. He observed that (1984, p. 88): "people choose fields that are consistent with their learning styles and are further shaped to fit the learning norms of their field once they are in it" (cited in Coffield et al., 2004, p. 63).

Coffield et al. (2004, p. 1) identified 71 learning style models. Kayes (2005) contends that Kolb's model is one of the most influential learning style models (p. 249). Kolb's Learning Style Inventory is used for grouping learners because Kolb's learning style categorises type of learners based upon their learning experiences (Uğur, Akkoyunlu, and Kurbanoğlu, 2011, p. 10).

2.3.7   Blended Learning

The Educause Center for Analysis and Research (ECAR) Study of Undergraduate Students and Information Technology, 2015, found that while students still desire mentoring or face-to-face experiences with faculty, a clear majority are in favour of a balance between online and face-to-face work (p.3). Blended learning can be seen as a way of presenting that balance between online and face-to-face work.

Garrison and Kanuka define blended learning as "the thoughtful integration of classroom face-to-face learning experiences with online learning experience" (Garrison and Kanuka, 2004, p. 96). It is also an "opportunity to fundamentally redesign how we approach teaching and learning in ways that higher education institutions may benefit from increased effectiveness, convenience and efficiency" (Garrison and Vaughan, 2008).
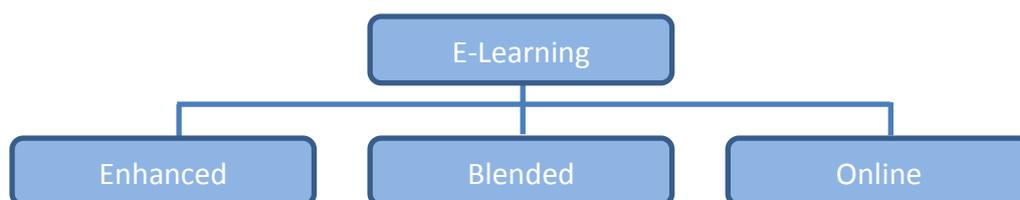
Fig 2.2:   **A continuum of E-Learning (Garrison, 2004, p. 97)**

The Community of Inquiry model is a process model for online learning that assumes that effective online learning requires the development of community (Swan, Garrison, and Richardson, 2009, p. 5). Garrison and Kanuka (2004) believe that the ability to provide a community of inquiry in blended learning is what makes it particularly effective. "Community provides the stabilizing, cohesive influence that balances the open communication and limitless access to information on the Internet. Communities also provide the condition for free and open dialogue, critical debate, negotiation and agreement—the hallmark of higher education" (p. 97).

Community of Inquiry

- SOCIAL PRESENCE
- COGNITIVE PRESENCE
- Supporting Discourse
- EDUCATIONAL EXPERIENCE
- Setting Climate
- Selecting Content
- TEACHING PRESENCE (Structure/Process)

Communication Medium
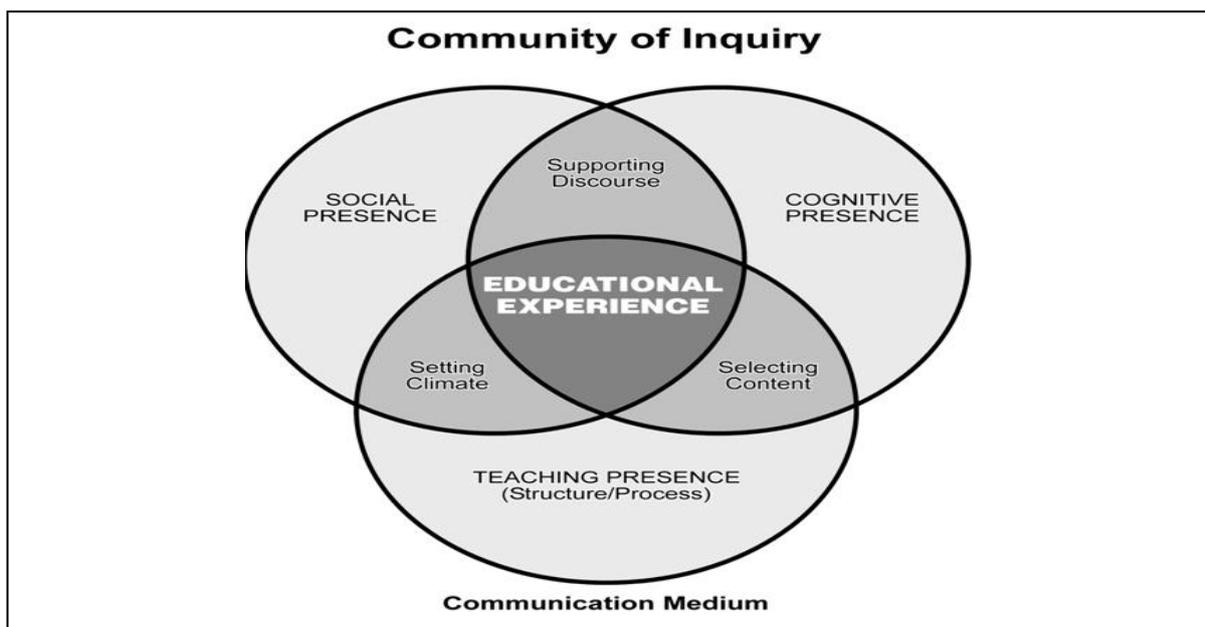
Fig 2.3: **Community of Inquiry Model (Garrison, Anderson, and Archer, 2000, p.88).**

A worthwhile educational experience requires the interactions of instructors and students as members of a community of inquiry through three presences. These presences are "social presence (SP), characterized by a supportive collegial online setting; teaching presence (TP), defined by instructional orchestration appropriate to the online environments; and

cognitive presence (CP), which is the extent to which learners can construct knowledge through critical thinking and reflection" (Shea et al., 2014, p. 10). Oztok et al. (2013, p. 88) further explain that: Social presence refers to the feeling that others are "actually there" in the environment, whereas teaching presence reflects the instructional, facilitative, and organisational roles of the instructor. Cognitive presence is defined as "the extent to which the participants in any particular configuration of a community of inquiry are able to construct meaning through sustained communication." (See Table 2.3 below).

Elements	Categories	Indicators (examples only)
Cognitive Presence	Triggering Event Exploration Integration Resolution	Sense of puzzlement Information exchange Connecting ideas Application
Social Presence	Affective Expression Open Communication Group Cohesion	Self-projection/expressing emotion Trust/risk free climate Collaboration/interactivity
Teaching Presence	Design & Organization Facilitating Discourse Direct Instruction	Setting curriculum & activities Shaping constructive exchange Focusing & resolving issues

Table 2.3: Operational Definitions of the Presences in a Community of Inquiry (Akyol and Garrison, 2008, p. 4)

Akyol, Garrison, and Ozden (2009), examining online and blended learning communities of inquiry, discovered "clear strengths of blended learning design, which are as follows: (i) reduces the time needed to develop group cohesion; (ii) promotes reaching higher levels of inquiry by enabling more time for the integration and resolution phases; and (iii) satisfies more students by providing multiple forms of communication" (p. 79). Garrison and Kanuka (2004) had previously asserted that blended learning is particularly effective in facilitating a

community of inquiry by adding an "important reflective element with multiple forms of communication to meet specific learning requirements" (p. 97).

Lopez-Perez, Perez-Lopez and Rodríguez-Ariza (2011) found that a blended learning approach "reinforces students' understanding of the subject in question, enhancing and supporting the learning process" (Lei, 2010). It was also shown that the online activities included were useful for the students, which could have a favourable influence on the work they carried out independently (p. 825). Greener (2008) suggests that "Blended learning requires confidence in learning, choosing familiar ground, being prepared to be open … and working together in a safe and supported situation with both face-to-face and online support" (p. 2).

Holley and Oliver (2010), in their study of student engagement and blending learning, found that some students experienced significant barriers to participation when negotiating blended learning opportunities. The intent of the blended learning to increase participation had the opposite effect, in that some students were not able to manage their homespace to engage online or even manage the technology without help. The study shows that "a 'one size fits all' approach for tutors setting classroom activities to be completed outside of formal teaching will not suit all students" (p. 697).

2.3.8   Social Presence

Swan & Fang Shih (2005) in their paper "On the Nature and Development of Social Presence in Online Course Discussions" highlight the importance of "instructor presence, instructional design, and students' own presentation of themselves in online discussion." They suggest

that social presence can be fostered through explicit training for students in the need for and importance of social presence to help them adapt to the online medium. They further suggest that online discussions need to be designed carefully and instructors may benefit from professional development related to their role and behaviours online (p. 131).

Kear (2010, p. 1) defines social presence in an online learning environment as "the need for users to feel connected with each other and to perceive each other as real people." She recommends the use of member profiles with photos and instant messaging to help students communicate in real time (synchronous) and to know their peers online. (p. 7)

Palloff and Pratt (1993 and 2003) originally identified a list of elements necessary to allow a community to form as: people; shared purpose; guidelines; technology; collaborative learning and reflective practice. They added social presence as a "critical element of the online community and one that is critical to collaborative work" in their article for the 21st Annual Conference on Distance Teaching and Learning (2005).

To further explore the function of verbal immediacy behaviours in the development of social presence in online discussions, Rourke, Anderson, Garrison and Archer (1999) distinguished among three kinds of immediacy responses. These are: affective responses (personal expressions of emotion, feelings, beliefs, and values), cohesive responses (behaviours that build and sustain a sense of group commitment), and interactive responses (behaviours that provide evidence that the other is attending) (p. 53). Garrison & Cleveland-Innes (2005) noted that social presence may be a necessary but insufficient precondition for creating a community of inquiry and encouraging deep approaches to learning. (p. 143). Garrison,

Cleveland-Innes and Fung (2010, p. 32) suggest that the first priority for most students in a formal educational context is shared social identity (i.e., the purpose of the course), and not personal identity (i.e., interpersonal relationships). As such, the three dimensions of social presence may be defined as "the ability of participants to identify with the community (e.g., course of study), communicate purposefully in a trusting environment, and develop inter-personal relationships by way of projecting their individual personalities."

These additional instructor or facilitator led activities are important in building social presence within an online learning environment or a community of practice online. Areas for members of a community to get to know each other should be provided with an emphasis on training for students and instructors in an online space or community.

2.3.9 Cognitive Presence

Garrison and Cleveland-Innes (2010), in their study of cognitive presence in online learning, point out that interaction between learners is not a guarantee that students are cognitively engaged with each other in an educationally meaningful manner. They emphasise that high levels of interaction "may be reflective of group cohesion but it does not directly create cognitive development or facilitate meaningful learning" (p. 135).

An educational environment "must be more than undirected, unreflective, random exchanges and dumps of opinions" (Garrison, Anderson, and Archer, 2001, p. 21). Garrison (2007) later clarified that as explained by group dynamics, groups do not easily progress to the 'performing stage; "direction and facilitation is [*sic*] required to establish cohesion and ensure messages are developmental" (p. 66). Furthermore, in a community of inquiry:

"Participants need to be aware of the academic objectives, the phases of inquiry, and the level of discourse" (ibid., p. 69).

2.3.10 Interaction

Peer interaction has been identified by Wenger, McDermott, and Snyder (2002) as critical to the development of communities of learning, as it allows learners to develop interpersonal skills and to investigate tacit knowledge shared by community members as well as a formal curriculum of studies. John Dewey (1916) referred to interaction as the defining component of the educational process that occurs when the student transforms the inert information passed to them from another, and constructs it into knowledge with personal application and value.

Garrison and Cleveland-Innes (2005) observed that "An interactive community of learners is generally considered the *sine qua non* of higher education. However, interaction is not a guarantee that students are cognitively engaged in an educationally meaningful manner" (p. 135). Woo & Reeves (2007) develop this point, suggesting that "[i]dle chatting, online surfing, or mindlessly clicking Web pages is unlikely to lead to substantive learning even though learners are interacting with other objects" (p. 18).

Dawson's (2006) study of student community demonstrated a clear linkage between the degree of communication interactions students undertake and the level of sense of community they experienced. Although Morris, Finnegan, and Wu (2005) noted a positive relationship between academic performance and grades of students and time spent participating online, Dawson (2010) noted that highly motivated students who are

performing at a high academic level attract likeminded students into their network: "the

capacity of high performers to attract other high performers into a collaborative learning

network structure provides these individuals with direct access to a greater level of social

capital than their low-performing peers" (p. 747).

What Dawson (2010) discovered in his network analysis of a first level chemistry course was

that students located within a network of low performers have access to low-level advisors.

Students who operate within a network of high performers have access to more

knowledgeable advisors. "Thus high performing students have an opportunity to leverage

academically stronger ties to facilitate their learning, evaluate their individual

understandings and assist with course assessment" (p. 748). Dawson comments that it

appears that who you know is crucial not only in terms "of how students come to know but

the nature and quality of the knowledge they actually produce" (p. 748).

Similarly, Pawan et al. (2003) recommended that instructors model the type of postings they

expect from learners. They suggested that long postings (300 words or more), and those

posted all at one time, imply a presentation mode rather than a discussion mode. Garrison

and Cleveland-Innes (2005) noted, "It is not educationally desirable or reasonable from a

time-management perspective to have the teacher respond to each comment. But it is

crucial that the teacher moderate and shape the direction of the discourse" (p. 145).

New users to online multi-user playing environments seldom engage with the written

manual in order to learn the gaming rules, aims, language, and culture (Beck and Wade,

2006). This is discovered experientially and with the assistance of more knowledgeable

members of the gaming community, through what Lave and Wenger (1991) have termed 'situated learning' within a community of practice. By inference we could argue that the 'social' is not the context around learning – it is the learning process itself.

In a recent meta-analysis of distance and online learning, Bernard et al. (2009, p. 1264), building on Moore's (1989) tripartite conception of interaction and Anderson's (2003) examination of conditions that encourage interaction, "quantitatively verified the importance of three types of interaction: among students, between the instructor and students, and between students and course content" (Abrami et al., 2011, p. 85). Abrami et al. found that "guided, focused and purposeful interaction goes beyond whether opportunities for interaction exist to consider especially *why* and *how* interaction occurs" (p. 98).

Learning experts argue that online knowledge sharing can be regarded as an important form of collective learning (Rosenberg, 2005). Donaldson and Conrad (2005) note that the "learner's perception of herself as a valued contributor in the learning community is a key component. The 'a-ha' moment often occurs when learners recognise that they are knowledge generators, not only for themselves but also for the community as a whole" (p. 1).

Larreamendy-Joerns and Leinhardt (2006) also advise that: "although online learning environments that allow for social interaction constitute a remarkable advance, they should not be construed as inevitably conducive to learning, solely because student–student and student–instructor exchanges take place. Nor should they be understood as obviously

consistent with a vision of knowledge as practice or with efforts to nurture communities of practice" (p. 591).

2.3.11   Emotions in online learning

In addition, recent research on the emotions of online learning has focused on the importance of learners' feelings in relation to the sense of community of learning (Hara and Kling, 2003; Rovai and Wighting, 2005, cited in Zembylas, 2008, p. 2). Zembylas (2008), in his study of adult learners' emotions in online learning, found that learning how to communicate by written discourse in an asynchronous manner was a major emotional challenge (p. 82). He adds that "the issue is not simply about the demands of a different form of communication; it is more complicated and has also to do with the impact on learners' emotional well-being from having to communicate in an unfamiliar form" (p. 82). In particular, MacFadden et al. (2005, p. 26) proposed a constructivist model of web-based education emphasising the use of emotion in e-learning, based on the assumption that emotional emphasis may facilitate constructivist learning goals.

Derks, Fischer, and Bos (2008), in their review of differences between emotions expressed in computer-mediated communication and face-to-face communication, found that they were surprisingly similar, and that if there is a difference it is that emotion communication in computer mediated communication (CMC) can be more frequent and explicit than when expressed face to face (F2F) (p. 766). Derks, Fischer and Bos hypothesise that emotions can be regulated more easily in CMC than in F2F, which would imply fewer emotional outbursts. They also assume that "social presence and visibility may influence three distinct aspects of emotion communication—including both explicit and implicit types of communication—

namely the overall content and style of the message (emotions as an implicit or explicit topic of conversation), the expression, and the recognition of discrete emotions". These aspects are due to the reduced ability to physically touch another person, i.e., whether the presence of the other person is salient when you don't know them or can't see them, and also whether it is easier to express negative emotions in a context where salience of others is not clear. There are also positive benefits to having to display emotions through text and emoticons especially when the person has difficulty expressing them in real life, as the medium makes it more important to emphasise emotional style and content (ibid., p. 769).

2.4   COMMUNITY IN ONLINE SPACES

Social learning and the sense of community that can result from interaction with others through new and existing technologies can be present in Web 2.0 and Education 2.0 approaches. This section reviews research in learning environments, virtual learning environments, and the emerging concept of personal learning environments.

2.4.1   Web 2.0 and Education 2.0

Schneckenberg, Ehlers, and Adelsberger (2011) note that "while the first generation of e-learning has been primarily a means for distributing information and learning materials, we now observe, with the adoption of web 2.0 technologies, a change that facilitates participation and interaction between students rather than continuous focus on receptive modes of communication" (p. 747). Rosen and Nelson (2008), in their article "Web 2.0: A New Generation of Learners and Education", outline key characteristics of the Web 2.0 platform: (a) user-initiated publishing of information without significant technical

knowledge; (b) social networking; and (c) online communities formed around specific

content (p. 211).

Loh et al. (2016) contend that e-learning is following two broad streams in academic

research: one stream addressing educators' approach and experience of e-learning from a

practical perspective, and the other examining the value e-learning provides from a strategic

perspective for university administrators (p. 131). Loh et al. (2016, p. 132) further illustrate a

body of literature that explores the application of e-learning in a constructivist or

constructionist approach:

> Social constructivism is present where student groups construct knowledge for one
>
> another, collaboratively creating a small culture of shared resources (e.g. using scaffold
>
> activities in a wiki); and in constructionism, students construct their knowledge and
>
> understanding through a set of experiences based on solving set problems (e.g. virtual
>
> reality learning through Second Life).(See, e.g. Halvorson et al., 2011).

Rosen and Nelson (2008) define this new way of teaching and learning as Education 2.0.

Education 2.0 is their name for "the use of digital tools to transform teaching and learning

by having learners, as well as teachers, participate in knowledge creation and interactively

build distributed communities, or networks, of learning." They believe that Education 2.0

can herald a new dimension to education that will (a) build a *collective wisdom* that

transcends that of the individual, in which the wisdom of the whole is greater than the sum

of its parts, and (b) transform the constructivist classroom into an Education 2.0 classroom

(i.e. into an interactive, participatory, adapting, living organism of learning and generating content) (p. 222).

2.4.2 Learning environments

The study of classroom learning environments building on the work of Lewin (1936) was progressed in the studies of Herbert Walberg and Rudolf Moos in the late 1960s and 1970s (Trickett and Moos, 1973; Walberg and Anderson, 1968; Moos, 1973). "Learning environment research involves the complex interrelationships between teacher and student perceptions of school psychosocial climates and student cognitive, affective and motivational outcomes" (Smith, 2013).

In "Conceptualisations of Human Environments" (1973), Moos refers to the study of the learning environment from holistic and environmental points of view and posits that psychological and behavioural sciences are increasingly interested in the effect of situational and environmental variables on an individual's personality and behavioural traits. A range of instruments has been developed over the last 30 years aiming to measure various dimensions of the psychosocial and physical classroom environment (Fraser, 1998b, 2002; Goh & Khine, 2002). Fraser's (1998) study of "Classroom Environment Instruments: Development, Validity and Applications" reviewed nine major questionnaires for assessing student perceptions of classroom psychosocial environment: the Learning Environment Inventory; Classroom Environment Scale; Individualised Classroom Environment Questionnaire; My Class Inventory; College and University Classroom Environment Inventory; Questionnaire on Teacher Interaction; Science Laboratory Environment

Inventory; Constructivist Learning Environment Survey; and What Is Happening In This Class).

Caveats around these instruments relate to the need for students to be able to express their personal point of view of their learning as opposed to the class point of view. In learning environment research, Stern, Stein, and Bloom's (1956) identification of the concept of the alpha and beta press is regularly cited in studies exploring this area. They suggest the existence of 'private' beta press, the idiosyncratic view that each person has of the environment, and 'consensual' beta press, the shared view that members of a group hold of the environment (Fraser, 1998, p.16). Or more succinctly, Alpha press is the learning environment as viewed by an outside observer. Beta press is the learning environment as viewed by the internal participants (Nair & Fisher, 2001).

Moos' conceptual framework is based upon two broad categories of systems in a human environment: the Environmental System and the Personal System. The Environmental System includes the physical setting, organisational factors, human aggregate, and social climate. The Personal System includes socio-demographics, expectations, personality, and coping skills (Honeycutt, 2005). Moos' primary interest is the social climate present in a classroom and how that social dimension impacts a student's learning.

Research on classroom environments has also focused historically on its psychosocial dimensions – those aspects of the environment that focus on human behaviour in origin or outcome (Boy and Pine, 1988, cited in Dorman, 2009, p. 69). The nature of a learning environment is influenced by the activities that teachers provide in it, the social practices

and affective attitudes of teachers and learners in it, and how it is structured psychologically and physically (Fraser and Fisher, 1982, cited in Smith, 2013, p. 259).

Schunk and Zimmerman (2007) assert that students' social environments can influence their affective domains and behaviour, especially when teachers use successful peer models and students perceive them as similar to themselves: students "are apt to feel self-efficacious for learning, believing that if the peers could learn they can as well" (p. 22). This modelling process by which students can pattern their thoughts, beliefs, and behaviour by observing another is informed by observational learning through modelling, which consists of four processes: attention, retention, production, and motivation (Bandura, 1986).

2.4.3   Virtual Learning Environments

Park (2011) notes that in many universities "a Virtual Learning Environment (VLE) such as Blackboard, Moodle and Sakai has been adopted that provides a variety of functions and services for online learning and its delivery (p. 177). He defines a VLE as a "flexible e-learning and online community system for delivering online courses and establishing online communities" (p. 179). He warns that the VLE can over-generalise disciplinary characteristics and "restrict creativity and experimentation" in the development of pedagogy (p. 177). Virtual Learning Environments can be part of the Learning Management System (LMS) in a university. "Learning Management Systems have always been under the control of the institution, its faculty and administrators, leaving little room for learners to manage and maintain a learning space that facilitates their own learning activities as well as connections to peers and social networks across time and place" (Valjataga, Pata, and Tammets, 2011). As Martindale and Dowdy (2010) found in their study of personal learning environments, "In

the physical world, learners typically rely on lunchtime discussions, student organisations, brown bag sessions, and study groups for peer support and informal learning networks" (cited in Dabbah and Kitsantas, 2012, p. 4).

Clarke and Abbot (2008), in their examination of tutor perspectives on the use of VLEs, refer to the use of VLEs as a repository for course content or material as 'shovelware'. They explain that the "word is simultaneously defined and critiqued by Fraser (1999) as a term which: can refer to any content shoveled from one communication medium to another with little regard for the appearance, ease of use, or capabilities of the second medium" (p. 178). They discuss the distinction between uploading lecture notes and Powerpoint presentations online and the idea of students creating and sharing materials that can contribute to an "active online professional library" (p. 178) as a manifestation of the "shared repository of practice" that exists within a Community of Practice (Wenger, 1998).

Naveh, Tubin, and Pliskin, (2010), in their study of VLEs in higher education, found that student computer literacy does not enhance student satisfaction. Indeed, the more computer literate the student and faculty, the more disappointed they are with the limitations of the VLE, which may encourage faculty and students to create their own alternative course related websites (p. 1320). A recent paper on "The open dataset on students' perceptions of virtual learning environments in Ireland: Collaborating to listen to the student voice" (Risquez, Raftery, and Costello, 2015) found that technical issues in the system such as reliability and access did not represent barriers to use. Students identified lack of use by lecturers as the most common barrier and would like lecturers to use the VLEs

more. The majority of students indicated that the VLE "helped make their lecturers more accessible to them" (p. 1071).

2.4.4   Personal Learning Environments

McLoughlin and Lee (2010) describe the personal learning environment (PLE) "as a concept associated with the adoption of a raft of Web 2.0 tools that serves to integrate essential learning outcomes such as lifelong learning, informal learning and self-directed learning" (p.29).

Attwell (2007) suggests that "The most compelling argument for the PLE is to develop educational technology which can respond to the way people are using technology for learning and which allows them to … shape their own learning spaces, to form and join communities and to create, consume, remix, and share material."

From a conceptual perspective, a PLE can be viewed as a single user's e-learning system that is under user control and that provides tools to keep track of learning, to collaborate, and to connect to other VLEs or PLEs (Van Harmelen, 2006). A PLE is "comprised of [*sic*] all the different tools we use in our everyday life for learning" (Attwell, 2007, p.4).Wenger et al. (2009) explains that the way learners compose their PLEs depends on their digital habitat – a constitution of preferred technologies, tools, features, and configurations.

2.5   COMMUNITIES AND STUDENTS

This section examines the demographics of undergraduate students and their readiness for learning in physical and online environments. Literature on the use of COPs in initial teacher

education is reviewed as well as the issue of digital literacy and how students respond to online learning environments.

2.5.1 The demographics of undergraduate students

The National Strategy for Higher Education to 2030 (Hunt, 2011) projections for the next 20 years show a rise of 66% from 42,500 students to 64,000 in 2030. The main bulk of this increase in demand will come from "late entrants, mature students and international students and a greater demand for postgraduate study" (p. 44). Late entrants refers to student who enter a year or two after Leaving Certificate with mature students being those who are 23 or over when entering higher education. Higher Education is increasingly becoming an adult learning environment, where Merriam (2008) observed that:

> The spotlight has definitely shifted from understanding adult learning from the individual learner's perspective to the learner *in context* … *context* as a broad concept referring to where the learner is situated concretely (as in the workplace) or socio-culturally (as in working-class America, Confucian society, and so on). This linking of the individual's learning process to his or her context makes for a richer, more holistic understanding of learning in adulthood (p. 95).

Merrill (2015) in her study of working class adult students to education and specifically an undergraduate degree in higher education examined the benefits for two individuals in terms of learning and identity for two individuals – one who left before completion and one who stayed. She acknowledged that the term 'non-traditional student' is a contested one and used a working definition of non-traditional students as ones who are "under-

represented in HE and whose participation is constrained by structural factors. This includes

first generation, low-income families, those living in low participation areas, ethnic

minorities, and disabled students (Merrill, 2015, p. 1860).

2.5.2   Readiness to learn

Holyoke and Larson (2009), in their study of adult learners through a generational lens,

"Engaging the Adult Learner Generational Mix", found that there were distinctions between

generational learners' needs under the criteria of readiness to learn (Baby Boomers, born

between 1943 and 1960; Generation-X, born between 1960 and 1980 and Millennia, born

btween 1981 and 2002 (Goldman and Schmalz, 2006)), orientation to learning and

motivation to learning (p. 14). Sixty students were enrolled in two courses, one a hybrid

course mixing online learning with face-to-face tutorials, and one entirely online. Students

self-identified themselves generationally, with 50% of the students enrolled identifying as

Generation-X, 30% as Baby Boomers, and 20% as Millennials.

In terms of readiness to learn, Generation-X needed personal connections, Millennials

connected to hands-on experiences, and Baby Boomers connected more readily when

"deep life understanding could be made" (2009, p. 20). Holyoke and Larson (2009) found

that each generation needed immediate application of theory to practice in order to provide

orientation to learning, including assignments pertaining to real life situations that naturally

orient the learner. The motivation to learn is much more individual and subjective in terms

of intrinsic and extrinsic motivation. One recommendation was to start at small group

discussion level before opening issues and topics up to larger group discussion (p. 21).

Self-regulated learners are individuals who are metacognitively, motivationally, and behaviourally active participants in their own learning and consequently are learners whose academic performance is higher than others (Zimmerman, 2000).

2.5.3   Readiness for online learning

Park (2015), in a study of student interactivity and teacher participation, notes that in online learning students may be unfamiliar with disciplinary content but very familiar with the functions used in the online platform, e.g. chat, video, posts. In this instance the student is centrally positioned in the environment in terms of utilising the tools, but peripheral to the learning community in terms of content. This has implications for the level of interaction between students with primarily content knowledge and students with primarily technical knowledge (p. 390).

Bernard et al. (2004) consider "readiness for online learning" as being critical in determining a learner's persistence. They identified four dimensions of readiness: a) online skills, such as computing, Internet and online communication via email or discussion forums; b) self-management of learning and learning initiative, which includes time management, personal organisation, and effective cognitive strategies; c) beliefs about online learning, which suggest that a learner's attitude about the relative efficacy of online learning as compared to classroom based teaching has an effect on their overall performance in an online course; and d) the degree of interaction with the tutor and other students in an online course including timely feedback (p. 33).

Ausburn (2004, p. 328), in her study, "Course design elements most valued by adult learners in blended online education environments: an American perspective", notes that universities and other learning institutions have recognised a growth in their adult learner market and are exploring new varieties of online learning offerings. One such suggestion is the 'hybrid instructional model':

> The hybrid instructional model joins technology, architecture, and people in a 'bricks and clicks' learning structure that can be ideal for adult learners because it joins the flexibility of online learning with the collaboration, networking, and sharing of life experiences that are typically valued by adults, while also providing psychological and mentoring support for those adults who may lack experience and comfort with either the academic environment or electronic technology (2004, p. 2).

This need for inclusion and recognition of diversity is reflected in the findings of Jones et al.'s (2010) research on digital natives entering university, in that: "Far from our research revealing a single generation of students we find a complex picture of minorities, most of whom engage in a wide range of technology uses with a high frequency but who do not show a strong impulse towards the kind of participation and generational homogeneity predicted by Net generation or Digital Native inspired literature" (p. 731).

2.5.4 Adult and student identity

Clegg, Bradley, and Smith (2006) make the important point that insights normally associated with mature students are not unique and probably apply to younger students as well. Students tend to place more trust in their own social networks rather than drawing support

from the 'alien' context of higher education. Although their study focused on only 14 students, in-depth interviews indicated that there was a need to move to 'a more situated understanding' of support needs, that is, to recognise the individual approach and response to support (p. 111). In Askham's (2008) study of "Context and Identity: exploring adult learners' experiences of higher education", analysis showed that students are clearly not homogeneous, but neither can they be grouped in terms of homogeneous characterisations based on age, maturity, and mode of study (p. 95). He points out that there are contradictions for adult learners in higher education as they are adults and students at the same time: "The adult identity is autonomous, responsible and mature whereas that of the student identity is incomplete, dependent and in deficit" (p. 90).

Wenger (2009) notes that, in order to achieve a high level of mutual expressibility and accountability, participants in a social learning space need to recognise each other as learning partners through the experience they bring to the space (p. 5). They become peers at a broad level. But as Li et al. (2009), in their examination of Wenger's theory point out, "Tension can arise among learners who are expected to work collaboratively, but are often evaluated individually, and thus competitively, on their performance and their ability to master the knowledge acquired. Some people may perceive these new roles as risky and uncomfortable, which may subsequently lead to less engagement" (Li et al., 2009, p. 3).

The experience for mature students and other demographics of students classed as 'non-traditional' in higher education is varied and complex. A study by Christie, Munroe, and Wager (2005) of young and mature 'day' students who entered higher education in Scotland from an access programme, found that "a strong sense of success in spite of the institution,

rather than being buoyed by its support, emerges in accounts of inflexibilities in the teaching and learning environment and more intangible descriptions of the whole institution, and at least some of its staff, as being remote and out of touch" (p. 25). This feeling of detachment from the university "clearly also disadvantages them in accessing the more informal, peer-generated knowledge about how things work and can be made to work more advantageously" (p. 24).

2.5.5 Use of COPs for Initial Teacher Education

Le Cornu and Ewing (2008) argue that it is important for student teachers to learn how to participate in learning communities. They assert that students must move from a personal viewpoint of professional practice into a shared view that highlights reflective practice and reciprocity in reciprocal learning processes such as exist in communities of practice (p. 1803). In her paper on mentoring, Sundli (2007) points to a change in learning and knowledge: "Recent decades have seen a change in focus on learning and knowledge, from cognitivist to constructivist, from neutral to context-dependent, from individual to group" (p. 211).

Clarke (2009), in her case study "The POD model: Using communities of practice theory to conceptualise student teachers' professional learning online", applied community of practice theory to the development of student teachers' learning online within a professional online district (POD). Her research investigated the case for online VLEs to form communities of practice for student teachers, encouraging reflective practice and collaboration. The domain of the community focuses on the student teachers "developing the competences which allow them to become teachers" (p. 524), what Wenger,

McDermott, and Snyder (2002, p. 31) call its "raison d'être ... it defines the identity of the community, its place in the world, and the value of its achievements to its members and to others". Clarke (p. 524) asserts that members of this community help each other and learn from each other in joint activities and discussions (Clarke and Abbott, 2008, p. 178). The members of the community then build a shared repertoire of resources, experiences, stories and tools which are a shared practice.

Irwin and Hramiak (2010) analysed how trainee teachers in an asynchronous online cohort develop professional identity, and suggested that such identity could be reached through sharing professional insights and experiences. They also found that trainee teachers seemed to identify with teaching but not with being teachers. Using discourse analysis of communications on discussion boards, they found that trainee teachers "discussed teaching experiences, used teaching lexis, and relied on general teaching resources, while separating themselves from the wider community of teachers through their unique combined lexis, use of pronouns, and rejection of resources coming from qualified teachers' personal experiences". They suggest that trainee teachers should be encouraged to identify themselves as teachers towards the end of their initial training courses (p. 375).

Online COPs are also being designed to develop professional identity for preschool teachers in Australia through online learning (Balatti et al., 2010), to encourage personalised and self-regulating learning in Web 2.0 contexts (McLoughlin and Lee, 2010) and to re-appraise the application of educational concepts in their local context (Shin and Bickel, 2012).

2.5.6   Digital Literacy

Daly (2015) explains that, "similar to the concept of literacy itself, there is a spectrum of understandings and definitions" of the meaning of digital literacy in the Irish context (p. 4). Digital literacy is a relatively new concept that builds on similar concepts of computer literacy, information literacy, ICT literacy, e-literacy, and media literacy (Stepic, 2013, p. 369). Martin (2005) contends that digital literacy is about the:

> awareness, attitude and ability of individuals to appropriately use digital tools and facilities to identify, access, manage, evaluate, analyse and synthesise digital resources, construct new knowledge, create media expressions and communicate with others, in the context of specific life situations, in order to enable constructive social action; and to reflect on the process (p. 135).

Eshet-Alkalai (2004) points out that "[d]igital literacy involves more than the ability to use software or operate a digital device; it includes a large variety of complex cognitive, motor, sociological and emotional skills, which users need in order to function effectively in digital environments" (p. 93, cited in Tyler-Smith, 2006, p. 6). Buckingham (2006) suggests that digital literacy involves evaluating and using information critically, in order to transform it into knowledge, including an understanding about the sources of information (p. 267).

Ravenscroft (2009) suggests that "we need to consider social software interaction and application as a developing digital literacy that we need to take a fuller account of in our re-conceptualizations of learning, which are suitable for the digital age. And in doing this, we need to reconnect with and adapt relevant theory in ways that link to contemporary

learning practices" (p. 4). He emphasises that it is not the "Web 2.0 or the social aspect that is most important but the technology-mediated social practices that are supported, and whether these are in harmony, or not, with our pedagogical expectations or ambitions" (p. 4).

Buckingham (2009) cautions educators on simply accepting the mantra that somehow technology is good for learning and will lead to a better learning experience, instead urging educators to examine why technology is being used, and how it is being used to promote genuine learning (xii).

Hatlevik and Christophersen (2013, p. 241) identify the differences between digital skills, competence, and literacy as follows: "A concept such as digital skills focuses on dealing with the technical conditions, whereas digital competence and literacy are broader terms that emphasise what kind of skills, understandings, and critical reflections students are able to use" (p. 241). White and Le Cornu (2011) state that in an online environment "the literacy required is not simply one of off–line/online or gamer/non–gamer; online literacies differ between platforms, although to an outsider the skills required may seem equivalent and there is a certain commonality in the acquisition of transferable skills" (v).

2.5.7   Student response to online learning environments

Karadeniz (2009), in his study "Flexible design for the future of distance learning", indicates that all types of distance learning and the technology that enables it can have their drawbacks. E-learning, with its access to educational content and instructors and other learners, facilitates flexible access for learners through digital devices. Computer based

learning programmes which give individualised feedback and individualised learning at one's

own time and pace can have a lack of social interaction and difficulties with copyright and

upgrading of content. Web-based learning can have drawbacks in terms of accessing

dynamic video, animation, and simulations due to low bandwidth and other network issues.

MLearning, meaning educational content accessed through handheld devices, also has

technical drawbacks due to device aspects such as small screens, low memory capacity,

battery power, connection issues, and cross-platform problems. Karadeniz recommends

flexible design through flexible formats to meet the flexibility of the learner in controlling

their own learning process (p. 360).

Cercone (2008), in her study of the characteristics of learners with implications for online

learning design, concluded that high-quality online learning is characterised by social

interaction and collaboration with peers, connecting new knowledge to past experience,

offering immediacy in application and a climate of self-reflection, and self-regulated learning

(p.151). Allen and Seaman (2014) show that the increase in the integration of web-based

technologies and other integrated technologies has grown over the past ten years from

2003 to 2013. Cercone emphasises that the challenge for educators is to learn how to

provide a positive "social" environment using an electronic medium (p. 152).

Holmes (2015) found that students responded favourably to the use of continuous weekly e-

assessments as part of an optional geography module and felt that their increased

engagement and learning was a direct result of the weekly e-assessments. Holmes contends

that "it is clear that it is possible to increase student engagement through the careful design

of a curriculum, including assessment activity" (p. 12).

2.5.8   'Lurkers' or 'silent students'

Members of communities of practice can participate at different levels. Some will become very involved and others will only observe the activities of the community. These observers can be called 'Lurkers'. In COPs, lurking can also be interpreted as "legitimate peripheral participation", which has already been discussed as a crucial process by which communities offer learning opportunities to those on the periphery" (Lave and Wenger, 1991, p. 29). Legitimate Peripheral Participation is the term applied to the process by which newcomers become included in a community of practice. Obenland, Munson, and Hutchinson (2012), in their study of silent students in the active classroom, found that "students who chose to remain silent in this active learning classroom did, in general, participate in the active learning environment despite their silence. The data revealed that both silent and vocal students engaged in this active classroom and thereby increased their understanding of the content" (p. 97). They further noted that students may not have chosen to raise their hand due to learning style preference or lack of confidence rather than worry about perceptions of them by peers or teachers (p. 97).

Preece, Nonnekke, and Andrews (2004) identified five main problems that lurkers cite as inhibitors for posting, and that community moderators and/or participants can address (pp. 220–221): Shy about posting; Want to remain anonymous; Wrong group or of no value to the individual; Fear of being treated poorly; Poor quality interaction or responses. Dennen (2008) believes that the term 'lurk' carries negative connotations, although it is "perfectly reasonable to think that someone may wish to observe others' communication and interactions with a positive intent" (p. 1625). Lurking's relationship to individual needs (Nonnecke and Preece, 2003) suggests that "learners will engage in whatever manner is

necessary to meet their learning or performance goals" (cited in Dennen, 2008, p. 1628).

Table 2.3 shows lurking as a description of one's current activity level rather than as a

permanent label (Dennen, 2008, p.1627):

Type	Scope	Description
Temporary – situational	Act	In an instance of logging into the system, the user does not post anything
Temporary – topical	Discussion/thread	The user reads, but does not post in a given thread or discussion
Temporary – peripheral	New members	The user is new to the community and not yet ready to post
Permanent	Community-wide	The user never posts, and never intends to post

Table 2.4:   Lurking as a description of current activity (Dennen, 2008, p. 1627)

2.5.9   Facebook

Social Networking Sites (SNS) can be defined as "... web-based services that allow

individuals to: (1) construct a public or semi-public profile within a bounded system, (2)

articulate a list of other users with whom they share a connection, and (3) view and traverse

their list of connections and those made by others within the system" (Boyd & Ellison, 2008,

p. 211).

Facebook is the largest online social network globally and was founded in February 2004 by

Mark Zuckerberg and fellow Harvard students Eduardo Saverin, Andrew McCollum, Dustin

Moskovitz, and Chris Hughes for college students in the US. Forty-eight percent of 18–34

year olds globally check Facebook when they wake up every day (Statistics Brain, 2016).

Social networking can be seen as "the practice of expanding knowledge by making

connections with individuals of similar interests" (Gunawardena et al., 2009, p. 4). Facebook

has the largest market share of users of social networking sites in Ireland with 64%, followed by 29% for Twitter, 27% for Google+, and 25% for LinkedIn (Ipsos MRBI, 2016).

Research suggests that social media can enhance the learning experience and student engagement in various learning communities: in discussion groups for online courses (deVilliers, 2010); student's attitudes to Facebook versus eLearning Commons (Hurt et al., 2012); and using Facebook as a learning tool as part of an online constructivist learning environment (Ractham, Kaewkitipong, and Firpo, 2012).

Although research by O'Brien and Glowatz (2013) suggests that Facebook, when used as an academic tool, promoted student engagement beyond just information-sharing, a study by Kirschner and Karpinski (2010) reported that Facebook users had significantly lower grade point averages than non-users; and they spent fewer hours per week studying compared to non-users (p. 1237).

Pollara and Zhu (2011), in their study of the use of Facebook with high school students for educational purposes, found that most students believed that using the group page was "helpful in achieving their goals for the project and the group and had increased their learning" (p. 7). Hung and Yuen (2010, p. 713) suggest that, "as a supplementary learning tool, social networking holds promise for enhancing students' sense of classroom community which contributes to their classroom Community of Practice in and out of the classroom." They also point out that students experienced technical problems, language barriers, and difficulty with time management, and counselled that any attempt to

incorporate social networking as part of educational practice should take learner characteristics into account (ibid.).

Rau, Gao, and Ding (2008) in contrast differentiate social network services (SNS) from other online communities in three ways: the design of the SNS which is specifically to help people establish an online presence and build their social network; the way people are connected through networks rather than hierarchical groups; and the way people are connected through person-to-person connections that explicitly state the nature of the relationship (p. 2759). Their study of the relationship between the level of intimacy and lurking in online SNS found that "people lurk on SNS sites because they believe that their social-emotional needs may not be satisfied even if they post" (p. 2767).

Although research has shown that students are using Facebook as a learning tool and discussion forum in support of online learning and classroom activities, the ECAR Study of Undergraduate Students and Technology 2015 (p. 11) reports that almost 75% of respondents to their survey stated that, "[w]hen it comes to social media, I like to keep my academic life and my social life separate." The report authors subsequently concluded that:

> While technology that can connect and engage the user is increasingly embedded in the lives of undergraduates (e.g., mobile devices, communication Apps, collaboration tools), today's students don't feel any more connected to their institution (63%), their instructors (51%), or other students (52%) than their counterparts from previous surveys. Just because technology can be a bridge to connect and engage students doesn't mean

that the bridge itself facilitates meaningful connections, connectedness, or engagement (ECAR, 2015, p. 11).

2.5.10 Overcoming assumptions

O'Reilly (2005) defines Web 2.0 as "a perceived ongoing transition of the World Wide Web from a collection of static websites to a full-fledged computing platform serving Web applications to end users." The idea of learning as knowledge creation is supported by a range of digital tools and affordances that allow networking, socialisation, communication, and engagement with communities of learning (Lee, McLoughlin, and Chan, 2008).

Jones and Cross (2009) note that "the idea that the Net generation are more likely to be inclined to participation [on the web] may be somewhat exaggerated" (2009, p. 15). This study surveyed a sample of undergraduate students across a range of disciplines in five UK universities and concluded that "it does not seem that [students] are marked by their exposure to digital technologies from an early age in ways that make them a single and coherent group." In fact, the study noted that "some of the key technological tools that are identified with Web 2.0 are only used by minorities of students. Age seems not to be the major determinant of take up of new technologies. Other criteria such as context and cultural background are also relevant" (ibid.). This is reinforced by Oblinger and Oblinger (2005), who found that, "although these trends are described in generational terms, age may be less important than exposure to technology" (p. 2.9).

Jones et al. (2010) also showed that the "new generation of students show significant age related differences but the generation is not homogenous nor is it articulating a single clear

set of demands". These researchers counselled against change in pedagogy without a clear understanding of the diversity of student populations. These findings were supported by Margaryan, Littlejohn, and Vojt (2011), who concluded from their research in two UK universities that students' attitudes to learning were more influenced by lecturers' teaching approach rather than diverse learning styles borne from familiarity with ICT. They further suggested that "decisions surrounding the use of technologies for learning should not only be based around students' preferences and current practices, even if properly evidenced, but on a deep understanding of what the educational value of these technologies is and how they improve the process and the outcomes of learning" (p. 439).

Bullen et al. (2011, p.2), in their paper for the Canadian Journal of Learning and Technology, point to the lack of empirical evidence for many of these sweeping claims of changing brain structure (Prensky, 2001a and b), unique ways of accessing and using information, interacting socially, and unique behavioural characteristics and learning styles of the Net generation (Oblinger and Oblinger, 2005).

There are particular behaviours, in gamer culture for example, that may influence how young people approach learning in specific contexts. According to a large research study conducted in the US by Beck and Wade (2006), young people playing online games are much more likely than their baby-boomer predecessors to jump over preambles and introductions and are much less anxious in the absence of top-down rules. While the gamer environment is not an unregulated environment, gamers do have "systematically different ways of working ... systematically different skills to learn and different ways to learn them" (p. 2). They learn to use a meta-map or to operate without one, rather than to take instructions

from 'outside' the subculture. Information is discovered experientially and with the assistance of more knowledgeable members of the gaming community, through situated learning within a community of practice.

White and Le Cornu (2011) go further to suggest that individuals who engage in online technology can be categorised along a continuum of 'visitor to resident'. Visitors then see the Web as primarily a set of tools that deliver or manipulate content like a telephone, book, pen, or paper. Online is not a place to think or a place to linger. Residents see the Web as a place where they often feel part of a community. Value is felt through relationships as well as gaining knowledge; they leave part of their persona online through blogs, posts, etc.

Fig 2.4:   Visitor and Resident Continuum (White and Le Cornu, 2011)

Research carried out by Romero et al. (2013) in Universitat Oberta de Catalunya (UOC) refutes claims of a need for tailored pedagogy and bespoke Information and Communication Technologies (ICTs) services for 'Millenials'. Researchers carried out an extensive survey and comparison of the experience and use of ICT by 'digital learners' born before and after 1982 accessing courses through an online university. The research showed that all learners used ICTs collaboratively and that there was no significant difference in levels of use or application of ICTs related to age. The research concluded that there was no need to adapt pedagogy or teaching strategies beyond that necessary to adapt to an

increasingly technological information society. Ybarra and Suman (2006) had previously argued that age is not considered as a factor affecting access to online information; however, as age increases, frustration with experiences on the Internet also increases (p.32).

2.5.11 Conclusion

This literature review has presented literature on communities of practice, learning theory, and how communities of practice work. It has linked the concept of communities of practice with the concept of community as a condition for social learning within learning environments both online and in the physical classroom. A sense of community has been described as part of social learning research and as part of the community of inquiry model used in online learning. Aspects of student experiences of online learning have been presented in terms of readiness for learning, emotions in online learning, and student response to learning. Digital literacy has been outlined as part of the contextual difficulties that may face learners of all ages in the online space. Personal learning environments have been referenced as an emerging concept that relates to how learners order their own learning environments in idiosyncratic and subjective ways. The literature on communities in education as collaborative spaces and as containers for social interactions recognise the value of communities and the individual and group sense of community that can emerge. This sense of community is a key component of social learning and is valued in online learning as an important component of student engagement and student retention.

3.1   INTRODUCTION

The purpose of this study is to examine whether an online community of practice would add value to an undergraduates learning experience. This chapter will set out the research questions of this study, research approach used to answer these questions, the paradigm and theoretical perspective in which the study is based, discussion of the main methodologies employed, and the rationale for the choice of case study. The chapter will also include a discussion of the data gathering and analysis tools used and issues of rigour, validity, and ethics. While this research employs a mixed method approach in case study two, the thesis is primarily a qualitative study overall with the greater emphasis on qualitative data collection and analysis. Quantitative instruments were employed to provide contextual information on the levels of learning and community felt by the participants.

Denzin and Lincoln (2005, p. 23; 2011, p. 12) suggest a five phase model for a research process, which will be used for the organisation and presentation of this chapter: the role of the researcher; the theoretical paradigm; the research strategy (or methodology); the research methods and the analysis technique used; and finally interpretation and evaluation. Each phase will be discussed in terms of the research design and implementation. The chapter will conclude with a discussion of additional topics including ethics, limitations, and validity.

Phase 1: The Researcher	**Phase 2:** Theoretical Paradigm	**Phase 3:** Research Strategy	**Phase 4:** Methods of Collection and Analysis	**Phase 5:** Interpretation and Evaluation
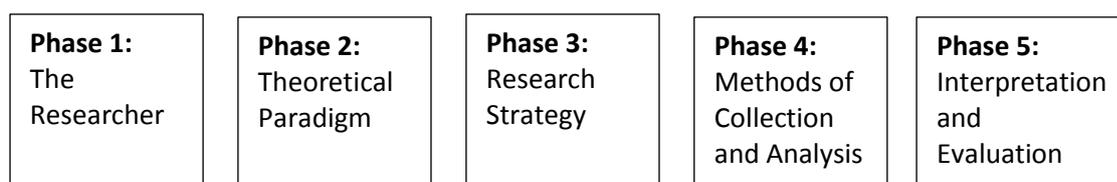
Fig 3.1:   Structure of Research Design Chapter

3.2   PHASE 1: THE RESEARCHER

Merriam (2009) asserts how the role of the researcher is one of the defining characteristics within research. She states that the researcher is the "key instrument" throughout the research process, from the creation of the research questions through to the collection of data and analysis phases and, finally, during the final stage of interpretation and composition of the findings (p. 15). The role of researcher must be managed as the role can change over time. Walford (2001, p. 62) reports a staged process where a researcher's role moves through five phases: newcomer; provisional acceptance; categorical acceptance; personal acceptance; and imminent migrant. Maykut and Morehouse (1994) maintain that "the qualitative researcher or naturalistic inquirer is a part of the investigation as a participant observer, an in-depth interviewer, or a leader of a focus group but also removes him/herself from the situation to rethink the meanings of the experience" (p. 25). Quinn Patton (2002, p. 48) argues that qualitative inquiry means going into the field, which means immersing yourself in "naturally occurring complexity" or "the studied commitment to actively enter the worlds of interacting individuals" (Denzin, 1978a, pp. 8–9). Quinn Patton offers the term "empathic neutrality" as a way of straddling the middle ground between objectivity and subjectivity in qualitative research. He defines "empathic neutrality" as a middle ground "between becoming too involved and remaining too distant" (2002, p. 50).

I, as principal researcher in this study, recognise that my "empathic neutrality" is influenced by my experience as a lecturer supporting undergraduate students navigating a three year degree. I appreciate that these students are juggling part-time jobs, family commitments, and societal and economic challenges. I recognise that my own experience as a mature student influences my empathy towards the students. At the same time my commitment to

the co-facilitation of knowledge as a lecturer and coordinator on the degree programme

provides me with a privileged position of access to, and knowledge of, these students' lives.

I strongly believe that students benefit from the consistent and constructive feedback and

support of a lecturer. I also believe that students, despite the allure and promises of social

networking sites, can feel isolated and pressured while at college and can only benefit from

the support and interest of their fellow class members.

These beliefs led to my enthusiasm for the concept of communities of practice in order to

encourage individuals to participate and reify knowledge together in a safe, respectful

learning environment. Although I am aware of the need to balance the individual agency of

a person to navigate their own learning journey through college with the social processes of

learning in a mass learning environment, I am convinced that a mechanism such as a

community of practice can serve a number of valuable purposes. I contend that

participation in such a community can improve the learning environment and experience for

a student, reduce isolation and create an atmosphere of trust, and provide opportunities for

lecturers to intervene when students are withdrawing or failing to engage with coursework.

The purpose of this study is to investigate whether these beliefs are true and, more

importantly, can be proved.

3.3   PHASE 2: THEORETICAL PARADIGMS AND PERSPECTIVES

Drawing on the work of Thomas Kuhn (1962), the concept of the paradigm has become

central to the definition and practice of research in recent decades. A paradigm can be

defined as the "basic belief system or world view that guides the investigation" (Guba &

Lincoln, 1994, p. 105). A paradigm is typically said to include a stance about the nature of

reality (ontology), the nature of knowledge (epistemology), and methodology (the methods involved in the process). A researcher's beliefs and assumptions are important to acknowledge during the initial phases of the research, as they overarch the whole study from the conduct and design through to the data collection and analysis phase.

Denzin explains in his overview of paradigms that they are "human constructions" (2010, p. 421) and as such are subject to revision and debate. Over recent decades there have been numerous attempts to re-define, expand, and explore the issue of paradigms and a number of different models have been proposed. For the purposes of this study I am choosing to examine Positivism, Post-positivism, Interpretivism, the Pragmatic paradigm, and Constructivism.

3.3.1   Theoretical Framework

Crotty (1998) recommends that, when developing a research proposal, two major questions must be answered: what methodologies and methods will be employed, and how do we justify this choice and use of methodologies and methods? (p. 2).The following diagram shows the relationship between the four elements outlined by Crotty as key to positioning research and progresses to the perspective, viewpoint, and methodology used in this research thesis.
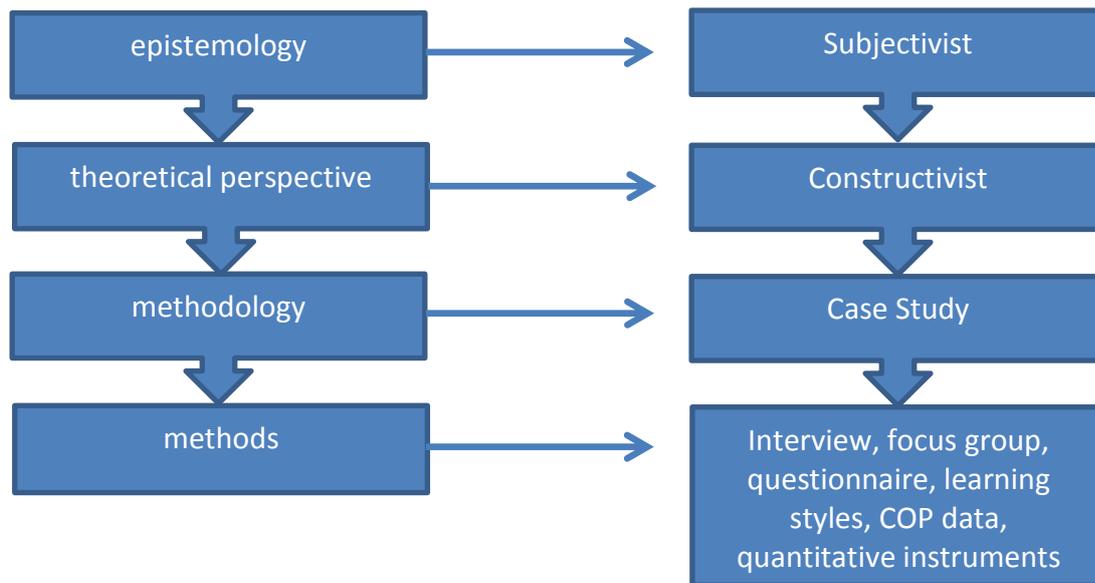
Fig 3.2: **Four elements of research (after Crotty, 1998, p. 4)**

This research is located in the constructivist paradigm and has a subjectivist epistemology and ontological relativity. These theories of knowing (epistemology) and being (ontology) will be explained in more depth in sections 3.3.7 and 3.3.8.

Schell and Janicki (2012, p. 28) explain that "constructivist proponents believe that the process of determining the correct answer for oneself, or at least formulating an idea and thinking about the question, is a very important aspect of the learning process." As a lecturer, I believe that a learning environment based on constructivist principles creates a dynamic, equitable, engaging learning space for all participants. "In the constructivist learning environment, students are encouraged to actively engage in learning: to discuss, argue, negotiate ideas, and to collaboratively solve problems; teachers design and provide the learning context and facilitate learning activities" (Ruey, 2010, p.707 citing Palinscar, 1998).

This research acknowledges that there are multiple realities understood and described by the individuals who experience them in learning, teaching *and* the research process. The constructivist approach deployed in this study recognises that the findings and conclusions of this research are rooted in the context of the study and cannot be generalised. Yin points out that much of case study research "appears to be oriented towards a realist perspective which assumes the existence of a single reality that is independent of any observer. However, case study research also can excel in accommodating a relativist perspective – acknowledging multiple realities having multiple meanings with findings that are observer dependent" (2014, p. 17). The following sections will describe the major theoretical paradigms that influence research approaches and the constructivist paradigm in more detail.

3.3.2 Positivism

Auguste Comte is credited with coining the term 'positivism' in his book *Course de philosophie positive* (1830–42). His definition of positivism arose from his understanding of the physical world's essence as being veiled from researchers and the need for all inquiry into a phenomenon to be empirical and rooted in scientific inquiry, verifiable, and underpinned by logical or mathematical proof. Comte further argued that, as the world is governed by natural law such as gravity, so is society. The positivist movement wished to introduce the methods of the natural sciences to the practices of the social sciences (Crotty, 1998, p. 24). In the early 20th century the Vienna school progressed Comte's vision of research into logical positivism that wished to bring the methods and practices of mathematics into the study of philosophy. Logical positivism focused on the need for verification, 'the principle of verifiability'. This principle contends that no statement is

meaningful unless it is capable of being verified (ibid., p. 25). Positivism as a result has long

been identified with quantitative research in the natural sciences in addition to its

popularity in a wide range of social science research contexts.

3.3.3 Post-positivism

According to the positivist approach, statements can only be meaningful when verified

through observation. Scientists working in the fields of physics, in particular Heisenberg

(1901–76) and Bohr (1995–1962), noted that, in quantum theory, particles were not

predictable with any degree of accuracy and tended to alter their state when observed. It

was impossible to observe and produce meaningful statements with any accuracy or

certainty. These findings contradicted the positivist view of an observable and verifiable

universe. Indeed scientists were actively constructing knowledge through new methods of

extrapolation and hypothesis that showed the need for a more robust and thorough form of

research than "passively noting laws that are found in nature" (Crotty, 1998, p. 31).

One key aspect of post-positivism is that it does not claim an epistemologically or

metaphysically privileged position (ibid., p. 40). Critics of the positivist paradigm note that

positivists can to some degree yield scores through quantitative methods that are unreliable

due to abstractions in the social sciences such as intelligence, motivation, etc. that must be

measured indirectly (Onwuegbuzie and Daniel, 2002, p. 89).

Denzin and Lincoln (2005, p. 11) explain that the positivist approach to research contends

that there is a reality out there to be studied, captured, and understood, whereas the post-

positivists argue that reality can never be fully apprehended, but only approximated (Guba,

1990, p. 22). They further describe the positivist and post-positivist traditions as lingering

"like long shadows over the qualitative research project." The post-positivist approach tends to be associated with qualitative research which "is oriented towards analysing concrete cases in their temporal and local particularity, and starting from people's expressions and activities in their local contexts" (Flick, 2006, p. 30).

3.3.4 Interpretivism

Interpretive research is predicated on the desire for a deeper understanding of how humans experience the lifeworld through language, local and historical situations, and the intersubjective actions of the people involved (Moss, 1994). As Angen (2000, p. 385) puts it, "Interpretive researchers assume that reality as we can know it is construed intra-subjectively and inter-subjectively through the meanings and understandings garnered from our social world."

Critics of this paradigm state that this 'construed reality' emerging from the participant can reduce the generalisability of research findings; as reality is regarded as subjective and varies from person to person, participants in research will not arrive at the same interpretations as researchers (Rolfe, 2006, p. 305). Scotland (2012, p. 12) contends that "[k]nowledge produced by the interpretive paradigm has limited transferability as it is usually fragmented and not unified into a coherent body." Cohen, Manion, and Morrison (2007, p. 8) suggest that an approach characterised by its emphasis on an individual case, in which a relativistic social world is embedded, is idiographic. Critics of the idiographic view find the interpretivist researchers' "claim that multiple, contradictory, but valid accounts of the same phenomenon always exist is extremely misleading, inasmuch as it leads many qualitative researchers to adopt an 'anything goes' relativist attitude, thereby not paying

due attention to providing an adequate rationale for interpretations of their data"

(Onwuegbuzie and Leech, 2005, p. 378).

3.3.5   Pragmatic Paradigm

Proponents of mixed method research argue in favour of the compatibility of quantitative

and qualitative approaches. The mixed methods approach is rooted in a pragmatic paradigm

that enables researchers to utilise qualitative or quantitative methods within the same

framework, benefitting from the strengths of both (Sechrest and Siddani, 1995). Pragmatic

researchers are also more able to combine what can be called 'empirical precision' with

'descriptive precision' (Onwuegbuzie, 2003, p. 396). Early pragmatists "rejected the

scientific notion that social inquiry was able to access the 'truth' about the real world solely

by virtue of a single scientific method" (Mertens, 2005, p. 26).Critics of the pragmatist

paradigm are concerned that this 'pick and mix approach' does not root the researcher in a

paradigm that adequately describes their epistemological, ontological, or theoretical

perspective. Others contend that the pragmatic paradigm places 'the research problem' as

central and applies all approaches to understanding the problem (Creswell, 2003, p. 11).

3.3.6   Constructivism

The constructivist paradigm assumes a relativist ontology (there are multiple realities), a

subjectivist epistemology (knower and respondent co-create understandings), and a

naturalistic (in the natural world) set of methodological procedures (Denzin and Lincoln,

2005, p. 24). Guba and Lincoln (1989) describe the primary assumptions of constructivism as

follows:

"Truth" is a matter of consensus among informed and sophisticated constructors, not of correspondence with objective reality; "Facts" have no meaning except within some value framework, hence there cannot be an "objective" assessment of any proposition; "Causes" and effects do not exist except by imputation; Phenomena can only be understood within the context in which they are studied; findings from one context cannot be generalised to another; neither problems nor solutions can be generalised from one data setting to another; Data derived from constructivist inquiry have neither special status nor legitimation; they represent simply another construction to be taken into account in the move toward consensus (pp. 44–45).

Lincoln and Guba (2003) argue that "realities are social constructions, selected, built, and embellished by social actors (individuals) ... In that sense, constructions are intensely personal and idiosyncratic and, consequently, as plentiful and diverse as the people who hold them" (p. 227).

Although the case study employed in this research will use a mixed methods approach, it was felt that the pragmatic paradigm would not adequately encapsulate the worldview of this researcher or the research. As this research will engage with individual students using an online community of practice, it was felt that the constructivist approach would best represent a perspective that values the individual and subjective experience in understanding of the concept and the use of such a space.

Findings from research in the constructivist paradigm are usually presented in terms of the criteria of grounded theory or pattern theories with terms such as credibility, transferability,

dependability, and confirmability replacing the usual positivist criteria of internal and external validity, reliability, and objectivity. These concepts are explored further in section 3.7.

3.3.7   Epistemology

As mentioned earlier, a critical aspect of the discussion of paradigms is the approach to knowledge – or epistemology – implicit in each. Crotty (2003) contrasts three types of epistemology as follows: Objectivist epistemology holds that meaning, and therefore meaningful reality, exists as such apart from the operation of any consciousness. In contrast to this, constructionism argues that there is no objective truth waiting for us to discover it. Truth, or meaning, comes into existence in and out of our engagement with the realities in our world. A third epistemological stance, subjectivism, comes to the fore in structuralist, poststructuralist, and postmodernist forms of thought (and, in addition, often appears to be what people are actually describing when they claim to be talking about constructionism). In subjectivism, meaning does not come out of an interplay between subject and object but is imposed on the object by the subject (pp. 8–9).

Subjectivism, within epistemological inquiry, is the belief that knowledge is "always filtered through the lenses of language, gender, social class, race, and ethnicity" (Denzin and Lincoln, 2005, p. 21).

Constructivism acknowledges the unique experiences of each individual and suggests that "each one's way of making sense of the world is as valid and respect worthy as any other" (Crotty, 1998, p. 58). Social constructivist conceptions of learning assume that knowledge

construction is achieved by the interaction that takes place within oneself through reflective thinking and by the interaction that occurs in communications and collaboration with other people (Vygotsky, 1978, cited in Murphy et al., 2005, p. 342). It is the aim of this research to examine this process of thinking, reflection, and interacting with peers that students experience through an online community of practice.

3.3.8 Ontology

A second key element of the paradigmatic approach is ontology, the study of being (Crotty, 1998, p. 10). Quinn Patton (2002) asserts that "[s]ocial construction, or constructivist philosophy is built on the thesis of ontological relativity, which holds that all tenable statements about existence depend on a worldview, and no worldview is uniquely determined by empirical or sense data about the world" (p. 97). Our realities are shaped by our interactions as humans with other humans in society which influence our understanding and expressions of the world around us. As such, the ontological approach used in this research is relativism, as reality is socially negotiated. This negotiated reality is also influenced by the subjective nature of each participant's own experience of the world. Individual constructs are elicited and understood through interaction between researchers and participants (Guba & Lincoln, 1994, p. 111) with participants being relied on as much as possible (Creswell, 2009, p. 8, cited in Scotland, 2012, p. 12). This study will explore the perceptions of participants of a community of practice, their understanding of community, how interactions with their peers and their lecturer benefitted them, and whether, on reflection, a community of practice is of value to undergraduate students in the final year of their studies.

3.3.9   Conceptual Framework

Miles and Huberman (1994) define a conceptual framework as "a visual or written product that explains, either graphically or in narrative form, the main things to be studied" (p. 19). The function of a conceptual framework is to inform the design of a study and assist in the development of research goals (Maxwell, 2013, p. 39). An initial conceptual framework for the case study is presented below in Fig 3.3. This framework served as an 'anchor' for data collection and analysis. Miles and Huberman (1994, p. 18) note that a conceptual framework serves several purposes: (a) identifying who will and will not be included in the study; (b) describing what relationships may be present based on logic, theory and/or experience; and (c) providing the researcher with the opportunity to gather general constructs into intellectual 'bins'.

The conceptual framework recognises that the concept of community is a fundamental part of social learning and can inform theories across disciplines including sociology, psychology, healthcare, and education. The need for a sense of community as a key component of successful online learning is a relatively recent and continually evolving area for research. As Lincoln (2010), in his review of 25 years of qualitative and paradigmatic research reminds us: "we are still in a period of great development" (Wright, 2006, p. 799) and "new forms of analysis and new methods are being created every year, where the Internet and Web-based communication are changing our very ideas of what forms 'community' and how we learn, and consequently, of what we might fruitfully study, and where old and well-recognized methods are being put to new purposes" (p. 5).

Communities of practice

Learning communities

Professional learning communities

Sense of community

Community participation

Social capital

Social learning theory

Situated learning

Collaborative learning

E-learning

Learning styles

Blended learning

Social presence

Cognitive presence

Interaction

Web 2.0

Learning Environments

Virtual Learning Environments

Personal Learning Environments

Demographics of students

Readiness to learn

Adult and student identity

COPs for initial teacher education

Digital literacy

Lurking

Facebook

Student response

Types of community

Learning environments

Community

Learning approaches

Students

Fig 3.3: **Conceptual framework adapted from Kim et al. (2006, p. 869)**

3.4 PHASE 3: THE RESEARCH STRATEGY – CASE STUDY

Case Study has been chosen as the research methodology, as it is a "strategy in which a researcher explores in depth a programme, an event, an activity, a process or one or more individuals" (Creswell, 2003). Yin (2014, p. 16) defines case study as "an empirical inquiry that investigates a contemporary phenomenon (the 'case') in depth and within its real-world context when the boundaries between phenomenon and context may not be clearly evident." According to Simons (2009) in the US, Robert Stake (1967a) was the first to suggest that evaluators needed to widen their database and rethink the role of evaluation. In the UK in the early '70s, MacDonald (1971) was also developing a case study approach "to

capture the complexity of innovation and meet the needs of decision makers" when evaluating curriculum programmes (p. 15).

Stake's emphasis was on the need "to tell the programme story" (1967b), including antecedent data, data about transactions and judgements, and date on outcomes. The case study using qualitative methods can record the perspectives of stakeholders and participants, engaging them in the process while simultaneously representing different values and interests in the case under study (Simons, 2009, p. 18).

Merriam (1988) refines case study further in her definition: "The qualitative case study can be defined as an intensive, holistic description and analysis of a single entity, phenomenon, or social unit. Case studies are particularistic, descriptive, and heuristic and rely heavily on inductive reasoning in handling multiple data sources." (p. 16). Merriam's definition of case study illustrates the research approach used to examine and describe the use of an online community of practice as a learning support for undergraduate students in the final year of an education degree, as it will facilitate an in-depth study and analysis.

3.4.1   Collective, "Two-Case" or Multiple Case Design

This research study can be defined as a collective case study (Stake, 1995) in that a number of cases will be studied to form a collective understanding of the phenomenon of online communities of practice (pp. 3–4). This study can also be called a "two-case" design or "multiple case" design (Yin, 2014, p. 64) and as such has the possibility of direct replication arising from analytic conclusions from the comparison of two cases. The two cases separated by one year also offer the possibility of theoretical replication in that the second

case introduced improvements as a result of findings from the first case in order to test and validate its conclusions.

This multiple case study explored whether an online community of practice added value to each year class group in their final year– 2012/2013 and 2014/2015. Case Study One focused on students' attitudes to the introduction of an online community, their willingness to participate, and under what conditions. Case Study Two progressed the findings of Case Study One by exploring the level of cognitive, affective, and psychomotor learning within the online learning community. It also identified the level of learners' sense of community within the online learning space and whether learning styles (Kolb, 1984) had an influence on participation and types of participation in such a community.

3.4.2 Mixed Methods

Greene (2007, p. 101) explains that one of the most common purposes for mixing methods in practice is for complementarity. She explains that "a mixed methods study seeks broader, deeper, and more comprehensive social understandings by using methods that tap into different facets or dimensions of the same complex phenomenon" (p. 101). This study is a component design that employs mixed methods for the purpose of convergence. A component design is one in which different types of methods used remain separate and are "discretely identifiable throughout the study" (ibid., p. 122). Convergence is defined as the use of two or more methods to measure the same phenomenon for the purpose of triangulation (Greene, 2007, p. 122).

In this research thesis, Case Study One explored the use of an online community of practice using qualitative methods and Case Study Two built on the findings of Case Study One by applying quantitative methods of measurement in terms of learning, sense of community, and learning styles. These methods will be described further in phase 4: data collection and analysis.

An interesting aspect of mixed methods studies is the debate around the value of mixing methods for purposes of triangulation which can lead to convergence and corroboration but also divergence and dissonance. Greene's stance, in her book on mixed methods in social inquiry, is that mixed methods social inquiry "can substantially enhance our understanding of social phenomena by generating empirical puzzles – results that do not converge and thereby warrant further study and contemplation" (2007, p. 45).

This case study is an instrumental case study, a way of "using the case study as a means to an end, better to understand some theme or idea" (Thomas, 2016, p. 132). It is also an explanatory study whose purpose is to explain how or why some condition came to be (Yin, 2014, p. 238) or "where the phenomenon in which you are interested needs 'unpacking', the connections between different parts of the issue need unravelling and the case study offers a route to explanation" (Thomas, 2016, p. 132).

3.4.2   Methodological Characteristics

Methodological characteristics include coping with the "technically distinctive situation in which there will be many more variables of interest than data points and as one result relies on multiple sources of evidence, with data needing to converge in a triangulating fashion,

and as another result, benefits from the prior development of theoretical propositions to guide data collection and analysis" (Yin, 2014, p. 17). Case study can also be said to be idiographic in that "the ideas are all based on and rooted in a single picture – the picture drawn by the inquirer" (Thomas, 2016, p.5). The Table 3.1 below depicts the differences between case study and two other forms of research. Implicit in the use of case study is the 'trade-off' between gaining greater details from a restricted sample at the expense of being able to make generalisations about your findings. (ibid., p.110).

	Case Study	Experiment	Survey
Investigates….	One or a small number of cases	A relatively large number of cases	A relatively large number of cases
Data collected and analysed about….	A large number of features in each case	A small number of features of each case	A small number of features of each case
Study of…	Naturally occurring cases where the aim is not to control variables	Cases where the aim is to control the important variables	Naturally occurring cases selected to maximise the sample's representativeness of a wider population
Quantification of data…	Is not a priority	Is a priority	Is a priority
Using…	Many methods and sources of data	One method	One method
Aiming to…	Look at relationships and processes	Look at causation	Look for generalisation

Table 3.1: A comparison of the case study with other forms of inquiry (Thomas, 2016, p.11 adapted from Hammersley and Gomm, 2000).

This case study examines the introduction of a community of practice to a final year class group and asks how the COP can support the learning of the undergraduates as part of a research module. The COP is the subject of the case study (Wieviorka, 1993, p.159) and the object is the students' reaction to and opinion of the COP's impact.

3.4.3   Unit of Analysis

Bell explains how the researcher identifies an 'instance' for study, in this case the introduction of an online website to be used as a community of practice for the purposes of brainstorming, discussing, and advancing peer support within an undergraduate class group (2001, p. 11). Case Studies, which can "allow for in-depth exploration; are an examination of subtleties and intricacies; attempt to be holistic; explore processes as well as outcomes; and investigate the context and setting of a situation" can be used to examine such an instance. (O'Leary, 2004, p. 116).

The case is defined by Miles and Huberman (1994) as "a phenomenon of some sort occurring in a bounded context." The case is, "in effect, your unit of analysis" (p. 25). Stake (1995) also contends that "the case is bounded by time and activity and researchers collect detailed information using a variety of data collection procedures over a sustained period of time." The kinds of data and unit of analysis is described in Table 3.2 below:

Kinds of Data			
Unit being characterised	**Total system**	**Intermediate Units**	**Individuals**
Ning Community of Practice	BSc in Education and Training 2012	Final year class group ET3 2012/2013	67 participants
Google+ Community of Practice	BSc in Education and Training 2014	Final year class group ET3 2014/2015	68 participants

Table 3.2:   An embedded, multi-case design study (after Lipset, Trow, and Coleman (1956, p. 422)

3.4.4   Purposeful or Purposive Sampling

Sampling in broad terms refers to the points of data collection or cases to be included within a research project. Purposive or purposeful sampling describes the process of selecting research participants on the basis of their relevance to the research (Gibson and Brown, 2009, p. 56). Quinn Patton (2002) describes purposeful sampling as a "method of selecting information-rich cases for study in depth" (p. 46). He believes that "the logic and power of purposeful sampling derive from the emphasis on in-depth understanding" (p. 46). He recommends that purposeful sampling in qualitative research be judged on the purpose and rationale of the study. Lincoln and Guba (1985) recommend *redundancy* as the primary criterion: "In purposeful sampling the size of the sample is determined by informational considerations. If the purpose is to maximise information, the sampling is terminated when no new information is forthcoming from new sampled units; thus redundancy is the primary criterion" (p. 202). Please see Fig. 3.4.

As cited in Creswell (2003, p. 185), four aspects were considered when choosing the participants and site: the setting, the actors, the events, and the process (Miles and Huberman, 1994).

3.4.5   Research Sample

In each case the research setting was the ES314 research module 'Project One' in the final year of the BSc in Education and Training over two years 2012/2013 and 2014/2015. (See Appendix A). This module was a compulsory module taught by the researcher for four hours each week. Participants were invited to join a private website that functioned as a community of practice. The actors were two full classes of final year undergraduates

undertaking a five credit module in research that culminated in the submission of a research proposal and literature review. The sample size in Case Study One was n=67 and in Case Study Two n=68. The events relate to the participants use of an online website as a community of practice in order to brainstorm, discuss, cooperate, and communicate on the identification of their research topics and the sourcing of relevant literature and evidence for their literature reviews. The process refers to the access and use of the online community, the interaction between participants, the types of interactions, and the overall attitudes and experience of the participants in relation to the use of such a space.
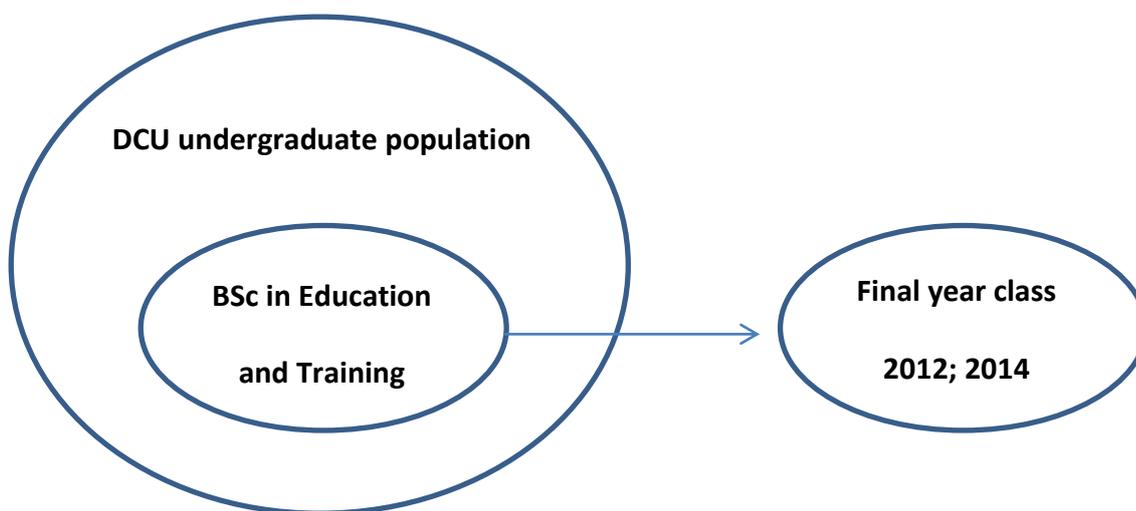
Fig 3.4:   Population and Sample (Creswell, 2014, p. 161)

One of the interesting aspects of this research is how students self-identify themselves. Participants in Case Study One identified themselves as traditional students and mature students. This may be based on the application system for third level courses. The purpose of the Central Applications Office (CAO) is to centrally process all applications to first year undergraduate courses within the higher education institutions in Ireland. The CAO defines mature student entry as follows: Normally mature applicants should be 23 years old on or

before 1st January 2016 (i.e. born on or before 1st January 1993) for admission in Autumn

2016 and must apply by 1st February 2016 (CAO 2016). DCU also defines mature students as

those aged aged 23 years, or above, on 1st January in the year of entry. (DCU 2016).

According to 2014/2015 university entrant statistics, one in every eight entrants to college

in Ireland is a mature student (over 23 years of age) while 5% of the student body are over

35. 8% of the 23,243 full-time new entrants in 2014/15 were mature students, with 93% of

part-time new entrants classified as mature students (Irish Universities Association 2016).

DCU currently has 30% of its student population from non-traditional backgrounds (mature,

access, disability, distance) (DCU 2016).

For the purpose of this study students were defined as 'traditional' and 'mature'. Traditional

students are defined as students who shared common characteristics:

> from middle class backgrounds
> of school leaving age (usually 18 or 19)
> speak English as their first language
> have no disabilities, study full time with no significant external
  responsibilities. (Trinity College Dublin 2009)

The 'Looking Forward' Report funded by the Higher Education Authority of a research

initiative investigating the counselling and support needs of students defines 'non-

traditional' student groups as those "including mature students, students with disabilities,

students from socially disadvantaged backgrounds, and students who are from minority

groups such as refugees or members of the traveller community" (2007, p. 6).

3.5   PHASE 4: METHODS OF COLLECTION AND ANALYSIS

The choice of data collection methods was influenced by the need to capture the voice of the participant through interview and focus group and the online data on interactions on the individual online communities of practice. Additionally, it became evident from the findings of Case Study One that there was a need for data collection tools to establish whether learning took place in the online space and whether participants felt a sense of community with the other members of the online group. Three data collection tools were introduced in Case Study Two: CAP Perceived Learning Scale (Rovai et al., 2009), Classroom Community Scale (Rovai, 2002) and the Learning Style Inventory (Kolb, 2007). Please see Table 3.3 below.

The two case studies used data collection methodologies that provided the individual and group experience and viewpoint of the online community of practice and also mapped the interactions that took place within the space. Qualitative research is inherently multi-method in focus and uses triangulation as a tool to "secure an in-depth understanding of the phenomenon in question" (Flick, 2002, p. 227). The choice of data collection tools reflected the need to capture individual opinion and experience of the COP. Consequently, the study uses interview, focus group, and questionnaire as the qualitative methods of data collection in both cases.

Data Collection Tools	Case Study One	Case Study Two
Interview	20	8
Questionnaire	1 n=36	1 n=36
Focus Group	n/a	1 n=4
CAP Perceived Learning Scale	n/a	1 n=47
CCS		1 n=48
Kolb Learning Style Inventory		1 n=37

Table 3.3:   Data Collection Tools used in each case

3.5.1   Four principles of data collection in case studies

Principle 1: Use multiple sources of evidence:

Yin (2014) points out that the benefit of multiple sources of evidence is the "development of

converging lines of inquiry" (p. 120). Analysis of convergent evidence will strengthen the

construct validity of the case study. Convergent evidence is the data that result from

multiple data collection methods employed in each case. The data collected from each of

these methods are then compared and contrasted with each other. The multiple sources of

evidence essentially provide multiple measures of the same phenomenon (Yin, p. 121). This

case study employed interviews, focus groups, content analysis of online interactions,

surveys and instruments for identification of learning styles (Kolb), sense of community, and

estimation of learning (Rovai, 2002; Rovai et al., 2009). Findings from Case Study One

informed the choice of data collection tools in Case Study Two. See Figure 3.5 below:
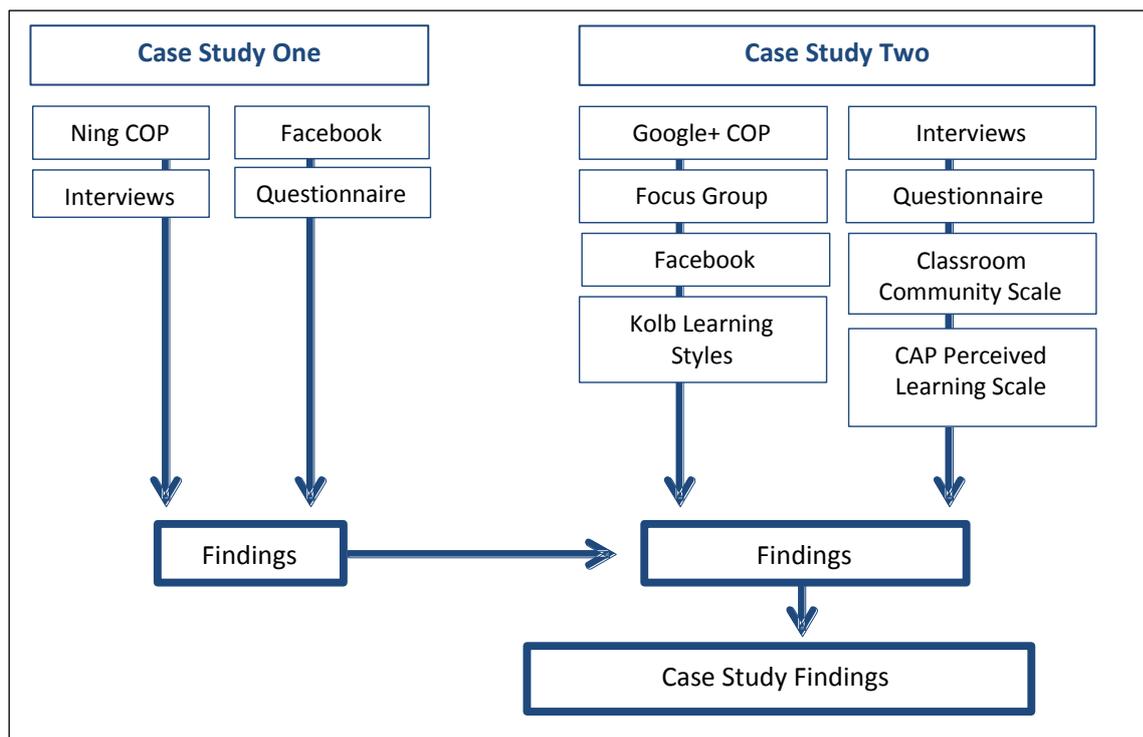
Fig 3.5:   **Convergence of evidence from Case Study One and Case Study Two**

Principle 2: Create a case study database:

The data collected from the two case studies were kept in raw data form through Excel files,

transcripts, original voice memo sound files, and the online communities of practice created

in Ning and Google+.

Principle 3: Maintain a chain of evidence:

This principle relates to the need for an external observer, or reader, of this thesis to be able

to follow the "derivation of any evidence from initial research questions to ultimate case

study conclusions" (Yin, 2014, p. 127). This principle was satisfied by the construction of this

report and the maintenance of a case study database that contains all of the raw data and

analysis of data that produced the case study report. (See Fig 3.6).

```
                    Case Study Report

                          ⇕

                   Case Study Database

                          ⇕

      Citations to specific evidentiary sources in the case study

                        database

                          ⇕

      Case study protocol (linking questions to protocol topics)

                          ⇕

                    Case study questions
```
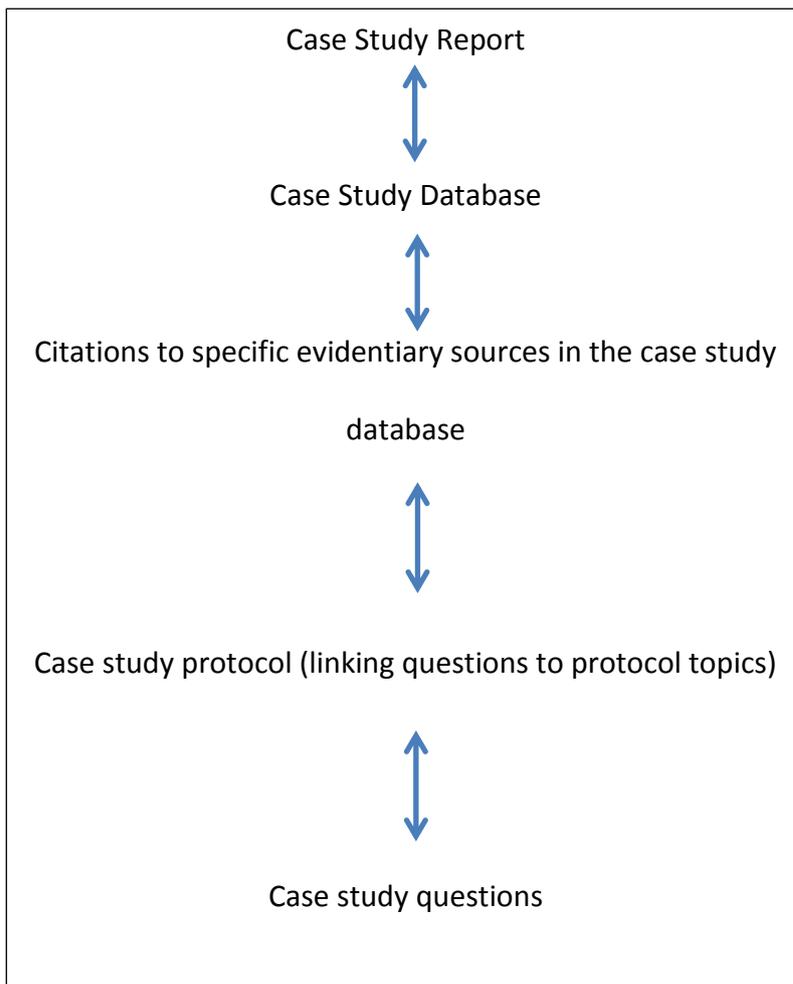
Fig 3.6:   Maintaining a chain of evidence (Yin, 2014, p. 128)

Principle 4: Exercise care when using data from electronic sources:

Yin (2014) urges caution in the use of content from online sources in terms of authorship,

quantity, and accuracy. He emphasises that care is needed to cross-check sources and

information to understand a "potential slant, incompleteness, or even interpretive bias" (p.

129). The data that come from the online COP were created through the interactions of

students and lecturer in a private website. All data were examined offline and assigned

authorship and quantity through aggregation and analysis.

3.5.2 Interviews

O'Leary (2004, p. 162) describes interviewing as a method of data collection that involves researchers asking respondents basically open-ended questions. Interviews can be structured, semi-structured, or unstructured. Structured interviews are essentially "verbally administered questionnaires" (Gill et al., 2008), but are useful in that they are quick and easy to administer. They are limited by nature and as such may preclude deeper questioning or exploration of a topic. An unstructured interview tends to be conducted by experienced interviewers and is often part of a grounded theory, phenomenological approach, or ethnographic approach. They can be time-consuming and difficult to keep on topic but are useful if the researcher wants to explore an unfamiliar subject or a particular individual's perspective and experience of a phenomenon.

Yin (2014, p. 113) asserts that interviews are an "essential source of case study evidence because most case studies are about human affairs or actions." A semi-structured interview is when the researcher has an idea of what themes they want to explore and encourages the interviewee to talk freely around those themes. "The flexibility of this [semi-structured] approach, particularly compared to structured interviews, also allows for the discovery or elaboration of information that is important to participants but may not have previously been thought of as pertinent by the research team" (Gill et al., 2008). As O'Leary (2004) explains, semi-structured interviews are "best seen as flexible. Interviewers generally start with some defined questioning plan, but pursue a more conversational style of interview that may see questions answered in an order more natural to the flow of conversation" (p. 164).

Semi-structured interviews were chosen in this research to give the learners and the members of the community of practice the opportunity to voice their opinions and experience of the community and explain their personal approach to communicating and cooperating online. Alvesson (2003, p. 169) explained that interviewees follow "cultural scripts about how one should normally express oneself on particular topics" and, hence, the interview is "better viewed as the scene for a social interaction rather than a simple tool for collection of data".

Semi-structured interviews were also used to explore more deeply the attitudes of students to the use of such an online space in their studies. Charmaz (2006) explains that "the structure of an intensive interview may range from a loosely guided exploration of topics to semi-structured focused questions" (p. 26). Creswell (2013) describes one-on-one interview as a data collection process in which the researcher asks questions to and records answers from only one participant in the study at a time (p. 217).

An interview guide was used to ensure that the same basic lines of inquiry were pursued with each person interviewed (Quinn Patton, 2002, p. 343), (See Appendix B). The questions ranged from opinion and value questions, to knowledge questions, to feeling questions, and experience and behaviour questions. Quinn Patton (2002) suggests that distinguishing types of questions focuses the interviewer on being clear about what is being asked and helps the interviewee respond appropriately (p. 348).

3.5.2.1 Interviews – Case Study One

In Case Study One, 20 students from the degree programme undertaking a compulsory

research module in their final year were interviewed.

Participant	Gender	Interview completed	CAO Classification
P001	F	16.4.2013	Traditional
P002	F	11.4.2013	Mature
P003	F	23.4.2013	Traditional
P004	M	9.4.2013	Mature
P005	F	11.4.2013	Mature
P007	F	16.4.2013	Traditional
P008	M	28.03.2013	Mature
P009	F	17.4.2013	Traditional
P010	M	21.4.2013	Traditional
P011	F	18.04.2013	Traditional
P012	M	18.4.2013	Traditional
P013	M	18.4.2013	Traditional
P014	F	26.4.2013	Mature
P015	F	18.4.2013	Mature
P016	F	26.4.2013	Mature
P017	F	26.4.2013	Mature
P018	F	24.4.2013	Traditional
P019	M	16.4.2013	Mature
P020	M	9.4.2013	Traditional
P050	F	4.4.2013	Traditional

Table 3.4: **Case Study One: list of interviewees by gender, date and CAO classification**

3.5.2.2 Interviews – Case Study Two

In Case Study Two, eight students who had varying use of the Community were interviewed to ascertain their differing experience of the space and their opinions of the benefits of online cooperation.

Participant	Gender	Interview completed	CAO Classification
P026	M	17.12.2014	Traditional
P042	F	15.12.2014	Traditional
P049	M	12.12.2014	Traditional
P039	M	12.12.2014	Traditional
P038	M	10.12.2014	Mature
P029	F	9.12.2014	Traditional
P002	F	8.12.2014	Traditional
P010	F	4.12.2014	Traditional

Table 3.5:   Case Study Two: list of interviewees by gender, date and CAO classification

3.5.3   Focus Groups

In addition to interview, this study also made use of a focus group in Case Study Two to obtain a group response and discussion of the COP and its use. Focus groups are a form of group interview that "actively leverages the interaction between members of that group as they describe or frame experiential data and reflect on that experience" (Jones, 2015, p. 566). A focus group is an interview with a small group of people usually with similar backgrounds on a specific topic. Its aim is to get "high-quality data in a social context where people can consider their own views in the context of the views of others" (Quinn Patton, 2002, p. 385).

Newby (2010, pp. 350–351) recommends that focus groups should be clear on the agenda and focus, take place in a setting that is conducive to discussion, have a skilled moderator who can prompt people to speak, promote thinking and reflection, and have a record kept (cited in Cohen, Manion, and Morrison, 2011, p. 437).

3.5.3.1 Focus group – Case Two

Focus group as a data collection method was used in Case Study Two to capture a group response to the community. One focus group was carried out with the final year class group who were using a community of practice to support cooperation in a research module.

One of the outcomes of Case Study One was the bridging ability of an online space for cooperation and collaboration between mature students and traditional students. Unfortunately, due to the introduction of an extra placement year in the degree during the research timeframe, the mature students in Case Study Two's class group had opted to take the extra year. Consequently, one mature student was interviewed and included in a focus group with traditional students to explore the findings of Case Study One. Eight students were invited to attend the focus group with four students attending on the day. See Table 3.6 below to see the composition of the Focus Group participants:

Participant	Gender	Focus Group Completed	CAO Classification
P024	F	4.12.2014	Traditional
P005	F	4.12.2014	Traditional
P038	M	4.12.2014	Traditional
P065	M	4.12.2014	Mature

Table 3.6: **Case Study Two: list of focus group participants, gender, and student type**

3.5.4 Questionnaire

Quinn Patton (2002, p. 353) emphasises that qualitative inquiry "aims to minimise the imposition of predetermined responses when gathering data." Consequently, a researcher should take care that questions are open ended to allow participants to respond in their own words. Silverman points out that quantitative data are "strongest on revealing 'inputs' and 'outputs' of particular phenomena while qualitative data can reveal how social phenomena work in real time" (2014, p. 46). A questionnaire is a widely used and useful instrument for collecting information and numerical data and is often comparatively straightforward and easy to analyse (Wilson and McLean, 1994). Although questionnaires are often associated with the positivist paradigm (Creswell, 2009), their use in case study can help identity key themes and trends and provide contextual numerical data. They can also, through the use of open-ended questions, help the respondent to provide worthwhile qualitative data (Quinn Patton, 2002, p. 354). Jansen (2010) emphasises that the "qualitative type of survey does not aim at establishing frequencies, means or other parameters but at determining the '*diversity*' of some topic of interest within a given population. This type of survey does not count the number of people with the same characteristic (value of variable) but it establishes the meaningful variation (relevant dimensions and values) within that population" (Section 2.0).

In both cases in this research thesis, participants were asked to complete a questionnaire at the end of each semester to ascertain their individual experience of membership of a community of practice. This questionnaire was administered through an online survey tool, i.e. Google Forms. Google Forms was chosen as it was part of the Google Suite of tools and as such embedded in the participants' email access and use. "One of the reasons for conducting online surveys has to do with the object of study. Online surveys are often employed in studies of Internet use in order to reach a population with Internet experience" (Van Selm and Jankowski, 2006, p. 436). Van Selm and Jankowski (2006) further point out that surveys conducted over the Internet tend to be less expensive than a pen and paper version sent by post and they are faster in terms of completion and return. Surveys administered online may also have a higher response rate among traditional students, who are used to communicating online on a daily basis.

Both questionnaires were semi-structured with a mix of open and closed questions as well as rating questions regarding use of social media and ICT in general. Both questionnaires were distributed through Google Forms by email. "If a site specific case study is required then qualitative, less structured, word-based and open-ended questionnaires may be more appropriate as they can capture the specificity of a particular situation" (Cohen, Manion and Morrison, 2011, p. 382). (See Appendix G for a questionnaire example).

3.5.4.1 Case Study One: questionnaire

In Case Study One, the questions were sequenced and focused on particular themes but the format was open ended, allowing respondents to reply in their own words. Care was taken to ensure that every question had an 'other' or 'comment' option to allow respondents

include their individual and subjective view. The questionnaire consisted of 23 questions presented under three themes: ET3COP Use; Practical Use of COP; Personality Aspects. Eight of the questions required yes, no answers, e.g. Would you have used the COP more if you could have accessed it through your mobile phone? Three questions offered checkbox prompts as answers to questions such as: What would your preference be for a platform for a COP? Google+, Moodle, Facebook, Ning, Other. The balance of 12 questions was open ended, seeking the voice of the participant explaining their experience and/or opinion of the COP: How did the COP help you with your work on ES314? As Cohen, Manion, and Morrison (2011, p. 382) emphasise, "the semi-structured questionnaire sets the agenda but does not presuppose the nature of the response". All members of the class group (n=67) were invited to complete the questionnaire, and 36 responses were received, giving a response rate of 54%.

3.5.4.2   Case Study Two: questionnaire

Cohen, Manion, and Morrison (2011, p. 381) suggest that there is a simple rule of thumb for types of questionnaires: "the larger the size of the sample, the more structured, closed and numerical the questionnaire may have to be, and the smaller the size of the sample, the less structured, more open and word-based the questionnaire may be." In Case Study Two, the questionnaire consisted of 29 questions presented under five themes: ET3COP, the COP and you, COP technical questions, COP the future, and Learning styles. Seven of the questions required yes, no answers, e.g. Do you think the class was a community before the introduction of the COP? Four of the questions offered checkbox prompts, e.g. What ICT tools do you use for communication in group tasks? WhatsApp, Viber, Gmail, Facebook. The balance of 18 questions was open ended, seeking participants' views and opinions, e.g. Did

you find the tasks helpful? In what way? All members of the class group were invited to complete the questionnaire (n=68) and 36 questionnaires were completed, giving a response rate of 53%.

3.5.5. Case Study One and Two: Interactions on the COPs

Dawson's (2006) study of student community demonstrated a clear linkage between the degree of communication interactions students undertake and the level of sense of community they experienced. Dennen and Wieland (2007, p. 295) suggested that learners must interact with each other and the course material at deeper levels, which has the potential for negotiation and internalisation of knowledge rather than just rote memorisation of knowledge. The literature shows that the analysis of this interaction can be carried out through different approaches which depend on the aspect of interaction that is of interest. For example, researchers exploring social presence, teaching presence, or cognitive presence may use the Community of Inquiry model (2000) proposed by Garrison and Archer to examine interactions in a text based online environment. Subsequent research has updated the Community of Inquiry (COI) model and employed it to examine levels of the individual presences in asynchronous learning environments, e.g. Richardson and Swan, 2003; Shea, Pickett, and Peltz; 2004; Shea, Hayes and Vickers, 2010.

3.5.6   Quality of Interaction in asynchronous discussion forums

Nandi, Hamilton, and Harland (2012, p. 6), in their evaluation of the quality of interaction in asynchronous discussion forums in fully online courses, identify three forms of participation in online discussion forums from the literature: (1) "Lurkers" (Salmon, 2003) who simply read the messages and do not participate. They may learn by reading the posts and

incorporating the ideas into their assignments (Guzdial and Carroll, 2002); (2) Students who treat the forum as a notice board, posting their own position and having limited interaction and (3) students who find the participation is interactive and use it to its full potential (Ho, 2002).

Nandi, Hamilton, and Harland (2012) examined data from two discussion forums in a fully online course in programming offered to undergraduate and postgraduate students in an open university in Australia. Postings from the forums were analysed using qualitative thematic analysis and a grounded theory approach (Strauss and Corbin, 1998). They used "prolonged engagement, persistent observation, triangulation, and peer debriefing" (Baran and Correia, 2009) as methods to ensure credibility in the findings. The resulting frameworks "define a set of criteria for instructors to implement for quality participation for interactive learning" (Nandi, Hamilton, and Harland, 2012, p. 27). (See Appendix H for a copy of the framework).

3.5.7   Evaluating interactions in the COP

In this study the purpose of evaluating the online interactions of students was to examine the level of interaction between learner and content, learner and instructor, and learner and learner (Moore, 1993). This was done through qualitative thematic analysis of posts and comments on the COP and comparison of the features of these posts to Nandi, Hamilton, and Harland's Framework of Quality Interaction (2012). Care was taken to ensure that posts were attributed to each participant in order of posting, date, subject, and level of interaction. Each post was cross-referenced with the participants' other data points to

ensure that a complete and accurate examination and analysis of each individual's data was carried out as comprehensively as possible.

Case Study One (Ning COP)

The online COP presented to the students as a collaborative space for peer support was hosted on a Ning platform and was loosely based on the design palette of Facebook. Boyd and Ellison (2008, p. 218) describe Ning as "a platform and hosting service that encourages users to create their own social networking service." The colour palette was white and blue and deliberately uncluttered. The main functions were online chat, a discussion forum where students could post messages, questions, links, resources, and suggestions, and sections for blogs and events notifications. Each student had their own space on the site where they could upload a profile and photographs. Students could message each other through the site or post messages for all to see on the main discussion forum. Students could make messages and/or posts private or public and they could also create groups for themselves and keep those activities limited to people of their choice.
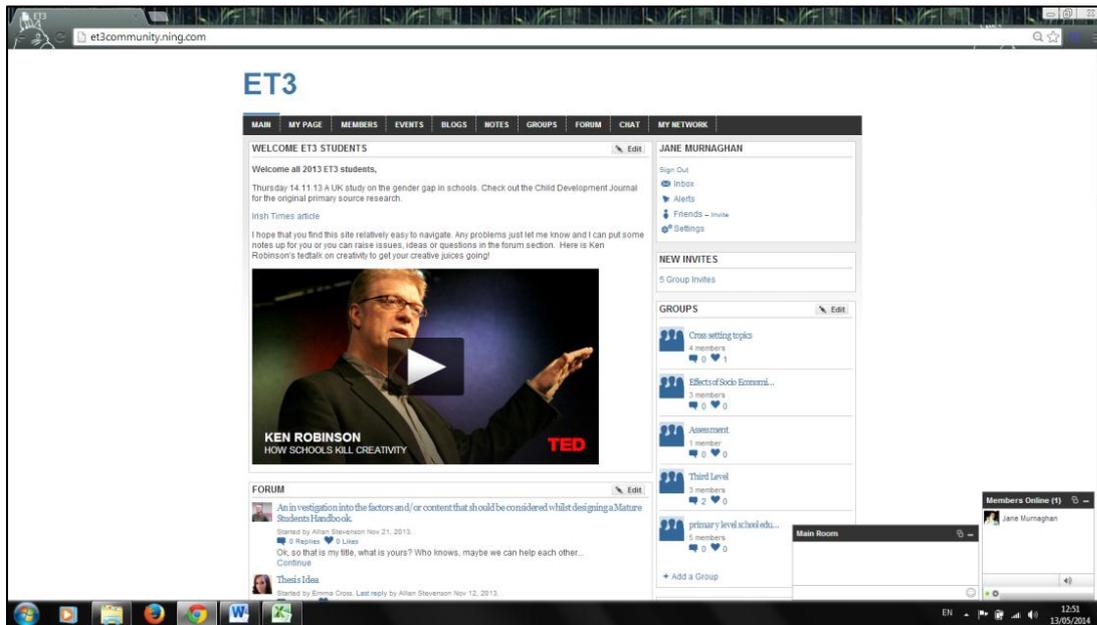
Fig 3.7: **Screenshot of Ning COP**

Each interaction by each student on the NING COP was recorded on an Excel spreadsheet

and coded line by line to assess social presence using the framework developed by

Anderson et al. (2001, p. 10). Social Presence is defined as the ability of learners to project

themselves socially and affectively into a community of inquiry (p. 2). (See Appendix I for

social presence categories). This categorisation was one component in a number of lenses

used to filter the 1341 lines of data in an Excel sheet that recorded every point to point

contact online through the COP and the class Facebook page. Other lenses included gender,

age, timeframe, initiator/responder, source, attendance, and use of email and device. (See

Appendix J for Spreadsheet).

Case Study Two (Google+ COP)

The Google+ Community function was chosen as the vehicle for the online learning

community as it was part of the Google Apps provision to students in DCU and provided a

clean, interactive, intuitive interface for students. Sigman (2013), with a support team of three lecturers, implemented a Google+ community as part of two business courses in Georgetown University (2013) and found the use of Google+ community effective in the following ways:

Google+ circles and Hangout capabilities let instructors set up a private learning environment to which students can add materials and discuss developments in rapidly changing knowledge areas; Students are more likely to participate in online learning environments if they're aligned with the topics discussed in class; Conducting multiple assessments, including video reflection feedback, can help instructors more thoroughly evaluate how technology affects their students' understanding of course materials; The team-based approach was found to be effective in helping to develop, implement, and assess the introduction of technology into the curriculum.

Each interaction by each student on the Google+ COP was recorded on an Excel spreadsheet and coded line by line to assess the quality of the interaction using Nandi, Hamilton, and Harland's Framework of Quality Interaction (2012). Further categorisation of the 1064 interactions included number of pluses per post (Google+ version of Facebook type 'Likes') and names of peers that received comments and posts. (See Appendix L for example.)
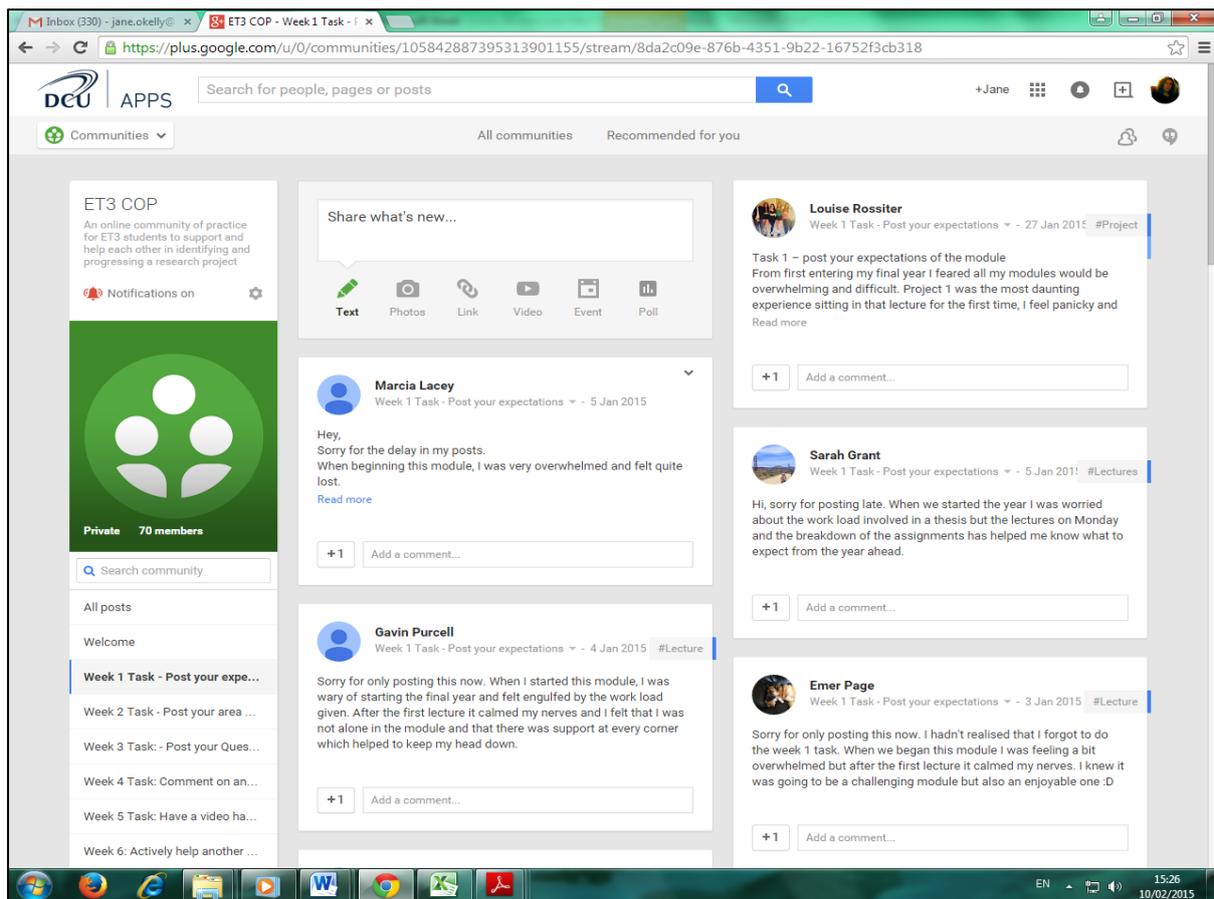
Fig 3.8: **Screenshot of Google+ COP**

The US Department of Education, in its document "Practical Guidance for Online Communities of Practice", suggests as a measure of quality the notion of "signal-to-noise ratio". They explain that, for communities of practice, this means "measuring the proportion of postings and other forms of user content that are 'on topic' either in terms of the purpose of the community or the section where they are posted" (2011, p. 33).

3.5.8 Student Class Facebook Page

Anecdotal data and class discussion showed that students in each year group were members of a class Facebook page setup, in each case set up in first year by the Class Representative (a Student Union representative of the class group elected each year).

Permission was sought by the researcher in each year group from the Class Representative and the class group to access their Facebook page and analyse the interactions. Students were also interviewed and surveyed on their attitude to Facebook as a learning tool (See 5.1.4). Facebook data were accessed at the end of Semester Two of each year of data collection by the researcher through the Class Representative Facebook login. A date and time for collection was agreed and the researcher copied and pasted posts from students on the Facebook class page from the dates of Semester One beginning and end. (Please see Appendix M and N.)
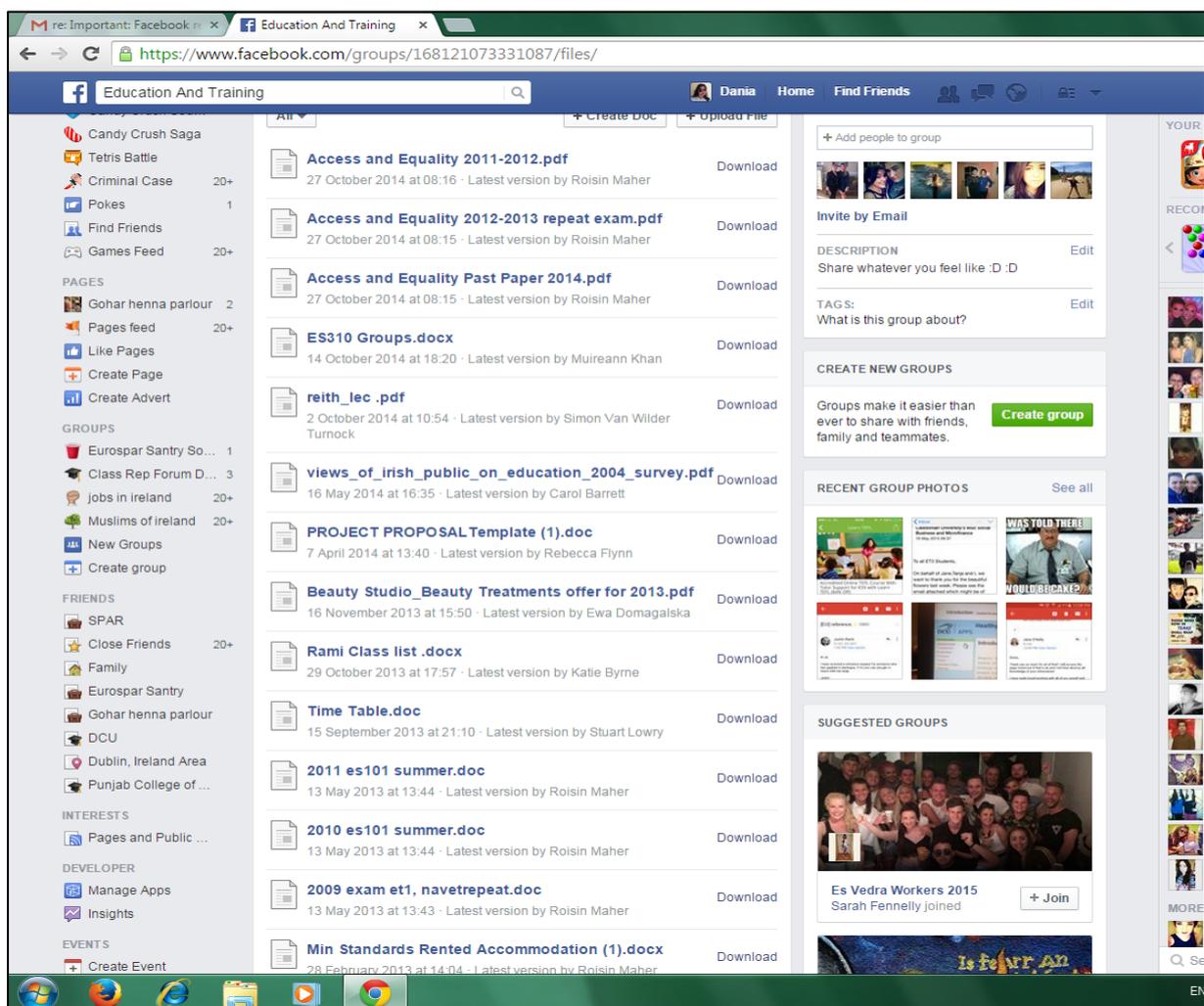
Fig 3.9:   Screenshot Class Facebook page 2014/2015

Case Study One: data from the Facebook page (2012) were categorised under Anderson et al. (2001, p. 10) categories of Social Presence and integrated into the Ning COP Excel Sheet.

Case Study Two: data from the Facebook page (2014) and ET3COP on Google+ were categorised under the Nandi, Hamilton, and Harland Framework (2012) and recorded on an Google+ COP Excel Sheet.

3.5.9 Instruments for measuring learning styles, type of learning, and sense of community

3.5.9.1   Findings from Case Study One

The findings of Case Study One did not clearly indicate whether learning was taking place within the COP. Participants indicated that they felt they had learned but there was no quantifiable measurement of the type of learning that had taken place. Consequently, it was decided to employ the Rovai et al. (2009) CAP Learning Scale instrument to allow students self-identify the type of learning that had taken place. Additionally, it was decided that the Classroom Community Scale (2002) would complement the CAP instrument by indicating whether students felt a sense of community from engaging with the COP.

Students, through interview and questionnaire, indicated that their personal attitudes to learning and/or group work influenced how they collaborated with peers: "*At first I did feel like oh it's going to look bad if I don't go on it. Then I realised hang on I'm not the only person not going on it. People they are using Facebook. I found I think I'm just I don't like change. I think that's what's wrong with me. I like either emailing or using Facebook because I know how to use it. I think it was the fact that this was something new and it was just like I*

have enough newness with the research and all the other stuff that I have coming"

(interview, p009).

The decision was taken to employ the Kolb Learning Style Inventory (2007) to allow students identify their learning styles and in return understand how they might acknowledge their style and its benefits and challenges for their own learning. The European Learning Styles Network (ELSIN) cite Peterson, Rayner, and Armstrong's definition (2009b, p. 11) as the dominant perception that learning styles represent: an individual's preferred way of responding (cognitively and behaviourally) to learning tasks which change depending on the environment or context" and are thus seen as malleable (Evans, Cools, Charlesworth, 2010, p. 468).

3.5.9.2   Kolb Learning Style Inventory (2007)

The Learning Style Inventory (LSI) was developed by David Kolb (1976, 1984) to assess individual learning styles. Kolb's concept of learning style is based on his theory of experiential learning, referred to as the Experiential Learning Model (ELM). Kolb's work reflects Lewin's theories (dialectical tension between analytical thinking and concrete experience), Piaget's research (developmental studies), Dewey (experiential learning), and Jung (ideas of types and non-preferred modes of learning) (Kolb, 1976). Experiential Learning Theory (ELT) defines learning as "the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience" (Kolb, 1984, p. 41).

Kolb and Kolb (2008) define ELT as "a dynamic view of learning based on a learning cycle driven by the resolution of the dual dialectics of action/reflection and experience/abstraction. It is a holistic theory that defines learning as the major process of human adaptation involving the whole person" (p. 2). The ELT model portrays two dialectically related modes of grasping experience – Concrete Experience (CE) and Abstract Conceptualization (AC) – and two dialectically related modes of transforming experience – Reflective Observation (RO) and Active Experimentation (AE). Experiential learning is a process of constructing knowledge that involves a creative tension among the four learning modes that is responsive to contextual demands (ibid., p. 5).

The Learning Style Inventory (LSI) "identifies four distinct learning styles: diverging, assimilating, converging, and accommodating. Such "typing" or classification of individual learning styles was a methodological breakthrough in the late 1970s and, as a seminal work, sparked considerable research over the past three decades on the phenomenon of learning based on experience" (Manolis et al., 2013, p. 44). Uğur, Akkoyunlu and Kurbanoğlu (2009) found that Kolb's Learning Style Inventory is also used for grouping learners because Kolb's learning style categorises type of learners based upon their learning experiences.

As found by Zhang and Sternberg (2009, p. 292), "styles do matter [as] they make a difference in behaviour and performance in diverse domains of our life." The Kolb Learning Style Inventory was chosen as an instrument to allow students take a 'snapshot' of their learning style to allow them understand their own learning tendencies and behaviours. "With a growing focus on multiple pathways of study, including distance and e-learning within higher education, students are increasingly being called upon to take charge of their

own learning. An understanding of individual learning differences which includes awareness of cognitive and learning styles can be beneficial in this respect" (Evans and Waring, 2009, (cited in Evans, Cools, and Charlesworth, 2010, p. 873).

Validity and analysis of the Learning Styles Inventory

The Kolb Learning Styles inventory has been applied in a range of disciplines including laboratory education (Abdulwahed and Nagy, 2009), psychology (JilardiDaamavandi et al., 2011), coaching (Turesky and Gallagher, 2011), and social sciences (Massey, Kim, and Mitchell, 2011). Even though Kolb's Learning Style Inventory has been criticised in terms of validity and reliability and theoretical contradictions (Coffield et al., 2004, p.64), it still remains one of the most influential and widely used learning style tests in education. The Learning Styles Inventory has been employed widely in education in research relating to blended learning and undergraduate student learning styles, e.g. Uğur, Akkoyunlu, and Kurbanoğlu, 2011; Manolis et al., 2013; Massey, Kim, and Mitchell, 2011; and Bergsteiner, Avery, and Neumann, 2010.

Kolb does not recommend that the LSI should be used for individual selection purposes because such inventories cannot measure individuals with complete accuracy: "For this reason we do not refer to the LSI as a test but rather an experience in understanding how you learn" (Kolb, quoted by Delahoussaye 2002, p. 30). Despite criticisms, Kolb's Learning Style Inventory has proved to be a valid, reliable, and widely used instrument in educational literature.

The analysis of the instrument is typically quantitative in nature. Sternberg (2008, p. 150) has argued that, in educational psychology, there is a pressing necessity to reconnect the theory of psychology to the actual world of education. Rayner (2011) contends that the "research paradigm in the style field is historically dominated by a logical positivism associated with experimental psychology." He believes that this type of research is:

> … not linked to general theory or to any implications of its meaning for the following key constructs: firstly, cognitive style (defined as an individual's preferred and habitual approach to organising and representing information, involving and influencing for example, typical modes of functioning in decision making, problem solving, and thinking); and secondly, learning style (defined as an individual's preferred approach to learning activity, represented in the construct of a stable repertoire of learning strategies, reflecting an individual's psychological functioning)" (p. 256).

Consequently, this research has examined the results of the Kolb LSI (2007) qualitatively, and aligned learning style assignation with student interaction on the COP to ascertain the relevance of individual learning style.

Students were invited to self-administer the Kolb Learning Style Inventory: LSI Workbook Version 3.1 (Kolb, 2007). Thirty-seven out of 68 students returned the result of their Inventory, giving a response rate of 54%. Students' self-reported learning styles were compared against the results of the CAP Learning Scale Instrument and Classroom Community Scale and subsequently examined alongside the level of each individual's

interactions on the COP and class Facebook page to ascertain how relevant the learning style designation was to levels of interaction.

3.5.9.3 CAP Perceived Learning Scale (2009)

Rovai et al. (2009) developed the CAP Perceived Learning Scale as an instrument to measure perceived cognitive, affective, and psychomotor learning in traditional and virtual classroom settings. They (2009) aimed to address the challenge of "how to measure learning independent of the course content, instructor, institution, academic level and other factors." (p. 7). It was believed that this could be achieved by developing a self-assessment instrument that would address all three learning domains as identified by Bloom and Krathwohl (1956). The Taxonomy of Educational Objectives (ibid., 1956) is a framework for classifying statements of what we expect or intend students to learn as a result of instruction. In "Reflections on the Taxonomy: Its Past, Present, and Future," Krathwohl (1994), an author of the original Taxonomy, explained that the original Taxonomy was best seen as a heuristic for studying, understanding, and solving educational problems (Krathwohl and Anderson, 2010, p. 64).

Measuring online learning effectiveness

Tallent-Runnels et al. (2006) note that many online studies use single-item measures of key variables and that there should be more systematic studies specifically designed to measure learning effectiveness of online educational practices (p. 117). They also note in their review of research on online teaching and learning that:

Research demonstrates that students value meaningful interaction, but further research is needed to better understand the way in which online interactions, student-to-student or faculty-to-student, enhance thinking and learning. What online discussion formats improve and increase students' thinking? How can faculty members confidently design and manage online discussions that include critical thinking at the higher levels of Bloom's taxonomy (p. 118).

Rovai et al. (2009) developed and tested the CAP Perceived Learning Scale with students enrolled in online and campus courses; it therefore has "utility across the entire delivery spectrum from fully online and blended courses to web-enhanced and fully face-to-face instruction" (p. 11).

Measuring learning independent of limiting factors

The scale is a self-report instrument that is used to measure learners' cognitive, affective, and psychomotor domains. Bloxham, Boyd, and Orr's (2011) study of assessment criteria in UK universities found that there are varying views on the effectiveness of assessment and the influences on assessors, including quality standards and criteria (Sadler, 2009a), techno rationalist approaches to validating practices (Orr, 2007), and sociocultural views on the nature and expressibility of tacit knowledge (Stowell, 2004). "For example, students may respond to an essay question or design brief in very different, but equally effective, ways. This requires tutors to use their judgement, based on their tacit knowledge, in order to allocate grades" (Bloxham, Boyd, and Orr, 2011, p.657). Rovai et al. (2009) devised the instrument to "measure learning independent of the course content, instructor, institution, academic level and other limiting factors" (p. 7) due to variations in achievement between

distance and classroom courses (Bernard et al., 2004) and the differing views on assessment in higher education.

The 9-item CAP Perceived Learning Scale was developed through three phases over progressively larger samples of face-to-face and online learners across two universities The instrument generates an overall CAP Perceived Learning Scale score representing perceived learning across all three of Bloom's (1956) domains as well as three subscales: cognitive learning, affective learning, and psychomotor learning (Rovai, et al., 2009, p. 11).

A factor analysis confirmed these three subscales as latent dimensions and supported the nine-item instrument over previously tested 80 and 21 item versions. The nine statements are presented to students for their use in describing their learning, with some positively and some negatively worded items. (See Appendix P). Each student must place an x in the appropriate column which presents a Likert scale from Not at all 0 to Very much so 6. The test instrument directly scores some items (1, 3, 4, 5, 6, 8, and 9) and inversely scores items 2 and 7. Higher scores on the CAP can be interpreted as higher perceptions of total learning (Rovai et al., 2009, p. 12).

While the instrument has been validated and used in a number of studies (Rovai et al., 2009; Baturay, 2011), it is essential to ensure that it is appropriate to use with the sample from this study. To this end, the author followed the data analysis as outlined by Rovai et al. (2009). Construct validity was determined using maximum likelihood factor analysis with direct oblimin rotation. Reliability analysis was conducted using Cronbach's alpha to check

for internal consistency. The Kaiser-Meyer-Olkin measure of sampling adequacy and

Bartlett's test of sphericity were determined. Their results indicated it was suitable to use

factor analysis with this sample.

Test	Result
Cronbach alpha	0.68
Kaiser-Meyer-Olkin measure of sampling adequacy	0.67
Bartlett test of sphericity	$p = 0.000$, Chi-square = 103.84, df = 36

Table 3.7:   CAP Perceived Learning Scale Test Results

The Factor analysis produced three factors which explained 64% of the variance in the data

which compares to 67% reported by Rovai et al. (2009). This infers that the data provide a

valid measure of the three learning domains intended. In Table 3.8 the descriptive statistics

for the CAP Perceived Learning Scale are provided and Table 3.9 presents the descriptive

statistics for the CAP Perceived Learning Scale items.

Scale	Min	Max	M	SD
CAP Scale Total	24	51	35.32	6.07
CAP Cognitive	6	16	10.55	2.45
CAP Affective	7	18	12.55	2.62
CAP Psychomotor	5	18	12.21	3.18

Table 3.8:   CAP Perceived Learning Scale Descriptive Statistics

The CAP Scale total can vary from a maximum of 54 to 0. The CAP Scale total of 51 shows

that students felt that a high level of learning had taken place on the COP (n=46). Scores

also indicate that students scored their learning higher in the Affective and Psychomotor

domains. Rovai et al. (2009) caution that one of the limitations of a self-report instrument is

the "potential conflation of factors in the student's view of the educational experience, such as cognitive and affective learning" (p. 11).

Item	M	SD
I can organise course material into a logical structure	3.66	1.12
I cannot produce a course study guide for future students	3.36	1.21
I am able to use physical skills learned in this course outside of class	4.38	1.26
I have changed my attitudes about the course subject matter as a result of this course	4.30	1.30
I can intelligently critique the texts used in this course	3.53	1.25
I feel more self-reliant as the result of the content learned in this course	3.87	1.30
I have not expanded my physical skills learned in this course	4.17	1.52
I can demonstrate to others the physical skills learned in this course	3.66	1.37
I feel that I am a more sophisticated thinker as a result of this course	4.38	1.03

Table 3.9:   CAP Perceived Learning Scale Items

Students' response to the CAP Perceived Learning Scale was also explored on the basis of gender. An independent t-test was used and it was found that there was no significant difference between male and female students in any of the domains.

Scale	Gender	n	Mean	SD	t	σ
CAP Total	Male	16	34.13	6.59	0.968	0.338
	Female	31	35.94	5.80		
Cognitive	Male	16	10.56	2.37	0.019	0.985
	Female	31	10.55	2.53		
Affective	Male	16	12.25	3.02	0.566	0.574
	Female	31	12.71	2.42		
Psychomotor	Male	16	11.31	3.30	1.411	0.165
	Female	31	12.68	3.06		

Table 3.10:   CAP Perceived Learning Scale Items, Gender, Mean, SD, t-test

3.5.9.4   Classroom Community Scale (2002)

Cohort learning refers to a group of learners who go through an educational program together, from the first course through graduation (James, Novy, and Heilbronner, 2013, p.

20). It cannot be presupposed that, although students attend lectures, carry out group work and meet outside of college for study, there may not be a sense of community among learners. As James, Novy, and Heilbronner, (2013) point out:

> A sense of community *may* build organically over time, but unless there is a programmatic or course-level effort to encourage relationship building, this expected emotional and academic support may be lacking—especially in a graduate program where students often arrive to class just in time and race out to their families and other responsibilities as soon as class ends (p. 20).

Rovai's (2002) Classroom Community Scale is one instrument that can help educators assess whether a sense of community exists in a class group. Rovai's (2002) paper, "Developing an instrument to measure classroom community", built upon the work of Bellah et al. (1985) and Shaffer and Anundsen (1993) in suggesting that the "most essential elements of community are spirit, trust, mutual interdependence among members, interactivity, shared values and beliefs and common expectations" (p. 198). He posited that members of strong classroom communities have feelings of connectedness (p. 198).

Rovai's (2002) Classroom Community Scale self-administered questionnaire is divided into 20 items that represent the specific setting of the classroom, either traditional or virtual. It consists of "10 items related to feelings of connectedness and 10 items related to feelings regarding the use of interaction within the community to construct understanding and the extent to which learning goals are being met within the classroom setting" (p. 202).

The Classroom Community Scale was first developed by Rovai (2002) as a test instrument "that can assist educational researchers in studying community in virtual classrooms and help identify course design and instructional delivery that best promotes the development of community" (p. 199). It is presented as a Scale that consists of "10 items related to feelings of connectedness and 10 items related to feelings regarding the use of interaction within the community to construct understanding. It also aims to assess the extent to which learning goals are being satisfied within the classroom setting" (p. 202). (See Appendix Q). Zhang, Lin, and Zu (2011), in their application of the Classroom Community Scale to a Chinese College English Class, note that "each questionnaire item is followed by a 5 point Likert scale of potential response: strongly agree, agree, neutral, disagree and strongly disagree. The most favourable choice is assigned a score of 4 while the least favourable one zero. Half of all items are negatively worded which require the scoring of responses to be negatively worded" (p. 594).

The scores for all 20 Classroom Community Scale items must be added together to obtain the overall Classroom Community Scale score. Total raw scales range from 80 to 0. Subscale scores range from 40 to 0 (Rovai, 2002, p. 202). Zhang, Lin, and Zu (2011) stated that the total classroom community scores range from a low of 23 to a high of 79 with a mean score of 51.03 (S.D. = 9.548) (p. 595). They found 81% of the responses at or above the midpoint of 40 and 54% of responses at 50 and above, which they concluded showed that classroom community is strong.

The Classroom Community Scale was distributed to all students enrolled on the COP. Forty-eight out of 68 students returned completed questionnaires, giving a response rate of 71%.

The Classroom Community Scale was analysed in a similar manner to the CAP Perceived

Learning Scale. In Table 3.11 the descriptive statistics for the CAP Perceived Learning Scale

are provided and Table 3.12 presents the descriptive statistics for the CAP Perceived

Learning Scale items.

Scale	N	Min	Max	M	SD
TotalComS	68	0	73	39.85	26.855
Consub	68	0	37	18.94	12.860
Learnsub	68	0	39	20.91	14.180
Valid N (listwise)	48	0			

Table 3.11:   Classroom Community Scale Descriptive Statistics

The CCS Scale total can vary from a maximum of 80 to 0, with the learnedness and

connectedness subscales ranging from a low of 0 to a high of 40.

Item	M	SD
1. I feel that students in this course care about each other	2.90	.592
2. I feel that I am encouraged to ask questions	3.19	.734
3. I feel connected to others in this course	2.71	.898
4. I feel that it is hard to get help when I have a question	3.08	.871
5. I do not feel a spirit of community	2.98	.729
6. I feel that I receive timely feedback	3.02	.758
7. I feel that this course is like a family	2.06	.909
8. I feel uneasy exposing gaps in my understanding	2.46	.988
9. I feel isolated in this course	3.38	.531
10. I feel reluctant to speak openly	2.73	1.047
11. I trust others in this course	2.98	.668
12. I feel that this course results in only modest learning	2.33	.859
13. I feel that I can rely on others in this course	2.79	.651
14. I feel that other students do not help me learn	2.94	.697
15. I feel that members of this course depend on me	1.42	.767
16. I feel that I am given ample opportunities to learn	3.21	.683
17. I feel uncertain about others in this course	2.67	.930
18. I feel that my educational needs are not being met	3.27	.818
19. I feel confident that others will support me	2.96	.713
20. I feel that this course does not promote a desire to learn	3.40	.707

Table 3.12:   Classroom Community Scale Items

Once again the researcher followed the data analysis outlined by the developer (Rovai, 2002). Confirmatory factor analysis with direct oblimin rotation examined the construct validity and a Cronbach alpha test was used to check for internal reliability. The Kaiser-Meyer-Olkin measure of sampling adequacy and Bartlett's test of sphericity were used in advance of the factor analysis to ensure that it was appropriate for this sample. The results of these tests are provided in Table 3.13. They indicate good internal reliability and provide evidence that the data are approximately multivariate normal, and thus acceptable for factor analysis.

Test	Result
Cronbach alpha	0.88
Kaiser-Meyer-Olkin measure of sampling adequacy	0.61
Bartlett test of sphericity	p = 0.000, Chi-square = 427.77, df = 190

Table 3.13:   Classroom Community Scale Test Results

Reliability

The reliability of the questionnaire was checked using Cronbach's alpha coefficient. A value for Cronbach's alpha can range from between 0 and 1; the closer the value is to 1, the higher the reliability of the research instrument. Malhotra (1993 cited in Heidman, 2008, p. 125) suggests that a minimum value of 0.6 must be obtained for a questionnaire to be considered reliable. However, Bryman and Cramer (1990) suggest that "the reliability level is acceptable at 0.8" (cited in Cohen, Manion, and Morrison, 2007, p. 506). Rovai (2002), in his study, found the Cronbach's coefficient for the full Classroom Community Scale was .93 and the equal length split-half coefficient was .91, indicating excellent reliability (p. 206). The Cronbach for this study was 0.88, also indicating high reliability.

Factor Analysis

Klien (1994, p. 3) explains that "Factor analysis consists of a number of statistical techniques the aim of which is to simplify complex sets of data. In the social sciences factor analysis is usually applied to correlations between variables." Rovai (2002) reported that a two-factor solution which corresponded to the connectedness and learning components of the classroom community construct were achieved in the development of the scale. These factors explained over 50% of the variance of the data where the connectedness factor accounted for 42.81% of the variance and the learning factor explained 11.24% of the variance. It was reported that a third factor was extracted but that the three factor solution was not interpretable.

In this study six factors were extracted. The first two accounted for 42% of the variance with the first factor explaining 31.72% and the second explaining 10.27%. Given the larger number of factors extracted and the lower variance explained by the first two factors, the author felt that the construct of the Classroom Community Scale could not be validated with this sample. Field (2009) contends that the smaller the sample, the bigger the chance that the correlation coefficients between items differ from the correlation coefficients between items in other samples. Hof (2012, p.3) asserts that a "common rule of thumb is that a researcher at least needs 10-15 participants per item." The sample size in this study was 68 with a response rate of 71%. A larger sample using the rule of thumb would be nearer 20 items x 10 participants which would equal a sample of 200. This may in part explain why the factor analysis was unsuccessful.

3.6   PHASE 5 – INTERPRETATION AND EVALUATION

Maykut and Morehouse (1994, p. 18) contend that qualitative research aims to understand a situation as it is "constructed by the participants", attempting to capture what people say and do, and how people interpret the world. Data that emerged from interviews, focus groups, and questionnaires were analysed using thematic analysis. Posts from the online communities of practice in each case as described above were documented in an Excel spreadsheet by date, subject, and level of interaction, and cross-referenced with Nandi, Hamilton, and Harland's Framework of Quality Interaction (2012). Facebook data from each class group's class page were also analysed by interaction and categorised according to Nandi, Hamilton, and Harland's Framework.

3.6.1   Thematic Analysis

The goal of thematic analysis is simply to paraphrase and summarise the dataset as a whole or in part in relation to particular research questions. Analysis typically involves steps that a) identify the content of the data, b) reduce redundancy, and c) group data into representative categories that articulate or describe a particular social phenomenon (Aguinaldo, 2012). The analysis generates categories that represent the data in a succinct and coherent way. (ibid., p. 769). Thematic analysis allows the researcher to determine themes through careful reading and re-examination of the data. Fereday and Muir-Cochrane (2006) describe thematic analysis as a "form of pattern recognition within the data, where emerging themes become the categories for analysis" (p. 82).

In Case Study One, data were coded, collected into themes, clustered and refined according to Braun and Clarke's (2006) six-step process. (See Table 3.14 below.) An inductive approach

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was used to ensure that themes were strongly linked to the data. "Inductive analysis is

therefore a process of coding the data without trying to fit it into a pre-existing coding

frame, or the researcher's analytic preconceptions" (ibid., p. 12). The themes elicited from

the data were then compared with the research question to identify whether themes or

issues had been identified that merited further investigation.

Phase	Examples of procedure for each step
1. Familiarising oneself with the data	Transcribing data; reading and re-reading data; noting down initial ideas
2. Generating initial codes	Coding interesting features of the data in a systematic fashion across the entire data-set, collating data relevant to each code
3. Searching for the themes	Collating codes into potential themes, gathering all data relevant to each potential theme
4. Reviewing the themes	Checking if the themes work in relation to the coded extracts and the entire data-set; generate a thematic 'map'
5. Defining and naming themes	Ongoing analysis to refine the specifics of each theme; generation of clear name for each theme
6. Producing the report	Final opportunity for analysis selecting appropriate extracts; discussion of the analysis; relate back to research question or literature; produce report

Table 3.14:   Braun and Clarke's (2006) six-step procedure for conducting thematic analysis

In Case Study Two, a number of technical and pedagogical changes were made to the

provision of an online community of practice. The platform was changed from Ning to

Google+, the COP was made available through an App on a smartphone or tablet, and a

series of ten graded tasks were inserted into the assessment of the research module and

the use of the COP. Jara and Mellar (2010) suggest that, "by posing questions designed to

prompt students' reflection on their own learning, this strategy offers the opportunity to

explore students' experiences and the possibility of identifying difficulties and responding to them while students are still on the course" (p. 713).

Data that emerged from data collection tools employed in Case Study Two, including interview, focus group, questionnaire, and reflections from the COP were coded using NVivo. NVivo is software that supports qualitative and mixed methods research. It is designed to help you organise, analyse and find insights in unstructured, or qualitative data like: interviews, open-ended survey responses, articles, social media, and web content (QSR International, 2016). Data were coded three times to produce a series of themes. See Figure 3.10 below:
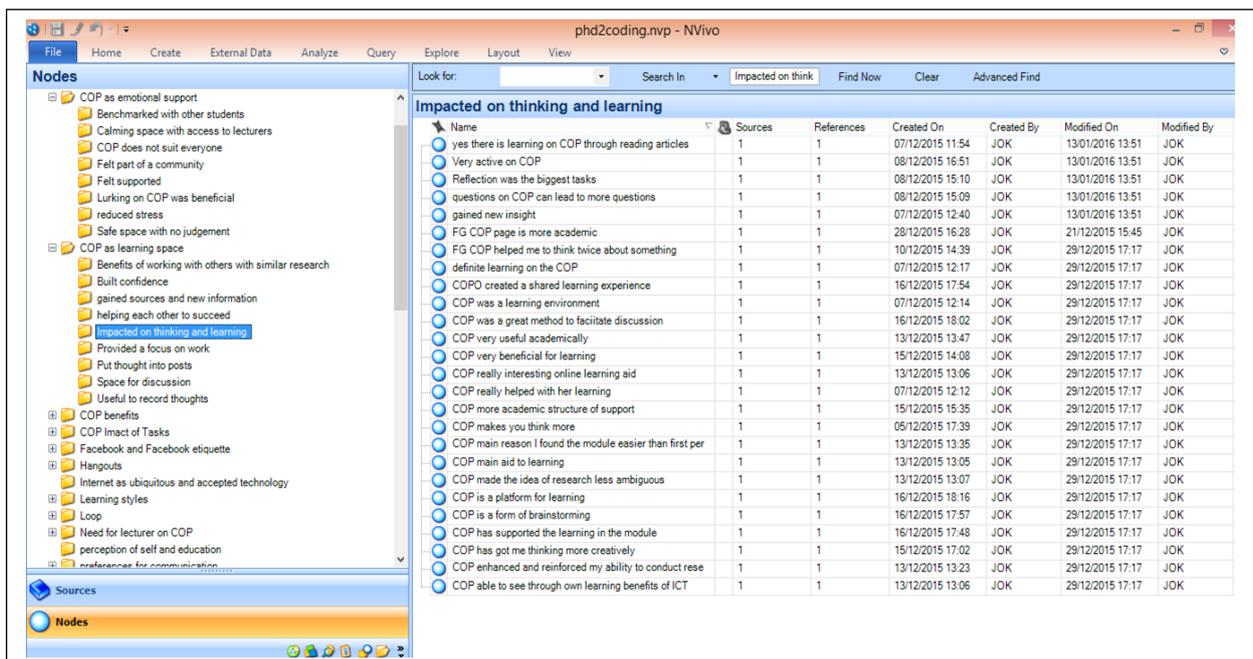
Fig 3.10:   Nvivo coding of Case Study Two data

Both sets of themes were compared and cross-analysed. "A cross case analysis is about the 'guts' of the case, seen in its wholeness" (Thomas, 2016, p. 173). The resulting themes were then contrasted and analysed against the quantitative results from the two instruments

used to measure levels of learning and sense of community. The resulting propositions were explored further by comparison of individual student interaction in the COP and, in Case Study Two, the self-assessed learning style. The inductive analysis of data and the resulting themes were then examined in terms of the propositions first proposed for the overall multiple case study, shaped into hypotheses, and compared with the existing literature in the area of online communities of practice, situated learning, and learning styles.

3.6.2   Building theory from collective case studies

Pandey and Rhee (2015) applied Eisenhardt's 'roadmap' for building theory from case study research in their study of foreign CEOs of Japanese firms which led to the formulation of seven propositions for future research (p. 204). Eisenhardt (1989) devised her eight step 'roadmap' for building theory in case study research in order to provide clarity "about the process of actually building theory from cases, especially regarding the central inductive process and the role of literature" (p. 532). The roadmap describes eight steps in the process: (a) getting started; (b) selecting cases; (c) crafting data collection instruments and protocols; (d) entering the field; (e) analysing data; (f) shaping hypotheses; (g) enfolding literature; and (h) reaching closure.

According to Eisenhardt and Graebner (2007), there are two ways in which multiple case study research can yield theory. In one, "the research question is tightly scoped within the context of an existing theory, and the justification rests heavily on the ability of qualitative data to offer insight into complex social processes that quantitative data cannot easily reveal", and the second more phenomenological approach emphasises the importance of

the phenomenon under study and the lack of existing theory. "The research question is broadly scoped to allow the researcher to be flexible" (p. 26).

This multiple case study aims to yield insight into the social processes that existed in an online community of practice for undergraduates, the quantifiable learning that took place, and the less tangible benefits that accrued for individuals using an online community of practice for the first time. Eisendhart and Graebner (2007) maintain that multiple case researchers retain only the relationships that are replicated across most or all of the cases". They maintain that since there are fewer relationships "than there are details in a richly observed single case, the resulting theory is often more parsimonious (and also more robust and generalizable)" (p. 30).

3.6.3 Triangulation

Yin (2014, p. 241) defines triangulation in case study research as the convergence of data collected from different sources to determine the consistency of a finding. The use of triangulation should operate according to certain ground rules, including always beginning from the same theoretical model and choosing methods and empirical materials that complement that perspective (Silverman, 2005, pp. 121–122). Triangulation in qualitative research can be through triangulation of method, theory, investigator, or participant. In this study, methodological triangulation was achieved through the examination of data from participants in an online community of practice using a variety of data collection methods and the cross-referencing of this data with quantitative instruments capturing learning styles, level of learning, and sense of community.

3.7 VALIDITY

Validity in this research comes through what Lincoln and Guba (2005, p. 196) call 'authenticity' and 'trustworthiness'. Authenticity is described by O'Leary (2004) as being concerned with truth value while recognising that multiple truths may exist, and describing the deep structure of a phenomenon or experience in a manner that is 'true' to the experience (p. 58). Authenticity was provided by the recording of the utterances and statements of participants and the reproduction of relevant statements to provide evidence for thematic conclusions. All interviews and focus group were audiotaped and transcribed for thematic analysis. Questionnaire data and COP statements were collated and analysed through pivot tables and charts in Excel and through thematic analysis on NVivo.

3.7.1 Trustworthiness

Building on the seminal works of Lincoln and Guba (1982, 1989, 2005), Nutt Williams and Morrow (2009) suggest that there are three major categories of trustworthiness to which all qualitative researchers must attend: integrity of the data, balance between reflexivity and subjectivity, and clear communication of findings (p. 576).

3.7.2 The Integrity of the Data

Integrity of the data refers to clearly articulated methods and analytic strategies. Part of the achievement of the integrity of data can be based on triangulation. Triangulation is the means by which multiple inputs of data, information, and perspectives are used to cross-reference and corroborate the same finding. Quinn Patton (2002) discussed four types of triangulation when doing evaluations, including data triangulation, investigator triangulation, theory triangulation, and methodological triangulation (cited in Yin, 2014, p.

120). This case study used data triangulation through the constant comparative analysis of data from multiple sources of evidence which were the outcome of the use of methodological triangulation through a variety of data collection tools and methods.

3.7.3   Balance between Reflexivity and Subjectivity

The balance between reflexivity and subjectivity was acknowledged through the reflexive attitude of the researcher in the research process and in all interactions with participants and the data. Reflexivity can be defined as an awareness of self (Rennie, 2004b) wherein the researcher remains self-reflective and able to identify, as clearly as possible, what comes from the participant and what comes from the researcher. Nutt Williams and Morrow (2009) remark that "Participants' feedback can serve as an excellent check that the researcher has achieved the desired balance between the participants' voices (subjectivity) and the researcher's interpretation of the meaning (reflexivity)." This balance of reflexivity and subjectivity was achieved by acknowledging any bias and personal experience on the part of the researcher as part of the dataset and including raw data in the findings of the participants' point of view. As Ponterotto and Grieger (2007) asserted that ''thick description'' is the ''linchpin of qualitative writing'' (p. 415), every effort was made to include relevant quotes and verbatim responses from students in the description of findings through data analysis.

3.7.4   Generalisation of case study

Bassey (1981) emphasised the need for *relatability* rather than generalisability of a case study (p. 85). He considers case studies that are systematic, focused on improvement in education, and relatable as "valid forms of educational research" (p.86).

Bell (2001, p. 11) cites Denscombe (1998, pp. 36–37) critics of a case study of a small primary school who make the point that "the extent to which findings from the case study can be generalised to the examples of the class depends on how far the case study example is similar to others of its type." Consequently, it is important to provide the context of the study, the significant features of the case in general, and where the case study fits in to the wider landscape of the instance that is being examined. As Thomas points out "a case study is about the particular rather than the general" (2016, p.3).

3.8   ETHICS

This researcher was aware that she was performing a dual role of lecturer and researcher when providing a community of practice to participants. Consequently the researcher took time to present her research aim and questions to participants using a Powerpoint presentation. (See Appendix R). Participants were presented with a brief lecture and discussion on the theory of communities of practice. In Case Study One, participants were shown how to access the Ning community and invited to participate through an email. Participation in Case Study One was voluntary and presented as an additional support to their coursework. In Case Study Two, participants were shown how to access the Google+ community and instructed to accept an invitation to participate. Participation in Case Study Two was mandatory and attached to the completion of ten tasks as part of their graded assessment for the module.

3.8.1   Researcher as insider/outsider

Chavez (2008, p. 475), in her study of insider positionality, suggests that qualitative researchers cannot be sure that their observations and interpretations are not influenced by their various positionalities or identities. She cautions that:

> For an outsider, the danger is the imposition of the researcher's values, beliefs, and perceptions on the lives of participants, which may result in a positivistic representation and interpretation. For an insider bias may be overly positive or negligent if the knowledge, culture, and experience she/he shares with participants manifests as a rose-colored observational lens or blindness to the ordinary (p. 475).

Ritchie et al. (2009) suggest that qualitative research has seen a blurring of the apparent separation between 'insiderness' and 'outsiderness', and that it is more appropriate to define the stance of researchers by their physical and psychological distance from the phenomenon being studied, and less by their paradigmatic position. To this end, their study into positionality in health development research recommended four actions: 1) a mix of insiders and outsiders in a research team; 2) being transparent about how each individual interpreted data to disclose influences; 3) allowing this transparency to reveal power relationships; and 4) transparency with participants to encourage reciprocity (p. 111).

As this researcher was lecturing the participants in each case in qualitative research methods, transparency was achieved through continuous and relevant disclosure of the research process, how the data on the COP would be collected and analysed, and the aims and purpose of the research. The ethical documentation for this case study – comprising an

informed consent form and plain language statement – was used as a teaching tool for both class groups, providing them with an insight into a research project and an example that could inform their own ethical research compliance. Although the use of the COP in Case Study Two was mandatory, the opportunity to participate in interview, focus group, and questionnaire was voluntary. Cohen, Manion, and Morrison (2011, p. 233) describe a typology of roles ascribed to observers in qualitative research:

OUTSIDER ←――――――――――――――――――――→ INSIDER				
Detached as observer	Observer	Observer as participant	Participant	Complete participant

Table 3.15:   Typology of observer roles in qualitative research (Cohen, Manion, and Morrison, 2011, p. 233)

This researcher could locate herself as 'observer as participant' within the membership of the COP. De Laine (2000, p. 29) points out that there are "potential conflicts between the researcher qua researcher, therapist, friend." She explains that diverse role positions are an inevitable part of field work and are rarely possible to plan in advance. Often these require ongoing negotiation and resolution as ethical and moral problems arise for the researcher. Although ethical and moral problems did not arise in this research, some students did equate use of the COP with the perceived personal reaction of the researcher, personalising their use and non-use at interview either by expressing their enthusiasm for the concept or apologising for not using it.

All participants were provided with a plain language statement and informed consent form. (See Appendix S). Contributions to data in the form of online posts, interviews, focus groups, and survey were anonymised. This research has conformed to the key tenets of ethics in qualitative research as defined by DCU in their Code of Good Research Practice (DCU, 2008).

3.8.2   Ethics in Internet Based Research

Convery and Cox (2012, p. 50), in their review of research ethics in Internet based research, suggest that "perhaps the most useful solution to the complex challenges of Internet Based Research lies with a form of 'negotiated ethics', a situated approach grounded in the specifics of the online community, the methodology and the research question(s)".

Eysenbach and Till (2001, p. 1104) suggest that to determine whether informed consent is required, it is first necessary to decide whether communication is private or public. This is a contentious issue, as it can be argued that all communication on the Internet is inherently public in that it is accessible for many years after original postings. Holmes (2009) likens Internet communications to a newspaper archive. These archives can remain accessible to interested parties who may not be involved in the original discussion for some time. Hair and Clark (2007, p. 793) suggest that researchers should be aware of the contentious nature of privacy online and should take care with the difference between what "can be done [and] what should be done".

In light of the differing views on public and private spaces online, this researcher took care to make both communities of practice private to each class group. The COP was shown in advance to each set of students and posting of text, image, and documents was

demonstrated. The researcher also advised the participants on how the COP worked in terms of notifications including emails and app notifications. Finally this researcher took note of the steps outlined by Convery and Cox (2012) to inform discussions between researchers and ethical research committees when undertaking internet based research. (See Appendix T). These steps include intrusiveness, public/private, vulnerability, potential harm, confidentiality, intellectual property rights, and informed consent. (p. 55). The issue of how the participants in both cases viewed the need for public or private Internet spaces was included in the data collection and informed the findings of the research.

3.9   CONCLUSION

This chapter has examined the theoretical perspective, epistemological and ontological viewpoint, and methodological approach used in this research project. It has further elaborated on the participant sampling method, data collection tools, and data analysis. The issues of validity, reliability, and trustworthiness have also been explored. The need for ethics at all stages of the research process has been underlined and attention given to the ethical use of online data. The next chapter will examine the findings of case one under three themes: people, process, and technology.

4.1   INTRODUCTION

The presentation of the findings of Case Study One relate to the academic year 2012/2013

and the experience of a class group of final year students using an online community space

for discussion and interaction as part of a research module (n=67). The findings are primarily

qualitative, with some numerical baseline data included for reference purposes only.

The students were invited to use the online community of practice (COP) delivered through

the Ning platform for discussion of research topics and the sharing of sources of literature.

The Ning site was named ET3COP as the class group designation from the university was 'ET'

and '3' stood for final year. The COP was presented solely as a useful tool for discussion to

be used on a voluntary basis. The use of the site was not compulsory and there were no

assessment marks attached to the membership or participation on the site. The only

incentive for the class was the presence of the lecturer from the research module as a

member of the community.

The examination of processes and interactions through the online COP data showed that

students engaged and interacted at different times, from mobiles and desktops, at set times

and at their own discretion, and through established and new relationships with peers and

the lecturer. Patterns in the data showed that certain individuals participated more actively

than others in the online spaces and found it useful to share information and provide

feedback to peers as part of the learning process. The mature student and traditional

student relationship proved to be a highly effective partnership with efficient, focused

information and sharing of knowledge. Interviews with both age groups showed that

assumptions around perceived wisdom and anticipated immaturity were transcended in the virtual space with connections forged that extended into the physical classroom.

4.1.1 Ning Platform

Students joined the Ning community by invite only from the module lecturer. Students were free to accept or decline the invitation without censure or comment. The Ning site was named ET3COP and was presented with ten tabs across the top main page. Ning allows users to carry out the following actions: "text searching, media sharing (e.g. photos, music, and videos), interaction (e.g. forum, chat, comments, blog), and content delivery (e.g. RSS feeds)" (Sezen Balcikanli, 2012, p. 280). Students were encouraged to create their own profile page with personal details and a photograph. Students could also create group areas that could be marked private or public. The site had a built-in online chat function as well as a forum and notes area where documents, links, or other files could be posted at will by any member of the site.
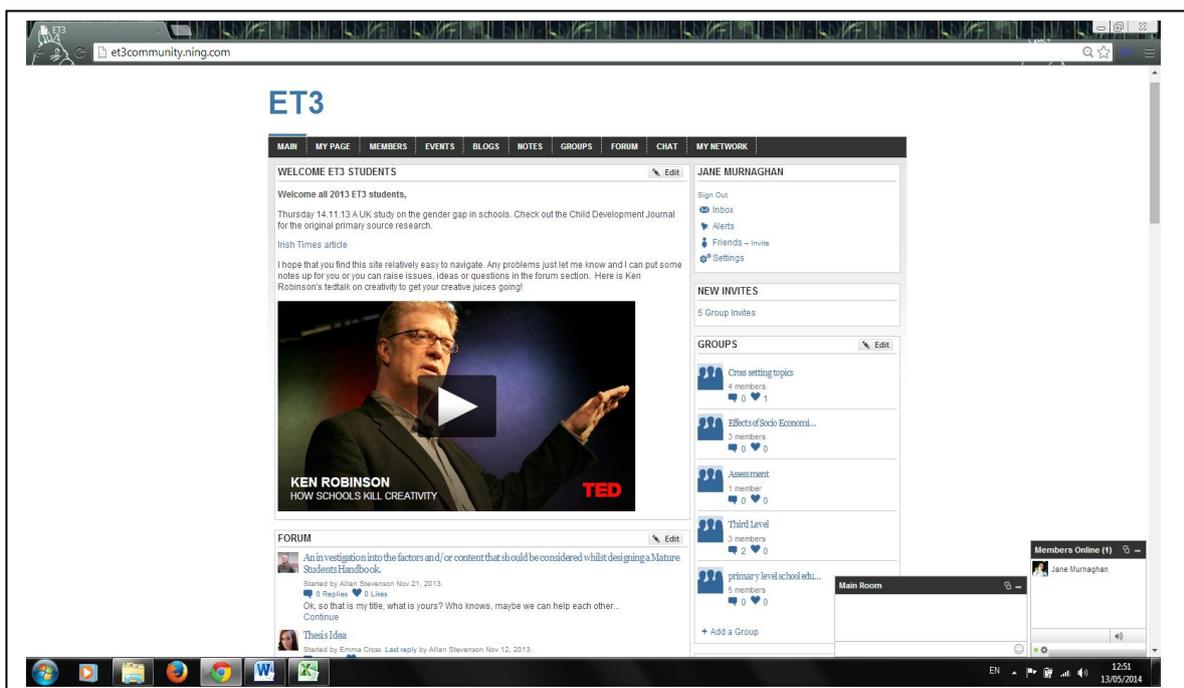
Fig 4.1:   **Screenshot of the Ning main page**

Students were offered an option of an online chat every Monday in Semester 1 from 3 to 5 p.m. That chat was facilitated by the module lecturer and offered the students an opportunity to engage with the lecturer and with peers on questions of subjective and specific interest to their research topic. One of the limitations of the Ning site was that completed Chat conversations could not be archived or saved to the site. Consequently, transcripts of chats between students and peers and the lecturer were copied and pasted into a Word document after the session and uploaded to Moodle to ensure that all students could access the learning from the session. (See Appendix U).
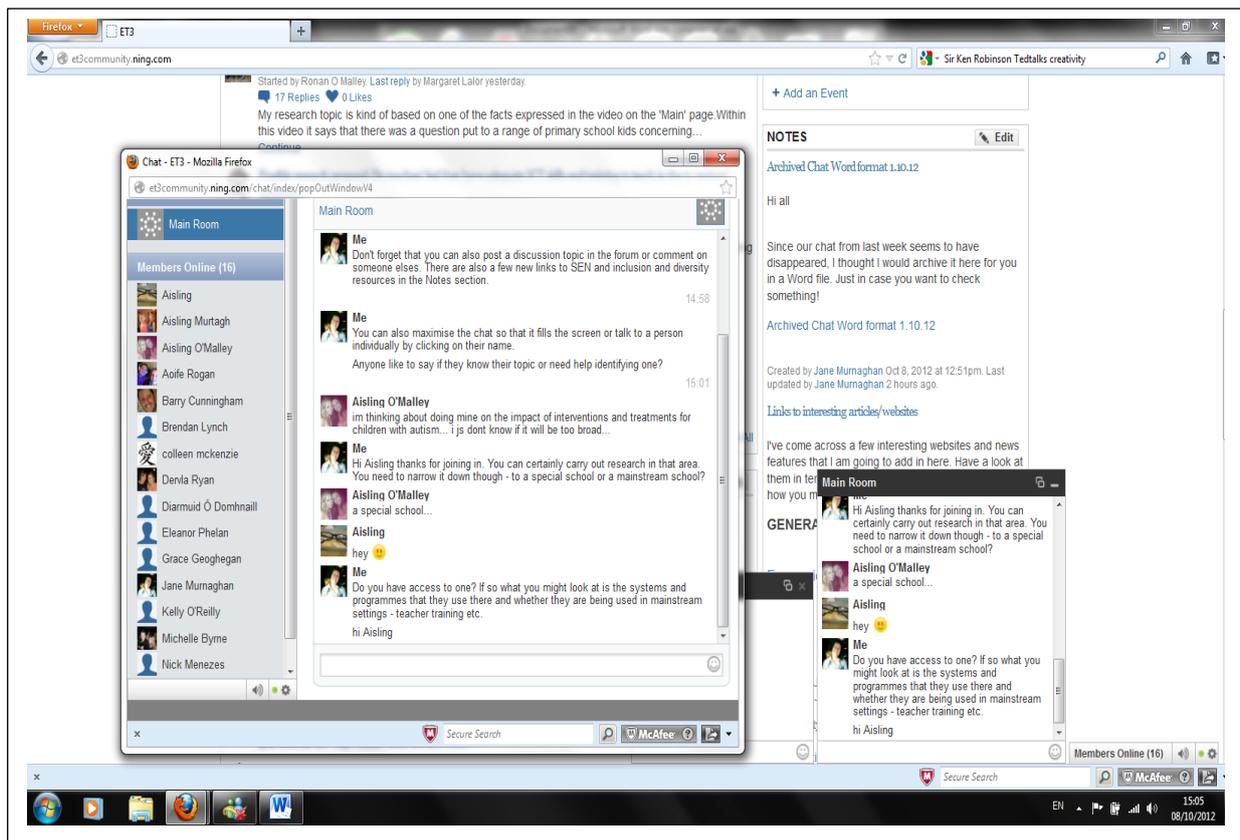
Fig 4.2: **Screenshot of multiple chats on Ning COP 8.10.12**

4.1.2   Facebook Class Page

The use of Facebook is presented as part of the findings, as it emerged from the data that the class representatives had set up a Facebook group in first year of the degree and invited the class to engage with it. As will become clear through the findings and later discussion chapter, not all of the members of the class engaged with the class Facebook page. Mature students in particular were reluctant to take part for a range of reasons including privacy, time restrictions, perception of Facebook as a distraction and, in one case, because they were not invited. One mature student did engage with Facebook and the COP equally as she had deferred a year and felt that both mediums offered her an opportunity to engage with her peers.

She also expressed her opinion that she sees all people equally and has no perception of an age divide or any other type of divide between students: "*I would like to think that I'm quite open to change, to direction, to leadership. That regardless of, we'll get the job done at the end of the day. It wouldn't … It's not just … If we're talking about group, it's not just by one person, it's about everybody contributing, and that understands not everybody contributes in the same way because that's not what a group is. Everybody contributes in different ways*" (p016, Int).

The Facebook class page and its relevance to the online COP will be explained further in the discussion chapter.
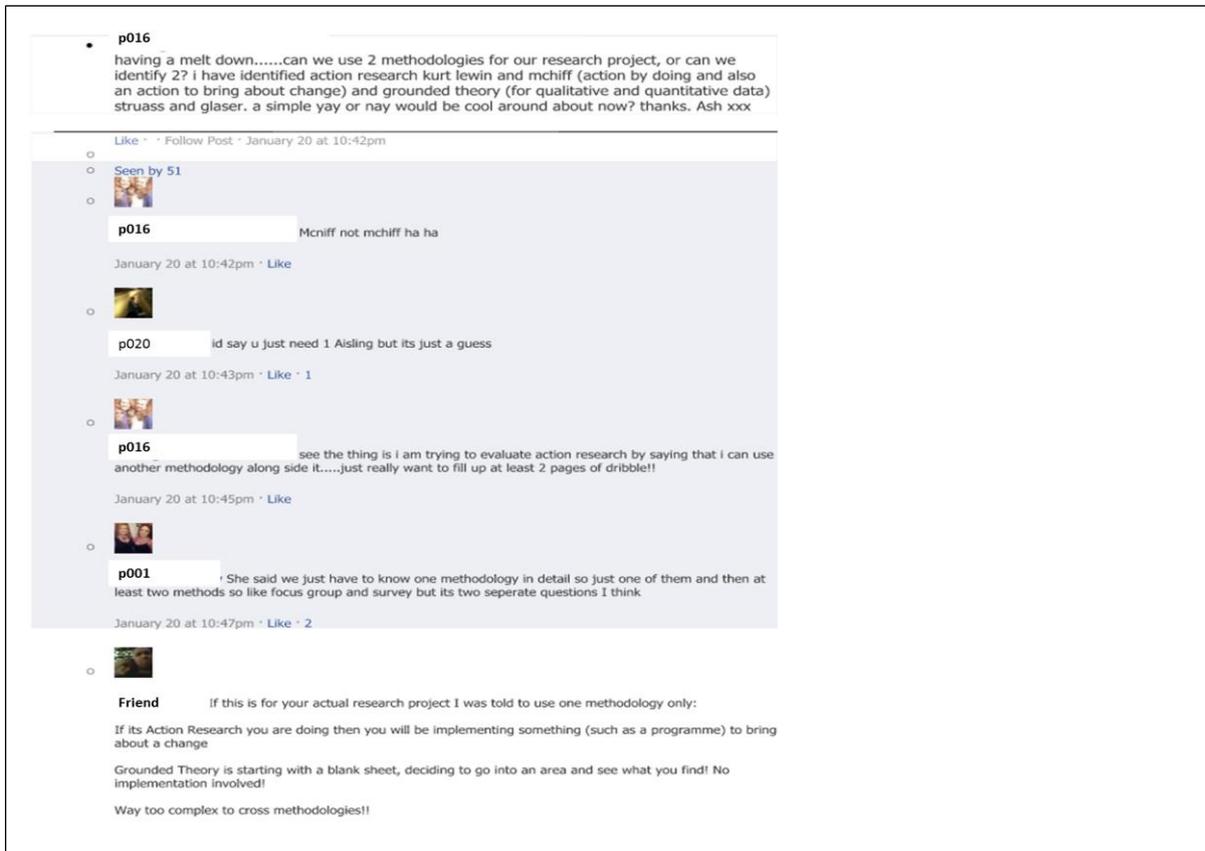
Fig 4.3: **Screenshot of Facebook class page**

4.2   CASE STUDY ONE

This chapter sets out the experience and reflections of the class group of students who participated and did not participate in an online community of practice in the form of a case study. All findings are presented through the lens of People, Process, and Technology.

People, Process, and Technology are the dimensions by which a Customer Relations Management System (CRM) can be structured: "It also has its roots in relationship marketing which is aimed at improving long run profitability by shifting from transaction-based marketing, with its emphasis on winning new customers, to customer retention through effective management of customer relationships" (Christopher, Payne, and Ballantyne, 1991).

People, Process, and Technology is referred to as the Golden Triangle in CRM. Using technology to "optimize interactions" with customers, companies can create a 360 degree view of customers to learn from past interactions to optimise future ones (Eckerson and Watson, 2000). The Golden Triangle of People, Process, and Technology is widely applied in customer service, Information Technology service providers, and any enterprise where customer satisfaction is crucial to the continuing success of the organisation.

In this study the Golden Triangle is used to delineate between perspectives, experiences, and process. The 'People' section focuses on perspectives and opinions of participants in relation to their own experience of the community website and their relationships with others through the site. The 'Process' section focuses on the benefits of the community space to their own practice as a student and learner and how that interaction impacted on them. The 'Technology' section focuses on the technical issues that arose through the choice of platform, access, and comparison of the site to other available online methods of collaboration. See Table 4.1 below:

Case One	People	Process	Technology
2012/2013	Sense of Community Facebook as a community Sharing information freely	Benefits of COP Convenience Grouping of topics Lurking	Facebook and the COP Facebook and collaboration Facebook and COP comparison
	Benchmarking with peers Community as a safe space	Compulsory or voluntary participation	Technical issues Online chat
	Bridging and Linking space Bridging divide between traditional and mature students New contacts/relationships	Timing of introduction of COP	Preference for an App
	Lecturer as incentive to engage	Novelty of approach	Integration of COP into existing online resources Preference for Facebook Preference for existing online tools
	Perception of collaboration Competitive mind-set Concerns about sharing		Integration
	Personal preference in communication		

Table 4.1: Illustration of Case Study One Themes

There are some overlaps between sections, as perceptions and attitudes to the COP varied depending on the perspective or lens of the student. The integration of a COP through an online platform was novel for some students, but for others it was a mode of interaction that they recognised as part of their existing online communication. The blurring of boundaries between technologies and online resources and supports such as Moodle, Gmail, and Google Docs, and personal communication through mobile phones, Apps, and messaging was familiar to most students but challenging to others who preferred simpler, clearer lines of communication.

4.2.1   People

The first section will focus on the students' perception of whether their class was an existing

community before the Ning COP was introduced and whether students' participation on a

class Facebook page contributed to any sense of community within the group. Students'

sense of community in a number of cases related to how freely information was shared and

how much interaction took place on the class Facebook page. The second section shows

that students found the Ning COP a bridging space between peer to peer, peer to lecturer,

and lecturer to peer. The third section demonstrates the importance to the students of

having a lecturer on the COP. The lecturer is regarded as an incentive to participate in terms

of clarification of information, immediate access to an authority in the topic area, and the

arbitrator of academic standards. The fourth section demonstrates students' perception of

collaboration as primarily group work, and the last section displays the range of personal

preference in communication and how that influences participation in discussion online.

4.2.1.1   Sense of Community

The theory of a community of practice was new to the students but the idea of online

communication was not, with more than half the class on Facebook and also members of

the class Facebook group. On examination of this group and interviews with the class, it

transpired that there was a general divide between the traditional students and the mature

students. Only one of the mature students had signed up to the Facebook class group.

On the question of whether the class was already a community there was a majority opinion

that it was a community, but the COP had broadened the community out and facilitated the

exchange of ideas. A survey of the class group at the end of final year showed that 66% of

respondents (25/36) felt that the class was already a community before the online Ning COP was introduced, as Facebook was used for communication (13/25) and the class tended to share information freely (7/25) (FS).

Did you feel the ET3 class was already a community of practice before the online COP was introduced?
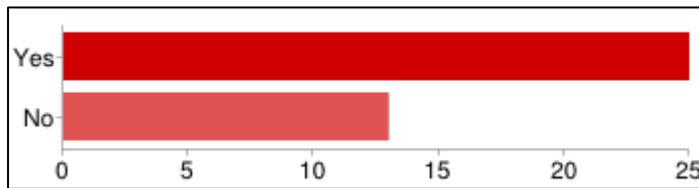
| Yes | **25** | 66% |
| No | **13** | 34% |

Fig 4.4:   **Response to question on class as community before COP**

Facebook as a community

Students alluded to the class Facebook page as a community: "*A lot of our class is on Facebook and there is a private Facebook group that is part of that group that we could keep in contact with and ask any queries we had on this page*" (p048, FS), and "*because there was a Facebook page already set up by the class reps*" (p016, FS). This Facebook group was clearly an effective resource for its members: "*Through the use of the Facebook group created by members of the class we were able to communicate collectively through the Internet. We could ask questions while providing guidance and support for each other*" (p024, FS). The use of Facebook was highlighted by others as different to the COP, e.g. "*We

had a Facebook page set up before the COP but I still found the COP was put to good use specifically for our thesis" (p03, FS), and "*We had a Facebook group that we posted helpful links and answered each other's questions with but it was very informal*" (p020, FS).

Sharing Information Freely

A number of students felt that the class was already a community as "*It was easier to share ideas among the class*" (p043, FS), and "*I feel that the class was already a distinct group, joined by mutual study of education, we worked together in many ways over the course of our degree before the online community of practice*" (p053, FS). Another respondent wrote "*We consistently shared information with one another freely*" (p012, FS). There were some caveats within these observations, with one respondent stating "*I chose both yes and no because I think that our class group are very close, share opinions and help each other as best we can, however before COP was introduced we didn't have an online area where we could all contribute to*" (p037, FS), and "*because we were already chatting amongst ourselves about course related topics, however I only ever chatted to those who I felt had similar insights and attitudes towards education*" (p004, FS).

Although a perception of community on Facebook and community in class was stated, some respondents clearly saw a divide between people on Facebook and people not on Facebook. Although this respondent felt the class was a community, they stated it was only in one section of the class: "*to a certain extent between the mature students. A lot were happy to share resources that may have been applicable for certain assignments etc.*" (p014, FS). Another added "*It is not something we used before, maybe the younger students had some form of community of practice but I was not aware of it. The use of email with each other*

was how we made contact with other students mostly" (p015, FS). One respondent stated that the class was not a community "*because we had nowhere to discuss information relevant to our assignments and thesis*" (p018, FS).

Another comment confirmed the division: "*As a class we were very engaging. However, there was a sense the class was split between mature and undergrad students. The COP allowed the class to become on COP opposed to the Facebook group which was mainly undergrad, however mature students joined it (COP) as well which I found very beneficial as their input helped me*" (p034, FS).

4.2.1.2 Benchmarking with peers

A number of students expressed the reassurance and comfort that they felt from observing that their peers were at the same point as them in their research journey: "*Firstly it gave me an idea of other people's research perspectives and secondly it helped me realise everybody was at the same stage making me feel under less pressure*" (p005, FS).

Students appreciated the opportunity to communicate or just observe postings and comments from their peers on the COP: "*It encouraged me and also let me know that other people were struggling or having problems similar to me*" (p030, FS). Another commented "*I got some excellent reading resources from what other members had posted, I was also able to see the answers to questions that people had posted which helped me clarify some issues with my research*" (p012, FS).

Students alluded to the benefits of peer support on the Ning COP. "*I don't think we had the confidence to approach each other and ask questions whereas within the community of practice, I could chat to people who had a topic related to mine and some of the students that I didn't talk to in class actually sent me useful links and books regarding my topic*" (p041, FS). Another commented "*We did not speak to one another in the same way as the COP allowed us!*" (p045, FS).

One student commented that the fear of making a mistake or choice different from the main group would result in a loss of marks was a real concern: "*Someone actually told me the only reason they used the COP was in case there was a list made of those who did and those who didn't; they were fearful that not being seen to use it would affect their grade*" (p020, FS).

Community as a safe space

Students referred to the benefits of the COP in overcoming shyness and intimidation to allow constructive criticism and communication: "*I never would have asked questions online or asked others for help. However I feel this year with certain people in the class and sometimes with the whole class, we would share resources online and ask class questions through email, send on links to books and websites. Or give each other reminders. It has been really helpful this year*" (p010, FS). Others enjoyed the chat: "*I felt at ease asking questions through COP and felt the online chatroom allowed questions/queries to be clarified instantly*" (p012, FS).

Others greatly appreciated "*The security*" (p014, FS) and "*The relaxed and helpful ambience that it created; everyone online appeared to support and advise the person who was appealing for help at the time, people were willing to answer and help*" (p060, FS). Another commented that the COP had encouraged them to communicate in a different way: *"We did not speak to one another in the same way as the COP allowed us!"* (p045, FS).

Another student who was reluctant to speak out in class felt that the communication at one remove, behind the computer, helped her to interact: *"There's definitely an element of that. You're not as vulnerable in that position, in that situation"* (p014, Int). Another student clarified that interacting on the COP changed how they felt about communicating with peers: *"No longer shy or embarrassed to say things, because it doesn't put all the attention on me. I also felt better knowing it was there if I needed help"* (p038, FS

4.2.1.3   Bridging and Linking Space

Bridging divide between traditional and mature students

Due to the demographic of the class group, there was a mix of traditional students and non-traditional (mature) students (Traditional: n=55; Mature: n=12). It was found that the COP offered a bridging space for students to communicate with each other that did not exist in the lecture theatre.

One younger student commented "*I think it gave me the opportunity to talk to some of the mature students who I wouldn't have normally talked to in class by taking part in the*

community of practice, it made me approach these students in class and ask them questions about my topic and give them any useful advice that I could regarding theirs but doing this also allowed me to get to know them on a more personal level which I liked" (p041, FS).

One older student then commented "*One of the younger students approached me for information based on something I had shared on the COP site. We had an interesting chat, discussing concerns and stresses of doing the research. She was amazed to discover we had all the same worries as everyone else. Sometime later she came and sat with the 'matures' at lunch; it was the first time she had ever done this but she felt comfortable doing it because we were so 'normal' (her word)"* (p025, FS).

The main users of the COP online space proved to be mature students, which prompted one traditional student to comment that the online space was manufactured to bring the class together: "*The way I see it, you'd be using the community nearly for the sole purpose of bringing the matures into the conversation*" (p013, Int).

Student Vignettes

The two vignettes that follow aim to provide an insight into the differing viewpoints and experiences of students in final year and the complexity of attitudes arising from past experience and perceptions:

P002	P016
Carol, was a mature student from Dublin, who worked as a trainer in the IT industry and decided to attend the BSc in Education and Training degree full time to increase her knowledge and skills. She recognized the value of the COP and posted regularly. She was also known for emailing useful information and advice to the class. *"Some lecturers will encourage you to use Moodle, others will communicate through email. Then, of course, community of practice. It depends on the preference of the student and the teacher. I think sometimes that the information gets lost in between the medium as such. Because there's still texts, let's say, between students, emails between students, and communication between the students. Sometimes I feel that there's too many opportunities for communication and it gets lost along the way"* She sat with the mature students but tended to leave straight after lectures as she was juggling work and college and family. She felt that: *"People are frustrated with information overload. For example, a lot of our -- my mature student group as such have chosen to use their home email accounts. They never even log in to DCU. There's a reservation there, with it"* Carol had reservations about Facebook although she could see the positive side of it for others: *"The younger generation, I feel, are less modest and private about their personal information. Those lines are blurred for them. They don't have a problem, necessarily critiquing each other or openly commenting about each other on Facebook. That changes cultural dynamics, or relationship dynamics between those kids"*	**Annie,** was a mature student who was repeating the final year of the degree for the second time. She was new to the class and eager to get to know people. She joined the Facebook class page straight away and also, with the class permission, invited two other graduates from previous years on to give advice where necessary. She referred to the COP as an 'introduction' for her to the class: *"The social aspect of it. Well as you, when you walk into a classroom that you're relatively new to and you understand that these people have been together for two years before me. There was obviously … The groups are already formed and normed together. It was good, to be able to say "Thanks very much for that." I'm not saying that you got to know, but at least then I could put a face to the name, I could carry on the conversation the next day in college and say, "Listen, thanks very much for that information that you posted up there for me. I really appreciate it."* She was an active participant on the COP, particularly on the timetabled chat where she would often manage a range of inputs online – from email, personal chat and Facebook: *"I was finding that some people were, whatever it is, personal chatting with me because they didn't want to put it into the main chat screen for whatever reason, and then others were e-mailing at the same time, and then others actually told me after that they had Facebook open as well. There was a lot of different feeds of information going on"* Annie sat with the traditional students and moved easily between the groups in the class. She was an active participant at lectures, confident and unafraid to express concerns or lack of knowledge. She was very inclusive in her outlook, did not like to judge others and felt a connection to her class:

Carol liked to help others and was very familiar with technology. She emailed helpful information, talked in class and posted on the COP. She observed different reactions to the COP: *"There are learning curves, for sure, with regard to technology, but I've offered along the way to give people a hand with the techy stuff, and it's not really been received. People do want to be self-taught as well, so though we might complain about the learning curve, people do like learning."*	*"What I understand what community is? this is coming from a community development days. You know what I mean. It's having something in common together and being unified in a sense that we're all going to get a degree at the end of this."*

Table 4.2: Student vignettes Case Study One

Carol joined in the chat regularly on the COP and also posted information and weblinks outside of timetabled chat times (35 posts and comments). Annie also posted a few documents and comments outside of the chat (6 posts) but preferred to communicate in real time through the timetabled online live chat once a week. See below for numbers of interactions using Garrsion, Anderson and Archer's social presence criteria (2000):

Carol (p002) Total Posts on COP and Facebook			
COP Interactions		**Facebook Interactions**	
Addresses group	1	Addresses group	0
asking questions	2	asking questions	0
exploration	4	exploration	0
expressing agreement	3	expressing agreement	0
expressing appreciation	4	expressing appreciation	0
referring explicitly	7	referring explicitly	**0**
use of humour	1	use of humour	0
Vocatives	4	Vocatives	
Total	**26**	**Total**	**0**

Annie (p016) Total Posts on COP and Facebook			
COP Interactions		**Facebook Interactions**	
Absent	2	Addresses group	2
Addresses group	5	asking questions	2
asking questions	8	complimenting,	1
complimenting,	2	exploration	6
exploration	25	expressing appreciation	2
expressing agreement	8	open communication	8
expressing appreciation	11		
expressing emotion	7		
integration	**3**		
Phatics	**4**		
Referring Explicitly	**5**		
Resolution	**1**		
Salutations	**3**		
Self-disclosure	**6**		
Triggering Event	**2**		
Use of humour	**12**		
Vocatives	**4**		
Total	**108**	**Total**	**21**

Table 4.3: Number of interactions by social presence criteria on COP and Facebook

New contacts/relationships

In response to a survey question, "Did you develop any new contacts or relationships

through using the COP?", of 33 respondents, 13 students felt that they did not. Reasons

given included that: "they stayed with their own friends" (2) or "preferred to use the Facebook page" (2).

Another 20 respondents replied that they had developed new contacts or communicated with people they normally wouldn't interact with in class: "*I began talking to other members of the class whom I would not have talked to previously when we were in college*" (p024, FS), or "*Yes, I was able to speak with members of the class on the COP site that I wouldn't ordinarily have spoken to, I made contacts with people from different social groups through the online community of practice*" (p053, FS). Another respondent confirmed "*I didn't develop relationships but I think it makes it easier to talk to people and ask questions*" (p038, FS). This idea of 'easier' communication was reflected in three comments.

Students found that in the online COP "*you could ask questions as you pleased and get direct feedback. The class share ideas and opinions more openly than in class*" (p029, FS). The online nature of the COP appears to have transcended some barriers in terms of peer review, as another comment illustrates that "*students who I would not have interacted with became very helpful during the COP*" (p021, FS). One student commented "*Yes I found it was easier to mix with other members that I wouldn't get the opportunity to during class time*" (p029, FS), and another described how the opportunity to peer review online helped overcome time and logistical limitations: "*COP helped me because it was another support system set out for our class to communicate, chat, ask our lecturer questions, and post up information, and we got the opportunity to look at the information other classmates posted up. I think COP was very important for our class because we all live in different places so we*

could still work from home at allocated times set up by the lecturer or when convenient"

(p028, FS).

4.2.1.4 Lecturer as an incentive to engage

The presence of the lecturer proved to be an incentive for students to use the COP in order to interact with a 'professional', 'expert', and 'guide'. Students observed the need for this facilitation, but observed that it may be the sole attraction for some students to the COP. In response to a question regarding the usefulness of the lecturer and their place in the COP, one student responded that she would not have engaged with the COP without the lecturer:

"No. Not initially because I think the main idea would've been there but I think it would've been lost along the way or something else, distractions whereas I think you had like a focus. It was good to keep a focus on it and know that you were there to help if we needed support" (p018, Int.). The majority of students who responded to the final survey felt that the presence of a lecturer was essential to the COP (see Fig. 4.5 below):
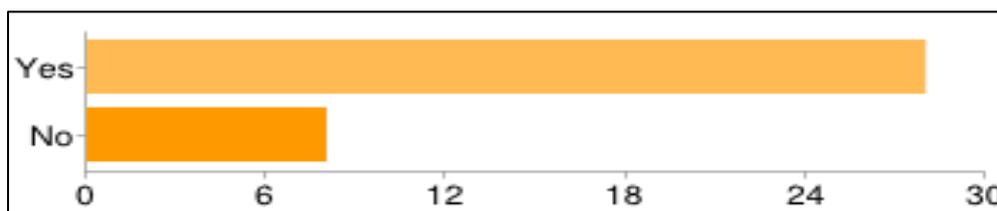
Yes	28	78%
No	8	22%

Fig 4.5: Final Survey Question: Is it essential to have a lecturer facilitate the COP?

Some students felt that the lecturer was only necessary at the beginning to galvanise the work and set the tone: *"In the initial stages at least, to guide the workings, ethos and conduct of the COP, so that it doesn't denigrate into an academic version of Facebook - without the entertainment, but maybe a lot more 'group exclusive'!!"* (FS) and *"it is not necessarily essential but I think the lecturers presence can help keep the community focused, particularly at the beginning"* (FS).

One student indicated that the presence of a lecturer for them was vital: *"The COP is directed to helping learners gain more information in relation to a topic of study. If a lecturer was unavailable, a crucial link to expert knowledge would be missing. For example; if I were to ask a specific question in relation to an assignment such as, 'How best should I structure a particular essay?' I feel that the best answer would come from the person who is going to mark it [i.e. the lecturer]. Peers may give direction on specific topics and this would be valuable, however I would think that a lecture would guide me best"* (p037, FS). Another student felt that it showed the lecturer was interested in the coursework: *"like this is your specialty or whatever and you are our teacher or lecturer, so it was kind of comforting that you were there, you know, and it kind of showed that you were ... you organized it so you were showing an interest as well in what we were saying, which was good too, rather than if you kind of just said, "Well, I want you to get on this, but I won't be on it." You know, it showed that you were really ... in fairness you were all ready [sic] participating in this you know. So that was good"* (p003, Int).

Opinion did vary among a minority of students as to the need for the lecturer. One student commented: *"It could be used as an academic form of Facebook and shouldn't need to be*

moderated" (FS) and another felt that the lecturer shouldn't need to be there as the COP is for peer interaction: *"While it is certainly helpful, in my experience, students can learn just as much from each other as they can from their lecturer"* (FS). A mature student felt that students should be able to work together without a lecturer: *"People are old enough when in a university in order to talk relate to each other"* (FS).

Overall the presence of the lecturer provided assistance and support to students in terms of their research topic, e.g. *"It worked for me because my lecturer guided me on what things I needed for my research"* (p004, FS), and the instant or rapid access to an authority in their subject area was also appreciated: *"The ability to get instant feedback form [sic] the lecturer without having 20 students queuing to talk to the lecturer"* (p034, FS).

A student commented in terms of the need for the presence of a moderator/lecturer: *"Just for monitoring also I felt more comfortable when the lecturer was online with us in terms of asking questions. I knew the information I was getting was right then"* (p028, FS). A mature student, who had discussed the use of Facebook with a peer, felt that a lecturer was necessary to provide a safe environment: *"Yes because several students have said that the student Facebook page is as much about who is excluded as it is about inclusion. That some nasty comments are made on it. I asked why do you stay on it – just walk away from it. Each responded, oh you have to be on it otherwise you'd be totally excluded from things, you wouldn't know what was going on! I think the knowledge of a lecturer's presence, even as a benign presence, might deter some of the nastiness that can occur – create a safer environment for students to communicate. Also, it would provide an expert opinion on some of the questions raised, rather than student speculation"* (p025, FS).

Although the lecturer repeatedly emphasised that the COP was open to be used for group work, discussion, and resources from other modules, students perceived the online space to be dedicated to one module related to research and only at specific times. One student commented "*It could be used of course for different modules, although I must admit I just never thought of using it for different modules. Perhaps that was because other lecturers were not involved only (research) lecturers were*" (p028, FS).

4.2.1.5　　　Perception of Collaboration

The nature and focus of the degree on education and the pedagogies used within it has influenced the viewpoints of the students in terms of how the degree is delivered. Some questioned the pedagogies and strategies that are used to teach them as a result of the focus on COP and collaboration. One student articulated their personal preference in the context of individual module assessment criteria and the stated aims of many of the modules within the degree: "*We have been put into groups since first year, on the assumption that group work is how people learn best. We have also been taught that individuals all have their own learning styles that we shouldn't generalise about students. But that's exactly what's done with group work! Regardless of temperament, personality etc. it is assumed that putting us into groups means we will all learn more than we would working on our own. I don't believe that group work is something that suits everyone. I prefer to work alone, but I can adapt to working in groups because it's in my nature to. There are others who can't do that, again because it's not in their nature to. They find group work difficult and stressful. I'm not sure that it's right to expect them to just 'get on with it'*" (p020, FS).

Interestingly, another mature student in response to a question about group work, confirmed this point of view, "*because for three years the college has harped on about how good group work is yet never modelled practically how group work should be performed. I believe some people are not team players and only have their own vested interests at heart. I'd say if you gave some people a group task and said they were getting marked on their ability to be a good group member i.e. democracy, listening skills etc. the dynamic may change for the good*" (p015, FS).

One student, reflecting on the degree over the years, pointed out that strategies such as workshops, simulations, roleplays, or modelling are talked about but not applied. "*I think a lot of people would say, a lot of people do in the course would say that. I mean all our classes were lectures, where we sat in front of slides. It was suggested that we maybe look at interviews but actually get people up and do them. I would say definitely, more hands on. You did suggest it. Get them up on their feet and do a mock focus group, mock interview*" (p014, Int).

Competitive Mind-set

There was a suggestion that mature students are some years distant from formal education and as such have lost the competitive mind-set that comes with the Points race and the Leaving Certificate. Traditional, younger students still have that mind-set when entering the college and it would take time for them to change. One mature student commented, "*Yes, I think it is very difficult for a cohort of learners to change to a collaborative style of communication i.e. a community of practice who have been taught to be individual achievers since the beginning of secondary education*" (p015, FS). A traditional student confirmed this

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point of view: "*I always felt that way, because it's such a competitive point system, so competitive. I don't know if I'm not in that mindset of sharing my work to people. But it could be that*" (p012, Int). Other traditional students, justifying their reluctance to share notes on a module with their peers, explained, "*I want to do well and I want to focus on me. In a selfish way*" (p011, Int). Another student observed that "*There was a lack of communication between the class members. I felt that there was also a feeling that class members were unwilling to share information as if there was a competitive advantage to withhold information*" (p019, FS).

Concerns about sharing

Some students were afraid that they would be accused of plagiarism if they shared their work: "*I would have no issue in sharing resources that I have used. However I would not like to share any work that I have created [essays, projects etc.] until it is marked. My reasons are that I would not like to be accused of plagiarism*" (p019, FS). Others would be concerned that others would take their work and pass it off as theirs: "*I would have an issue sharing unique work to a full class as I would feel people might take it and pass it as their own. However, if individuals approached me to get a copy of my work so that they could see what direction they should take in their line of work that would be* ok" (p034, FS).

Others felt strongly that they would not share for various reasons including privacy issues and their own competitive nature, and felt that they would "*only share information with people I trusted*" (p061, FS). For others it is an issue of confidence in their own work and embarrassment if their work is seen as silly: "*I might sometimes be embarrassed to share*

ideas that could seem silly or basic in the view of my classmates" (p053, FS), or "*I wouldn't*

be confident to share my college work especially that of personal reflections etc." (p037, FS).

Overall students felt that sharing of information and resources is a positive approach:

"*Generally it is material for correction that will be posted and peer review can only help to*

improve it" or "*Because I feel we are all here to succeed and none of us are going to end up*

in the same field of work, none of us are the same, we are going to put out own stamp on it

anyways" (p040, FS).

A traditional student, when presented with notes from mature students, responded, "*My*

first impression would be, 'Why would you do that? Would you not keep your work and not

let other people have diluted versions of your work" (p013, Int). Interestingly, one of the

most vocal exponents of the competitive nature of college work changed his point of view

after participating in the COP. He benefitted so much from the support of peers on the COP

that he introduced the concept into his Facebook profile by creating separate Facebook

groups for other module assignments: "*Yes we developed mini communities of practice*

within all of our modules for the final year including group work for the Webquest,

Philosophy and Enterprise Education" (p034, FS).

Lastly, a comment was made that implied that previously non-collaborative students had

changed through the COP activity. "*I was also impressed to observe how previously non-*

participating members of the our class who openly declared that they did not believe in the

sharing of ideas as it 'undermined their work' (their words) as we were, after all, in

competition with each other, actually share documents and tips quite openly on the online

COP" (p060, FS).

4.2.1.6   Personal Preference in communication

Personal preference in communication was a factor in the choice of one medium of

communication over another. Students repeatedly stressed that it was their personal

preference or their personality that influenced the extent of their participation online. One

student stated, "*I'm not introvert but cautious about expressing private stuff to people I*

don't know even offline" (p010, Int).

Others embraced the concept of a COP as another opportunity to 'meet with class mates

outside of lectures which in final year only took place on two days of the week: "*I thought it*

was great. I thought it was a very good idea in the sense that everybody … We were in

college two days a week at that time and it kind of felt, you know a sense of … who are you

going to meet, and I just thought having a community of practice page, where everyone can

contribute their ideas and get peers' support off people that's a great way to go. I did; I

thought it was a great idea" (p016, Int).

"*Personally not a group work person, don't like to rely on others, don't have time for*

slackers" (p009, Int). The student did not engage in the COP beyond joining up, as her

preference expressed at interview and survey was for Facebook. "*At first I did feel like oh*

it's going to look bad if I don't go on it. Then I realised hang on I'm not the only person not

going on it. People they are using Facebook. I found I think I'm just I don't like change. I think

that's what's wrong with me. I like either emailing or using Facebook because I know how to

use it. I think it was the fact that this was something new and it was just like I have enough

newness with the research and all the other stuff that I have coming" (p009, Int).

Students indicated that the COP was just one of a number of online platforms and social

networking tools that they used to communicate with each other. Many students admitted

that they would use a range of tools while simultaneously engaging with the COP.

They would use the functions of the COP – group chat, individual chat, posts – while also

using Facebook and texting with friends who were not participating in the COP at that time.

In addition, students were individually messaging each other through Gmail and Facebook,

emailing the lecturer, posting questions in the discussion forum, and engaging in online chat

with the group and lecturer, and private chat with each other and the lecturer. Some

students only communicated with the lecturer through private chat and emailing.

"*I would've been on Facebook and then there'd be two little tabs that opened on Facebook.*

Are you on the COP? Or what do you think of?… you know, and then on the community of

practice like how do you do this?" (p011, Int.).

The COP became another option for student communication, with students admitting that

they use a range of technologies to communicate, including Facebook, Viber, WhatsApp,

phone calls, and texting, as is clear from the range of technologies used by the students:

What ICT tools do you use for communication in group tasks?

Text	26	72.2%
Email	13	36.1%
Google Docs / Drive	16	44.4%
Facebook	32	88.9%
WhatsApp	23	63.9%
ET3COP	10	27.8%
Viber	7	19.4%
Phone calls	12	33.3%
Other	2	5.6%
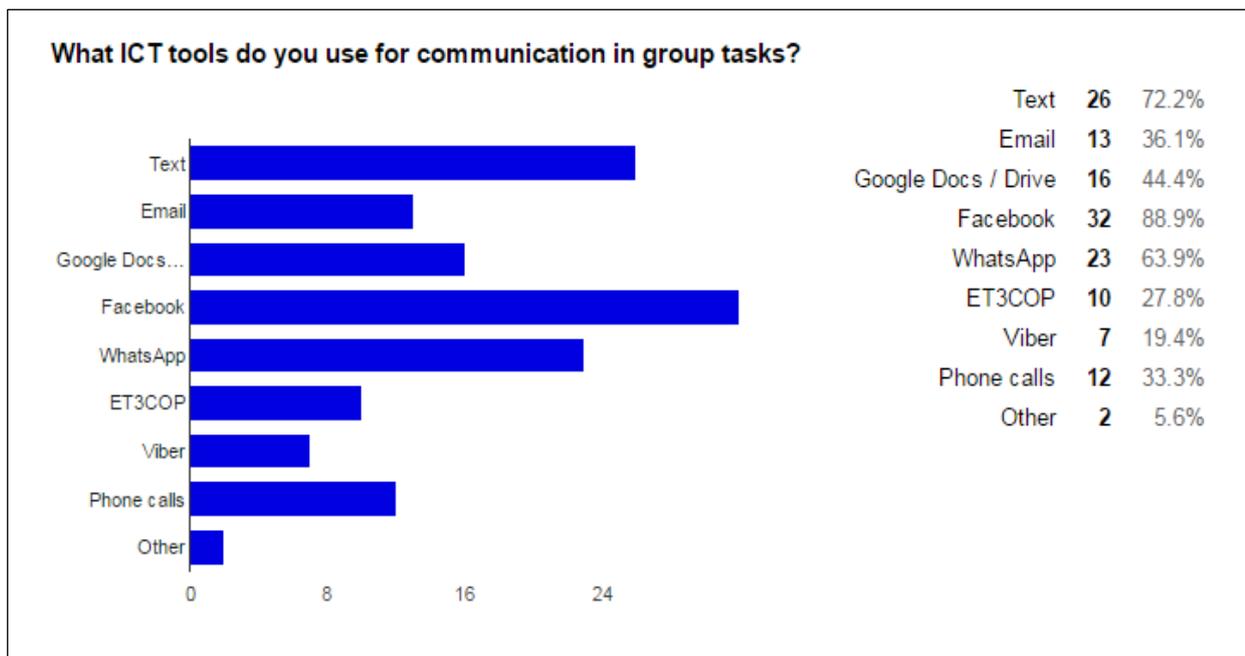
Fig 4.6: **ET3 Survey Case One (N: 36)**

This theme will be discussed further in chapter six (6.2) under the landscape of technology in DCU.

4.2.2 Process

This first theme of this section focuses on the perceived benefits of the COP to students, including the convenience of the online COP and the sense of security and ease for members. The grouping of topics also facilitated focused discussion, although some members declined to post while still obtaining useful information and support from the site. The second theme focuses on whether the online COP should be compulsory or voluntary and whether there should be marks or assessment attached to its activity. The third theme discusses the timing of the introduction of the COP and the pros and cons of interaction for differing class groups. The final theme in Process focuses on the novelty of the COP as a method of interaction for the class.

4.2.2.1   Benefits of COP

Key aspects of the COP that particularly appealed to respondents included convenience, interaction with each other and with the lecturer and the sense of security and ease that gave to members, and sharing of resources and discussion.

Convenience

Ease of access and communication was linked with stress free browsing and interaction with the site: "*I like the interaction and ease of COP. You just go online and there is no stress about contributing or just looking at other people's ideas*" (p018, FS). Another comment was "*That I could go online at any time and ask a question if something was worrying me*" (p024, FS). An examination of the interactions on the COP shows that each student interacted at least once in the moderated group chat over the first six weeks of Semester 1. (See Fig 4.7 below).
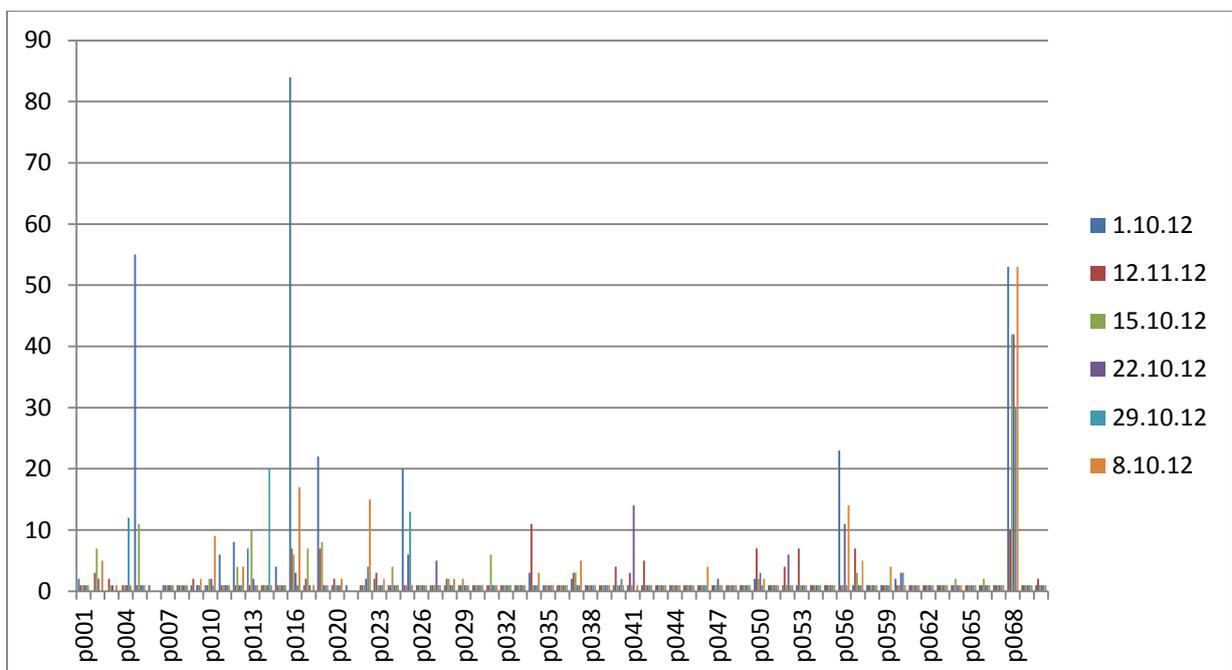
Fig 4.7:   Full class Group Chat interaction

The interaction between class members was also appealing, with one comment saying "*I liked the way the whole class was involved online. We could ask questions to the lecturer and get a rapid response. Our research questions were categorised into groups*" (p034, FS). Other comments included, "*Being able to interact with fellow classmates*" (p027, FS), and "*The fact multiple students answer questions in different ways*" (p022, FS). The presence of the class was even more important for one student who stated, "*Because I was new to the class, I got to know people*" (p016, FS), and another comment where a respondent stated that they liked "*Interacting with the mature students*" (p013, FS).
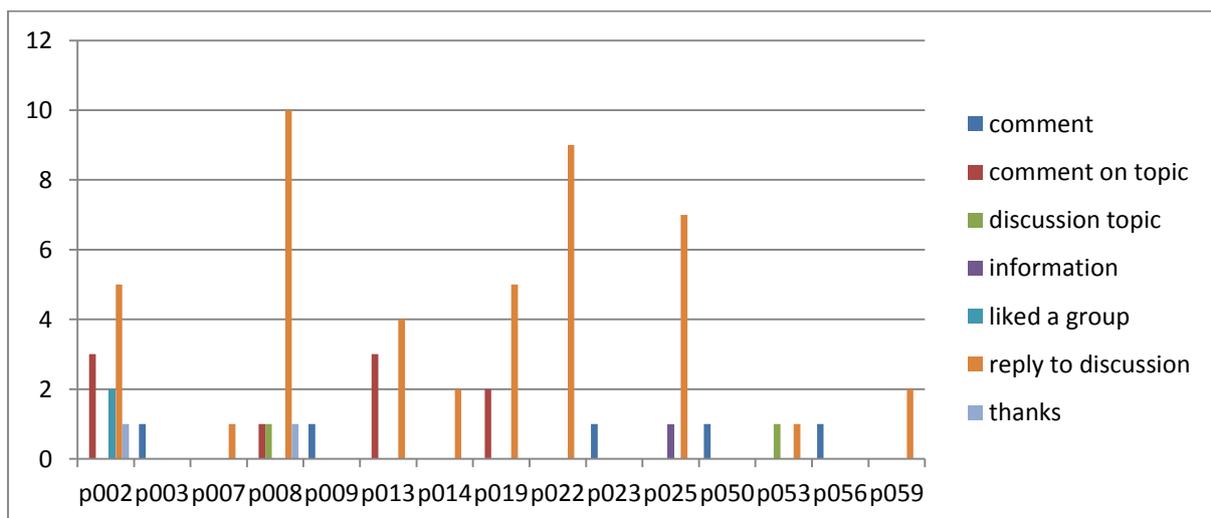
Fig 4.8:Count of interactions by students through comment or post on COP

Access to the lecturer was also welcomed with respondents writing of "*The availability of the lecturer, the opportunity of some collaboration and knowing that we were all in the same boat by seeing what stage people were at, particularly at the start when people were establishing research questions*" (p020, FS). Also, "*The ability to get instant feedback from the lecturer without having 20 students queuing to talk to the lecturer*" (p012, FS).

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One student observed: "*I liked the fact that some people were genuinely offering help to other students*" (p004, FS). (See Appendix J for Excel record of interactions.)

Grouping of Topics – organisation of COP

As the class became more confident through discussion and brainstorming about their individual research topics, it was possible to group these under headings and for students to become aware of whom was researching what. The lecturer initially grouped links and posts under headings to signpost resources for students. Later a small number of students created their own groupings under module headings to widen out the range of resources. This proved to be very useful both in terms of sharing resources and ideas but also in terms of confirmation of the validity of the research area and the purposeful discussion that arose out of that connection. "*The grouping. I liked that each research area was divided and separated. It helped me to gain topic specific and condensed information about my topic and also allowed me to interact with those studying within that area also*" (p006, FS).

Another student liked "*how each person gave suggestions and we formed our own opinions. It allowed us to gain a broader understanding of our topics*" (p022, FS). In addition, they liked "*the availability of a lecturer, the opportunity of some collaboration and knowing that we were all in the same boat by seeing what stage people were at, particularly at the start when people were establishing research questions*" (p005, FS).

The COP and in particular its groups of research topics assisted a number of students with their work: "*Yes with regard to Special Education section the members of this group all*

helped me throughout my research. If it wasn't for the COP I doubt I would have been able to contact them or interact with them with such ease" (p006, FS).

Lurking or Silent Participation

Data patterns from the COP showed that 28 students signed in for timetabled online chat sessions but only observed the conversation without joining in. This interaction, characterised in the literature as lurking or silent participation, has a beneficial effect, as a student explains: "*I got some excellent reading resources from what other members had posted, I was also able to see the answers to questions that people had posted which helped me clarify some issues with my research*" (p012, FS). Figure 4.9 below shows the number of times each student (designated by p for participant and a number) logged on to the site without posting or commenting over the six weeks of activity on the COP.
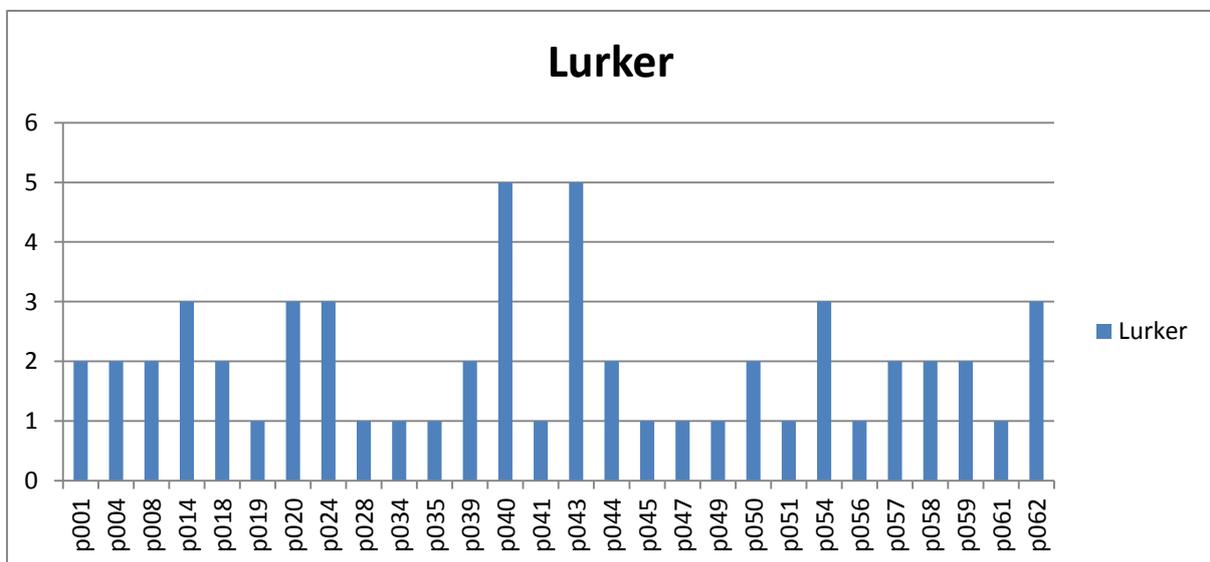
Fig 4.9:Instances of lurking by student over the first six weeks of online chat tutorials

4.2.2.2   Compulsory or voluntary participation

The COP was presented to the class group as a voluntary support system that would facilitate discussion and collaboration within the context of a website as an online community. For logistical reasons, it was put to the class for a vote whether to use a timetabled slot on a Monday between 3 and 5 p.m. as a lecture, or as an online tutorial through this new COP. The class voted for the online tutorial and it was agreed that this could be revised at any stage. The online tutorial would be moderated by the lecturer for the module and participation was entirely voluntary. This substitution of a physical lecture for an online tutorial caused logistical and personal difficulties for a very small minority of the class.

One student who is by her own admission completely "*allergic to computers*" was upset that she would miss out on this facility. To meet the needs of all students, online chats were copied into a Word document and archived on Moodle each week for all students who were unable to log in. The lecturer also made herself available for additional face-to-face meetings and email support for those who were not comfortable with the concept of an online space.

The perceived mandated nature of the online tutorial was unwelcome to some, with anecdotal evidence offered through interview about some students' resistance to the site. In response to a survey question about the compulsory or voluntary nature of participation, responses showed a clear split in opinion. Fifty percent of students surveyed in the final questionnaire felt that there should be assignments or percentages of marks included in the COP that would encourage students to participate. Of the 50% who replied yes, a number of

students indicated from provided suggestions that it could be linked to assignment (35%), marks awarded for individual use (13%), marks awarded for collaboration (45%), or some other way of making participation mandatory (6%) (FS). (See Fig 4.10 for question response).

Should elements of the COP be compulsory?
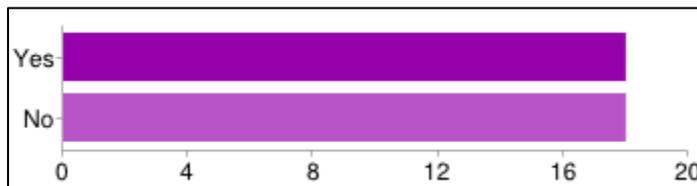
| Yes | **18** | 50% |
| No | **18** | 50% |

Fig 4.10:   **Response to question on compulsory nature of COP**

Fifty percent of students adhering to the theory of communities of practice felt that it should remain voluntary and unassessed for a variety of reasons, including lack of ICT skills, lack of universal application throughout the degree, and different attitudes to COP and online forums.

Issues such as personal preference, personality types, and attitudes to ICT were outlined: One respondent confided that "*some people may not be comfortable participating in something like it. I did not post things publicly on the COP but I did read things that other students posted*" (p033, FS). Another commented that "*it's a personal online centre, people may not wish to ask questions in the online chat service that everybody can see, although*

they could privately email the lecturer. Also people may not want to share their ideas. People may not have the skills to use it. I think it should be up to the individual" (p028, FS).

One respondent summed up most of the debate in their comment "*I'm in two minds about this one! If yes, then perhaps if linked to assignments but on an individual basis. I'm not sure about marks awarded for collaboration in Yr. 3. What about students with poor ICT skills though? (in particular mature students? Actually there is probably not that many)*" (p017, FS).

4.2.2.3   Timing of Introduction of COP

Another issue with timing was focused on the introduction of the online COP in the third year of the programme. A minority of students felt that it fitted well within the final year of the degree because "*it benefitted the project module because it was worth 15 credits. As there was a lot of work involved it was a successful approach to ask questions as a lot of problems were occurring at the start*" (p035, FS). The majority of students – 30 out of 43 respondents – when surveyed on the optimum timing of the introduction of the COP, suggested that it should be introduced as early as possible, either in the first semester or second semester of year one of the programme. "*I would argue for a COP being introduced in first year – one COP to cover all modules. People could feel free to dip in and out as needed or desired. I think it might give a more relaxed, less official feel to it. Personally, I would have found it very helpful. I also think it would have been used more by the whole class*" (p020, FS).

The importance of extra support when first in college was emphasised by a number of respondents who felt the COP should be introduced early saying, "*I think at the beginning because that's when most students are more enthusiastic but more importantly than that, it gives students the chance to get to know each other as that can be a daunting thing to do when you first start university. I also think that because the students are not used to doing assignments etc. it gives them the opportunity to receive help from their other classmates and lecturers, give their own opinions and ideas which can in turn help others and to learn other ideas, beliefs and opinions*" (p014, FS).

Group work and assignments were highlighted as reasons to use the COP: "*When group work has started, it's an easy way to work together and share ideas, Facebook doesn't really give you that option unless you private mail*" (p028, FS), and "*I think it should be introduced from the time of the first assignment due date as it would help students to realise the value of having shared online resources*" (p012, FS).

A respondent summed up the benefit of the COP being introduced early in the degree from their point of view stating, "*In the very first semester of year one. I struggled in first year and didn't feel comfortable asking the lecturers for help and I did not yet know anyone in the class and if that was there as a support it would have been great, makes it easier to get help, from the class and lecturer*" (p010, FS).

The case for the early introduction of a COP is justified by the need for early support from both lecturers and peers in an online space that provides the facilities for group work and collaboration and also encourages full membership of a class group. The lack of an online

space for college work when this class group first entered the university prompted the Class Representative to establish a Facebook group page. Some students were discouraged from joining the group page due to distractions and personal experiences: *"Initially I had some reservations about it because I was part of some groups on Facebook that were related to college work and the learning wasn't there. They're were more of a joke like or just got different distractions on it"* (p018, Int.)

4.2.2.4   Novelty of approach

It was clear that the mode of communication within the COP was new to some: "*It is not something we used before, maybe the younger students had some form of community of practice but I was not aware of it. The use of email with each other was how we made contact with other students mostly*" (p027, FS).

The perceived lack of time to adjust and adapt to collaborating online was expressed as a barrier to engagement: "*I didn't really engage to be honest I don't believe it's not that I wouldn't come around to this approach to learning or sharing information etc. but I feel it would take me a while to get used to such a novel approach in a learning environment*" (p015, FS).

The timing of the introduction of the COP was linked to the need for students to become used to it, not only in in terms of how it functions, but also in how to apply it to their work. One student, in response to a question about suggestions for use, replied "*Can't think of anything relevant; except perhaps to introduce the COP concept and practice early in First year, first semester, so that new students can become accustomed to the idea, the using of it*

and getting familiar with it, as early as possible, hence utilise it regularly and effectively for enhanced collaboration between class mates and perhaps inter-disciplinary departments" (p024, FS).

A traditional student reinforced the idea of modelling the range of uses for the COP rather than waiting for members to think of these themselves: "*I think it would work a little bit better. It definitely did work, but another thing I noticed was for the first few weeks when people got all the information they wanted. It just went hmm, and it just died. By about week 6, it went from 40 people using it actively to about 10. That's because the information that they needed was received, and that's fine because that's what it was for. If you wanted people to actively use it, there could be more uses for it. You could encourage people to use it at many different times as well. Show them the full use of it*" (p012, Int).

4.2.3   Technology

4.2.3.1   Facebook and the COP

The Facebook class group was clearly very useful to many of the traditional students who were members, although their use of it also varied depending on their use of technology, access to the Web, socialising group, and need for information. "*We had a Facebook group that we posted helpful links and answered each other's questions but it was very informal*" (p005, FS). An examination of the interactions on the Facebook class page using Garrison, Anderson, and Archer's COI social presence criteria (2000) shows a level of interaction relating to questions and answers of an open nature on logistics, timetabling, assignment due dates, etc. As can be seen from Fig 4.10 below, the majority of interactions are

responses to postings as open communication debating the answers to such questions. See Fig 4.11 below:
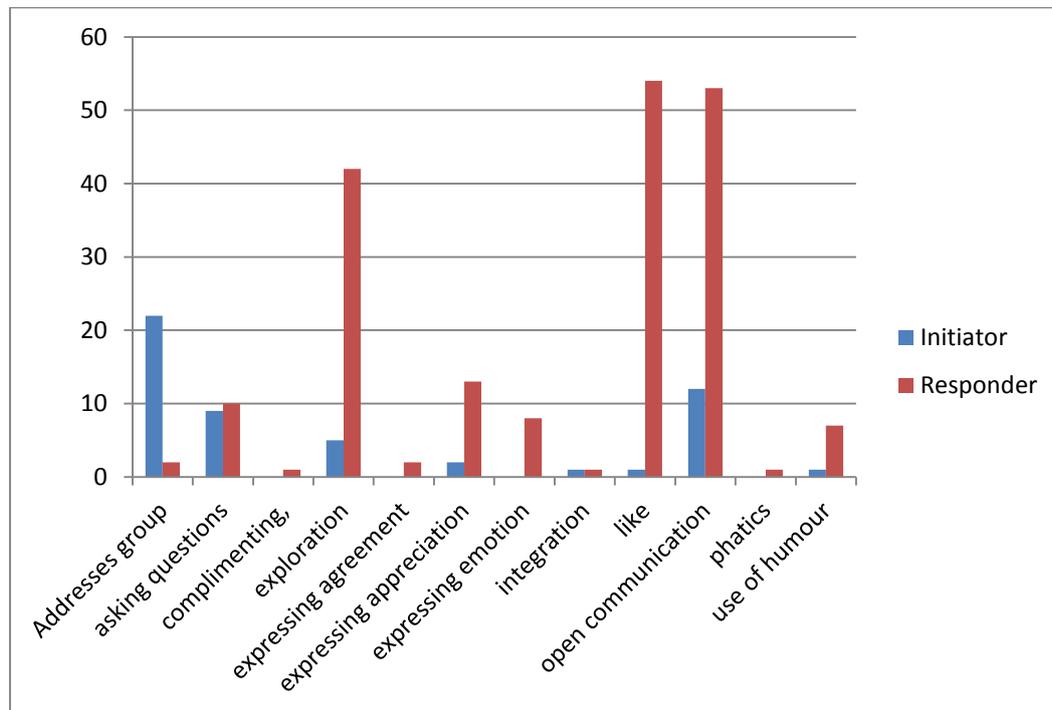
Fig 4.11:   Facebook interaction all types

Please see Table 4.4 below for examples of the types of postings by students on the Facebook page and the Ning COP under the social presence criteria. As can be seen by the nature of the postings, comments on the COP are generally related to coursework and the research topics of other students. Comments on Facebook tend to be logistical, asking questions and written informally.

Category	Indicators	Facebook Examples	COP Examples
Affective	*Expressing emotion*	tbh, im totally lost, so im just gonna leave it as it is and not try to fancy it up, couldnt give a s*** at this stage! (p053)	this chat is freaking me out cos i can't write long winded chats.....maybe thats a good thing though!! (p016)
	Use of humour	2 sugars please (p057)	yea that way I could solve all my own problems!!! (p005)
	Self Disclosure	n/a	Cos I am part of a single parents group myself (p005)
Interactive	*Continuing a thread*	If anyone want to see	n/a

		some slick dance moves you cant miss this!! (p034)	
	Quoting from other's messages	n/a	[p010] in my opinion it's not that students dislike 'Irish' its that the way it's taught in schools especially secondary that causes dis-illusionment with the subject. Eg:since you've done the LC when have you needed to draw on your knowledge of Peadar O dornín? (p047)
	Referring explicitly to other's messages	n/a	[p012] - I was in a secondary school for my work based practice last year - I went in expecting to see all sorts of technology at work - I saw none. The new white boards? The majority of teachers didnt know how to use them! One teacher used a laptop to play a cd of Romeo and Juliet...(p025)
	Asking questions	I'd be interested in how much the post grad courses in Dcu cost and what type of grants are available? Also the dates for applying for those course? (p023)	Hi, I'm thinking of investigating the extent to which involvement in sport affects education. Would it be too broad to look at more than one educational setting? I'm hoping to try and look at both university and primary school. (p057)
	Complimenting, expressing appreciation	Yeah [p007], [p008]l fair play to him sent it last week sure i said it back to ya in email but hey thanks for emailing it again just in case some people didn't see it first time round good class rep work (p016)	But can i say, i think THIS idea is brill cos it gives u a better scope on other peoples research projects, regarding quality and debt....after reading [p019]'s idea and [p002]'s response.
	Expressing agreement	nicely said [p046] cos really not bothered lookin for sources at this stage in the game haha great attitude i know (p010)	Yep - ties in with the whole patronage of schools etc, and ⬛ yes [p002] I'm still trying to narrow it down. (p025)
Cohesive	Vocatives		
	Addressing group	hey guys i duno if we did Mezirows theory in any lecs but as far as i know we need it 4 the assignment so this might help (p020)	how often do we train teachers, or how do we as educators embrace the changes in technology? (p005)
	Phatics, salutations	patience is a virtue	sup peeps (p010)

		(p037)	
	Exploration	Asked Trudy da last day, her words were "it'll do no harm to av 1" so now I av 1 [reference list] and am harm-free (p013)	[p011] why don't you get onto the school of talented youth thats in DCU, they will be able to give you info and tell you where to get more!! (p005)

Table 4.4: Examples of statements categorized by social presence (Rourke, Anderson, Garrison, Archer, 2000)

An examination of the quantity of interactions classified under the indicators of the three categories of Affective, Interactive and Cohesive show that on both COP and Facebook, the interactive category was where students communicated the most. The emphasis on the interactive category demonstrates a level of cohesiveness within the class on the ET3COP and on Facebook in ratio to the total number of posts. (See Table 4.5 below):

	ET3COP	% of total interactions on COP	Facebook	% of total interactions on Facebook	Total Interactions mapped (ET3COP and FB)
Affective:	64	**6%**	16	7%	80
Interactive:	326	**30%**	37	15%	369
Cohesive:	92	**8%**	25	10%	113
TOTALS	482	**44%**	78	32%	562

Table 4.5:   Number of interactions on COP and Facebook mapped using social presence categories as percentage of total interactions

Total number of interactions* on ET3COP only = 1093

Total number of interactions~ on Facebook only = 247

Total number of interactions mapped from Facebook and ET3COP: 1340

Facebook and Collaboration

The use of Facebook for collaboration was discussed at interview. Some students had a clear realisation that it was not the ideal medium for them for collaboration. Students observed that students on the Facebook class page generally ask questions looking for specific answers relating to timeframes, sources, and clarification: "*If you're doing an assignment, you wouldn't really post an idea on Facebook. You'd ask a question on Facebook. You wouldn't post an idea and wait for responses, you'd ask a question*" (p013, Int). He posited that this is because students want to work alone and complete their assignment by themselves. He explained why he thought not many younger students posted on the COP: "*I don't know how many people posted. I think a lot of people my age might be secluded within themselves to keep their idea within themselves, not really share. So even though they're on a page where they're supposed to be sharing your ideas, they want to just go to you to get the info so that they can go back and just do the whole thing by themselves*" (p013, Int).

A traditional student interviewee felt that Facebook was not the place for collaboration or discussion; lines were too blurred between social and professional. "*I think it's just really like people are just, it's more like oh are you going out, the more social element of it. If someone has a funny video, they put it up on it. Learning, no. I don't even think it's because there's not a lecturer present. I just think that people don't even want to share what they've done on it. It's like have you done this or do you know information where you could get that. You wouldn't get a response*" (p018, Int).

Another traditional student went further to explain that you have a social identity on Facebook that is accepted by the group. You are not going to do anything to change that.

"That whole notion, because the social, each of us have got a social identification with each other. You'd be the cool guy, and she'd be the smart girl, or she'd be the dumb girl," or whatever. If you post something that's real serious, you risking changing that identification" (p013, Int).

While admitting the pervasiveness of Facebook, one interviewee acknowledged the usefulness of the COP and the helpfulness of it being dedicated solely to college work: *"You're going to be on Facebook no matter what, whether you're part of the ET3 page or not. And then having this other one with a lecturer involved is definitely where you … is really good because you know that it's definitely just used for ET3 and you're getting your feedback as well on different assignments which is definitely helpful"* (p07, Int).

Facebook and COP comparison

The online COP was introduced to the students as a private online space dedicated to their interactions within the context of a research module in the first semester of their final year. Students interpreted and reacted to these parameters in subjective and individual ways. This discouraged some students from using the COP, as they felt that it was too work-centred and focused on college: *"There's something about Facebook that engages people more than the fact that people separate themselves from Facebook. Like that aspect with Ning, with college, it's like Moodle. You only access it when you need it, and Ning just didn't engage that for me. Obviously, I went and got the information that I need, but it wasn't, I'd say if it was, if it had been, perhaps, a group on Facebook, you would've engaged people more because it's just so much more accessible"* (p010, Int).

Other students preferred the aspect of the online COP that it was distinct and focused on the research module: "*It is more focused towards work. The Facebook page can sometimes turn social whereas COP is 100% work*" (p025, FS). Another liked the convenience and "*that it is also beneficial to be able to contact so many different people with relative ease. I like the fact that it is a bounded community, as this alleviates privacy concerns*" (p002, FS). One student did not like the private nature of the COP: "*I didn't like that it was independent. I would have preferred if it was linked up with Facebook*" (p28, FS). Others could see the value of the COP but did not like the design: *"They are educational learning networks rather than social networks. However, Moodle and Ning need a little bit of dolling up in terms of design"* (p012, FS).

4.2.3.2   Technical Issues

User issues on the COP relate to the design of the site, the chosen platform, and the limitations of the functions within the site. The design of the site and its perceived similarity or lack of similarity to existing social networks and other ICT supports for students was an issue for some.

A small number of students reported an almost visceral response to the COP: "*The format of it was grey and dull. I thought the design and the layout was somewhat mundane. I'd go on it and I know it's a very simple thing, but I'd look at that, and it just made me so sad*" (p012, Int). Another student did not like the "*physical layout of the site. I felt that a more basic and clear structure wouldn't have been as intimidating. If people can clearly see where everything is and where to write, they might be less afraid of using it and more encouraged to join in*" (p018, FS).

Online Chat

An issue that arose was the use of the online chat facility for the timetabled tutorial. The chat function moved the conversations through the screen very quickly as students joined in the conversation and discouraged individuals who were not good typists. Also the chat conversations did not remain on the site for others to look at but instead had to be archived by the moderator, saved in Word format, and posted on Moodle and the COP for anyone who had missed the session. Students commented on these issues: "*The speed of the chat room and the vast numbers of people asking different questions left me at times to get confused as to what questions were being answered*" (p037, FS), and "*Chats were not saved, had to be quick to keep up if typing*" (p017, FS). Another student added, "*The chat became overwhelming when a lot of people were online*" (p011, FS).

Some difficulties in access were also recorded, as students had to be invited by the lecturer through an email facility. They were then invited to the COP where they chose their own username and password. This became a stumbling block for a minority of students who found it difficult to access the site: "*I found Ning difficult to access*" (p021, FS), and "*I am not great with social networks and every time I wanted to log on, I had to find the original mail. As when I went on to Ning it told me I wasn't a member*" (p010, FS).

The timetabled online chats with the moderator/lecturer took place on Mondays from 3 to 5 p.m. There was a perception that the online chat was the main route to the lecturer and as such was attractive to the traditional students, whereas the mature students would be more inclined to post questions, ideas, and resources to the discussion forum on the COP. One student offered a possible explanation: "*I know a lot of people would prefer to use the*

chats that are more chat option because it's more personal and you can just chat away as if it's a conversation. Whereas a post you have to organise this whole thing and then post it up, and then people might look at it and not really comment on it. Whereas the chats, you're engaged in conversation and the person has to reply back" (p013, Int).

This perception seems to relate to the dynamism of a social network site like Facebook, where the newsfeed is moving all the time due to the level of contributions that are not confined solely to college work. The timetabling of the online chat was also an issue, as some students felt that the class would only go online if they were instructed to: "*But we need to be told a timetabled time because I feel people only used it when they were told when to*" (p026, FS).

Overall, somewhat paradoxically, the technology was a barrier in terms of its similarity to Facebook in some cases and because of its lack of similarity to Facebook in others. "*I liked it. It seemed like Facebook. It was white and it was clear. You knew exactly where to go if you wanted the post or if you wanted the comments or if you wanted the chat. It felt very familiar*" (p013, Int), and another student's view was that "*I don't know why, compared to Facebook, it's just the platform. Yeah, it's just the fact that you associate it with college work. It's maybe not as popular as it could be*" (p010, Int).

4.2.3.3 Preference for an App

The idea of an App was also suggested to students, which had a mixed response. One respondent had suggested that you "*create an App for mobiles to make it accessible and increase awareness by encouraging students to use it all the time rather than at set times,*

(like Facebook)" (p034, FS). For others, however, issues still remain around privacy concerns and the blurring of boundaries between social and private lives and college work. Responses to questions around the App varied. In response to the question, "Would you have used the COP more if you could have accessed it through your mobile phone?" 64% of respondents said yes. (FS).
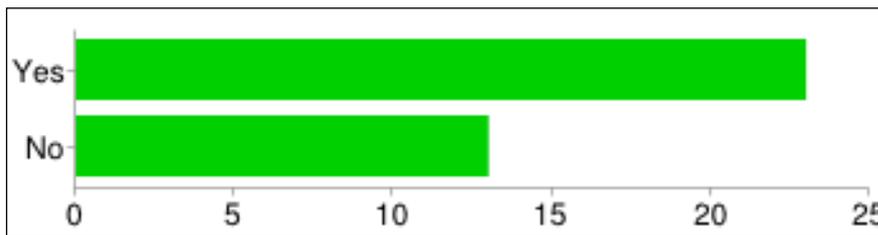
Fig 4.12: **Response to question on use of COP through App**

A closer examination of the data showed that of the 64% who said yes (23 students), 20 were traditional or younger students (under 30 years of age). Reasons given included "*doesn't take as long to go on the Internet on my phone as it does with a computer*" (p019, FS), or "*it would allow me to check and update the COP when I am not around my computer*" (p035, FS). Access to broadband was also mentioned: "*I do not have WiFi everywhere but I always have my phone so having access on your phone would make it more available*" (p08, FS).

Of the 13 students who said no, eight were traditional students and five were mature students. Reasons cited include technical issues to do with the model of phone and dislike of small screens. One traditional student in particular felt strongly about keeping college and person life apart: "*I don't have Internet on my phone and I think if it was on our phones*

there would be no getting away from college. For me personally, I like college work and my personal life to be kept separate" (p029, FS). A reason given by one mature student was that she was *"unashamedly a digital immigrant"* (p027, FS).

4.2.3.4 Integration of COP into existing online resources

DCU offers Moodle as a 'walled garden' site for course materials, and in recent years introduced the Google Apps suite of online tools that is linked to the student email account. As documented earlier, the class had already established a Facebook group that was used by a majority but rejected by some: *"I rarely post on Facebook because it's too public when as if I was speaking with a person/people face to face I would be more open"* (p002, FS).

Preference for Facebook

In response to a question around students' preferences for a platform for a COP, in general students who are on Facebook would prefer to use Facebook, as it is regarded as a more dynamic interface and students are notified of new postings. As one student suggested, *"Moodle or Facebook you are going to be on nearly everyday, Facebook in particular and so to have the COP in a place that you are logging onto everyday anyway would promote people to use it more"* (p007, FS).

Students felt the COP was useful but for some an unwelcome addition to their workload: *"I thought it was a good idea. Then at the same time I was like, well do we really need this because we are already using something. We were already using the Facebook, we were already used to the Facebook. I think that was unfortunately a bit of a negative because there was something already there, this felt like a bit more"* (p009, Int).

One student pointed out that it was easier to post information on Facebook as it was with students your own age and there would be no judgement: *"And whereas if you're on Facebook, it's just that type of environment and people just put stuff up. So whereas if you're talking to the more mature students, you might be afraid that you're wrong, whereas if you were talking to people your age, if you are wrong, you're wrong"* (p007, Int).

Preference for existing online tools

In terms of the 10 students who are not on Facebook: six have a preference for the existing COP, two for a new COP on Facebook, and two indicated none. From the final survey (FS) students nominated the preferences for platforms as follows:

Google+ (Circles)	**9**	17%
Moodle	**17**	32%
Facebook	**19**	36%
Ning (existing COP)	**8**	15%
Other	**0**	0%

Table 4.6:   Preference for existing online tools

Google+ Circles was nominated by nine respondents as an option. One of three respondents who appeared to use the DCU network full time stated *"It is my most used network and it is linked with Youtube and Gmail, if the COP were linked with Google I think it would be more convenient for more students"* (p012, FS). Another respondent who chose Google+ commented that *"Not everyone is on Facebook, I personally only joined towards the end of*

the course" (p036, FS). Google+ was also identified as an option in multiple preferences by six other respondents.

Moodle was identified by seven respondents as a main preference as "*It would be easier to access*" (p030, FS), and "*I like the layout of Moodle and it is something we are already used to, we wouldn't have to join anything new. I have never heard of Google circles but it would be interesting to learn about it*" (p010, FS). Nine other respondents also identified Moodle as an option mainly in partnership with Facebook (4) or as a platform that would work as well as the other options (5). Some comments on Moodle showed that some respondents felt that it was a little out of date: "*Moodle and Ning need a little bit of dolling up in terms of design*" (p034, FS), and "*I have never used Google plus so I could not comment on it. However I have used Moodle and found it unappealing to use*" (p037, FS).

Ning was nominated as a preference by five respondents, as they found it "*Easy to follow*" (p031, FS) and "*as mentioned above I wouldn't want my private Facebook page linked to my college one – Ning provided clear boundaries around this and was set up specifically for the group*" (p011, FS). It was also included as an option in nine respondents' choice of platform, as "*Moodle or Facebook you are going to be on nearly every day, Facebook in particular and so to have the COP in a place that you are logging in to everyday anyway would promote people to use it more*" (p026, FS).

It is clear though that Facebook is the choice of the students who use Facebook regularly. Reasons for this choice include the accessibility, the notifications, and the dynamism of the platform. The changing newsfeed due to the number of postings from members of groups

on both social and work issues is fast moving and yet captured in time, so can be viewed at the user's leisure. You can add documents to the feed and private message where necessary. As one student commented, "*I'm on the Facebook page of the class and I do find that I would use that more because I have Facebook on my phone, so it's really easily accessible. I'm getting answers really, really, really quick*" (p009, Int).

4.3   CONCLUSION

This chapter brings together the findings of the qualitative data collection of Case Study One to present an exploration of students' perceptions and use of an online community of practice in their final year of study. The chapter aimed to present an exploration of students' perceptions, use, and experience of an online voluntary community of practice to support a module on research.

A number of core findings emerged from data analysis in case study One including:

1. The voluntary or compulsory nature of any online community is a factor in sustaining participation.

2. An online community can provide a bridging space for traditional students and mature students to engage with each other.

3. Students find a moderated online space a useful resource for benchmarking with peers regarding progress on coursework.

4. Participation in an online community can take many forms including lurking, which allows a student to learn about the community, understand it, and then join it.

5. The timing of the introduction of the community and its usability in terms of access through Apps is important.

The findings of Case Study One informed the research design of Case Study Two. In addition, the findings raised a number of questions about how learning is measured within a community, whether a sense of community exists in an online community, and whether changing the online community from a voluntary support to a mandatory one would influence participation. These broad questions are refined below to six key questions for the research design of Case Study Two:

1. How would the introduction of the community to the class as a compulsory tool with marks attached influence participation and acceptance of the community?

2. How can you measure the level of community within an online learning space?

3. How can you measure learning in a community?

4. Does a student's individual learning style influence their level of participation in an online learning community?

5. Does the integration of an online learning community into existing ICT structures increase a sense of community in the class?

6. Does the provision of an App for an online learning community influence participation levels?

These questions required the introduction of two quantitative instruments to measure sense of community and perceived learning. The Classroom Community Scale (Rovai, 2002) and CAP Perceived Learning Scale (Rovai et al, 2009) were completed by students in Case

Study Two in order to provide a quantitative measurement of sense of community and cognitive, affective and psychomotor learning to complement the qualitative data collection methods. Students were also asked to complete the Kolb Learning Style Inventory to ascertain whether their learning style had an influence on their interactions.

The next chapter, chapter five – findings Case Study Two – will explore the reaction of students to the introduction of a compulsory community of practice on a platform integrated into the university information and communication technology supports. It will evaluate the impact of an online community of practice on a final year class of students undertaking the same research module in 2014/2015. Results will be presented from the completion of two quantitative instruments to measure the sense of community in the class and the learning that took place over the semester. The findings of the students' self-identification of their learning styles through the completion of the Kolb Learning Style Inventory (2007) will also be included.

5.1   INTRODUCTION

It was discovered that many of the findings of case two confirm the findings of case one in terms of the benefits of participating in a community of practice, the benchmarking between students, the draw of the lecturer as expert, and the sense of community and how that is manifested. The findings in each case and the shared findings from both cases are illustrated in the Venn diagram below:

CASE ONE   **CASE TWO**

Bridging space
Novelty of approach
Personal
preference
in communication
Technical
limitations

Sense of community

Benchmarking with peers

Lecturer as incentive

Lurking

Competitive mindset

Facebook

Learning Space

Influence of learning styles

Technical benefits
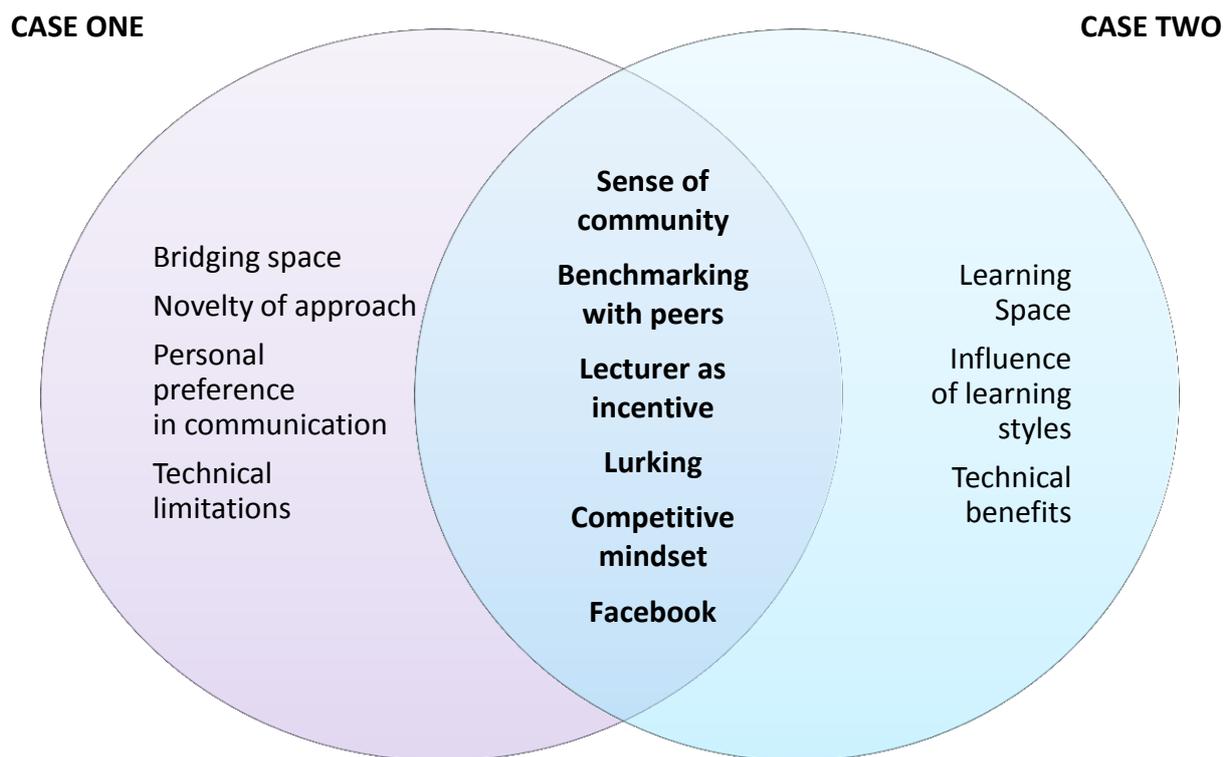
Fig 5.1:   Findings from Case One and Case Two

A number of significant changes were made for students in case two in terms of choice of platform for the online COP, conditions of use for the COP, grading of the COP, and access to the COP. These changes were in response to findings from case one that suggested that mandatory use of the community would increase participation, and that easier access to the community would boost engagement. These changes are presented in the table below:

	Case One	Case Two
Platform	Ning	Google Community
Functions	Profile, chat, forum	Profile, video chat, posting, comment
Access	COP log in (stand-alone website)	Google+ link through student email
Medium	PC, laptop	PC, laptop, App on smartphone or Tablet
Conditions of Use	Voluntary, timetabled chat	Compulsory, timetabled chat
Grading	No marks attached to participation or use	Percentage of module assignment attached to participation in COP

Table 5.1:   Changes in online COP provision between cases

5.1.1   Case Two: Google+ Community 2014/2015

The presentation of the findings of Case Study Two relate to the academic year 2014/2015 and the experience of a class group of final year students using an online community space for discussion and interaction as part of a research module (n=68). The students were required to use an online community delivered through Google Community for discussion of research topics and the sharing of sources of literature. Engagement with the online community was mandatory and formed part of their module final assessment, providing an opportunity for 30% of the 100 marks available. The Google+ site was named ET3COP as the class group designation from the university was 'ET' and '3' stood for final year.
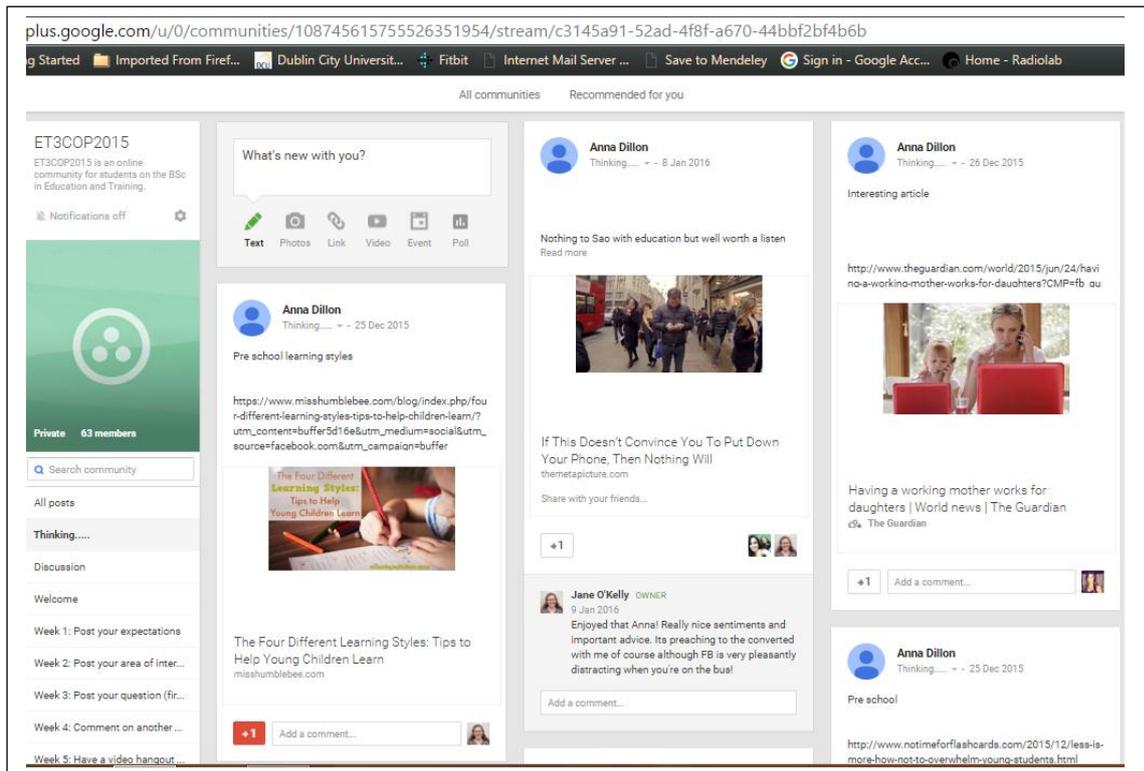
Fig 5.2:   ET3COP2015 on Google Community

5.1.2 What is Google+?

Google+ Community provides a platform that allows medium levels of self-presentation and

self-disclosure through functions such as profile space, including photographs, postings

including links, video, documents and images, creation of categories and commenting, and

+1 (Google's equivalent to Facebook 'Like'). Google Community provides integration with

student Gmail accounts, Google Drive Apps, and the video-conferencing app 'Google

Hangouts'. Google Hangouts facilitates video chat between two people or group video chat

between one and ten people. Google Community is Google's version of a group or forum,

built to bring people together around particular topics.

Google+ as a social networking option in Ireland has slowly increased market share over the last year to 25% of social network account owners in Ireland (Ipsos MRBI Tracker, 2016). It is the fourth most popular social networking site in Ireland behind Facebook (63%), Twitter (31%), and LinkedIn (28%). See Figure 5.3 below:
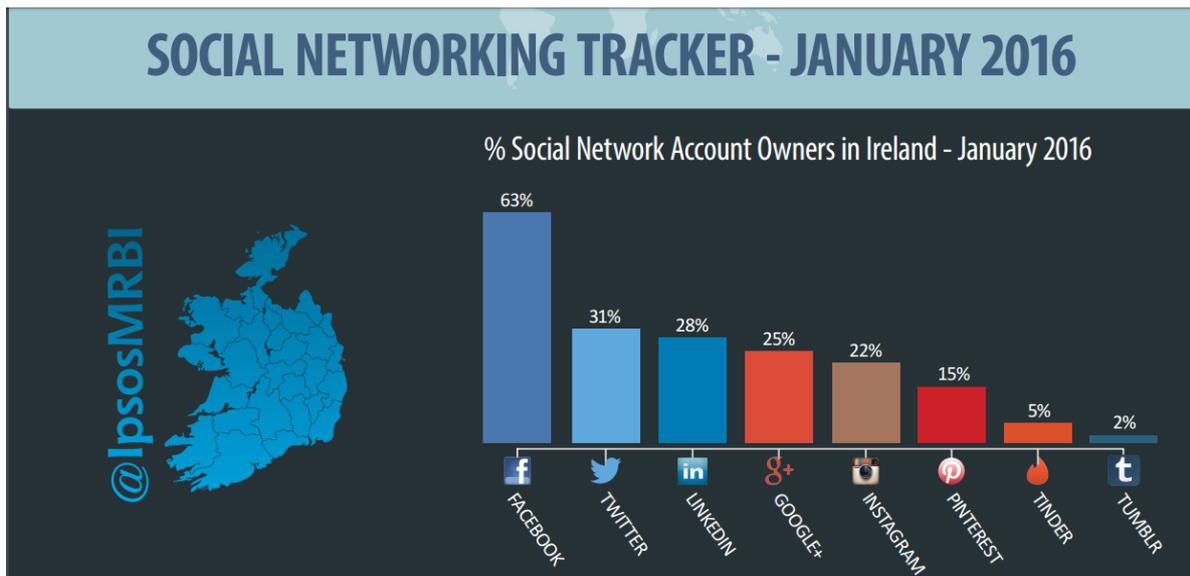
Fig 5.3:   Ipsos MRBI Survey January 2016

Kaplan and Haenlein (2010) define social media as a group of Internet based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User Generated Content. User Generated Content refers to user generated media published on a public website or a website accessible to a restricted group of people (p. 61). Their classification of social media visualised below (Table 5.2) defines the distinctions between self-presentation and self-disclosure in terms of building personal relationships (ibid.):

Social Media/Media Richness				
		Low	Medium	High
Self-presentation/Self-disclosure	High	Blogs	Social Networking sites (e.g. Facebook)	Virtual social worlds (e.g. Second Life)
	Low	Collaborative projects (e.g. Wikipedia)	Content communities (e.g. Youtube)	Virtual game worlds (e.g. World of Warcraft)

Table 5.2: **Classification of Social Media by social presence/media richness and self-presentation/self-disclosure (2010, p. 62)**

Google Community provided an integrated, bounded, private community online space with integrated functions for students through Google Apps, Chat, and Video Chat functionality, posting and commenting, embedded video, links, and documents. As such students could post, comment, and video chat freely within an academic, private online space facilitating medium level self-presentation and self-disclosure.

5.1.3 Tasks

Each student was required to complete ten tasks as part of the online community. The completion of these tasks and the level of participation on the site were graded. Each task was attached to a week of the 12 week semester. The final task required the student to post a 300 word reflection of their experience of the module and their reaction to the use of an online community space. Students joined the Google Community by invite only from the module lecturer. They were required to set up a Google+ account as part of their training for the online COP. Students were encouraged to create their own profile page with personal details and a photograph.

Cercone (2008), in her paper "Characteristics of Adult Learners with Implications for Online Learning Design", emphasises that adult learning is about change and that the instructor must act as a facilitator, "allowing students to experience discovery as part of the learning process" (p. 151). The theory of adult learning 'Andragogy' (Knowles, 1973) places the adult learner at the centre of the learning and teaching process. The first assumption of andragogy relates to learner self-concept and "their ability to direct their own learning" (Knowles, 1989). Fidishun (2000) recommends that students be provided with "short, directed, concrete online tasks that provide the most 'learning for the experience' to make these adults see the relevancy of online learning" (p. 5). Ten tasks with a percentage mark of 2% each were incorporated into the final grading of the research module.

The ten tasks were as follows:

Week 1:   Post your expectations
Week 2:   Post your area of interest
Week 3:   Post your question (first attempt)
Week 4:   Comment on another student's research topic
Week 5:   Have a video Hangout with another student
Week 6:   Actively help another student focus on their topic
Week 7:   Write Proposal (reading week)
Week 8:   Post one primary or secondary source
Week 9:   Post a comment on your time management
Week 12:   Post your reflective piece (300 words)

5.1.4   Facebook Class Page

Of the students surveyed, 94.4% (34/36) were on the class Facebook page. Students indicated that they used the page to ask questions (17), arrange nights out (4), and check logistics around assignments, classes etc. (11): "*I usually only participate in the group page on Facebook around the time assignments are due in! The page is normally at its busiest*

around this time as people are asking questions and clarifying our assignments! At times these comments have really helped me when I've been confused about the work" (p047, FS).

Facebook

6%

94%

■ On class page
■ Not on class page
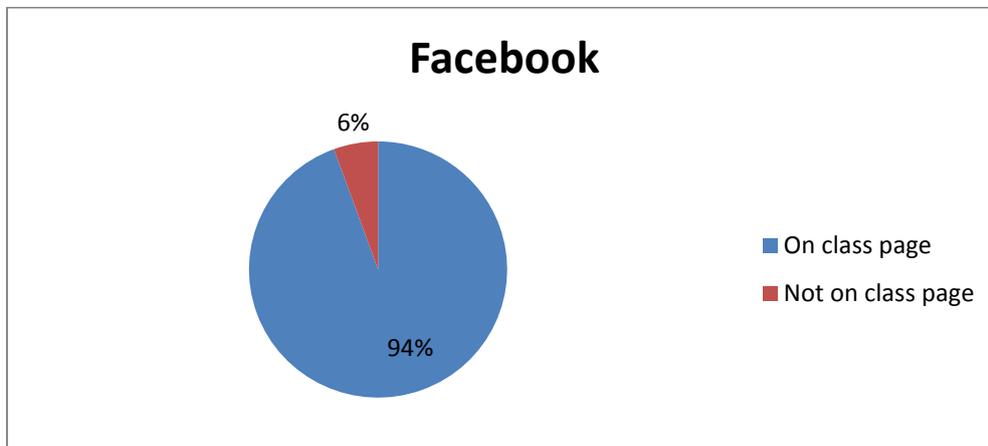
Fig 5.4:   **Percentage of students who are members of Class Facebook page**

When asked whether learning takes place on Facebook, the majority of students surveyed (63.9%) felt that it did (23/36). This learning is mostly defined as answering questions or sharing tips and links: "*If someone posts a question regarding an assignment to the class Facebook page, usually between 2 and 5 people comment back giving help and advice to the student regarding the question. Also if someone finds an interesting resource, they will post it in the page for other class members to use*" (p009, FS).

One student felt strongly that learning does not take place: "*I don't feel that learning takes place on the Facebook page. I actually believe it to be a hindrance in relation to learning. Around the time of the exam, people were sharing thoughts and answers on the page, however, it got rather messy with people confusing each other as to what answers were right and what were wrong*" (p044, FS).

Another student clarified that it is a particular type of learning on Facebook: "*I do think that certain elements of learning takes place on the Facebook class page however learning defined as 'knowledge acquired through study, experience or being taught' does not. The learning that takes place on the page usually takes place by someone clearly stating something whether to do with assignments or group work and the rest of the class following this lead. No study, experience or teaching takes place*" (p047, FS).

Interestingly, one student suggested that there was an increased amount of learning due to increased posting on Facebook spurred on by activity on the COP: "*more so this year, since the COP more people have posted things up on Facebook*" (p029, FS).

5.2   CASE STUDY – QUALITATIVE FINDINGS

This chapter sets out the experience and reflections of the class group of students who participated and did not participate in an online community of practice (COP) in the form of a case study. All findings are presented through the lens of People, Process, and Technology.

The Golden Triangle of People, Process, and Technology is used here as in the previous chapter to delineate between perspectives, experiences, and process. As has already been discussed, People, Process, and Technology has its roots in Customer Relationship Management systems and is aimed at retaining customers through effective customer relations (Christopher, Payne, and Ballantyne, 1991). It is widely used in the ICT industry. The 'People' section focuses on perspectives and opinions of participants in relation to their own experience of the community website as a learning space and as a community space. The 'Process' section aims to progress the questions raised by the findings of case one by

focusing on the reaction of students to a compulsory online community with assessment attached. The 'Technology' section focuses on the technical issues that arose through the use of Google+ and Google Community as an App and as a website.

Case Two	People	Process	Technology
2014/2015	Sense of community Silent participation or lurking COP as a safe space	Compulsory or voluntary use	Google+ App
	Benchmarking Importance of lecturer presence	Completion of tasks	Notifications
		CAP Perceived Learning Scale	Hangouts
	Emotional support Confidence building Feeling supported	Classroom Community Scale	Loop
	Learning Space Source of new information Shared learning experience Focused educational space COP as an academic space	Quality of interactions	
	Learning Styles and preferences		

Table 5.3:   Theme headings under People, Process, Technology

5.2.1   People

The People section focuses on four themes from the data. The first theme relates to the sense of community that came from sharing with others and participating in the COP, the second theme demonstrates how students used the site to benchmark with peers, the third theme shows how the COP acts as an emotional support in terms of safety and support, the fourth theme addresses the Learning space, how students felt the COP was a space for

learning, finding new information, and sharing learning experience, and finally the last theme focuses on the way in which learning styles and preferences formed part of how students interacted with the COP.

5.2.1.1   Sense of Community

The ability to interact and help each other was a contributor to the sense of community for this student: "*not only is it a great tool for answering questions and getting questions answered but also to help with other people's problems, giving it that community feel to the experience, also the ease if it is a great thing, due to it being widely available on nearly all smartphones and also an App for it*" (p033, Ref).

For one student, the ability to interact with peers in an online space was key to the sense of community: "*Being able to engage in your class, having some sense of who the people are in your class. In communities, you know people's interests, especially in terms of research, so you can contribute to them and be able to collaborate*" (p042, Int). This aspect of knowing who people are and what they are interested in made collaboration simpler: "*It's a lot easier to be collaborative within the community*" (p042, Int).

The idea that all social contact online reinforces the sense of community in the class was presented by one student: "*I think all of that, Facebook, the COP, has all formed a stronger bond between the class*" (p026, Int).

"*It gives a sense that everyone is a family and that were all in this to achieve the same goal*" (p045, Ref). The opportunity to help others was part of the community feel for some:

"Others went out of their way to look for information to help a fellow class mate which gave the sense of a real community, which was almost family like." (p052, Ref). *"The idea and concept of this group was really rewarding and brought our class closer together"* (p002, Ref). *"The et3cop group has been a very enjoyable and rewarding experience"* (p005, Ref).

Silent Participation or Lurking

Eighteen percent of the class admitted in response to a question on whether they browsed the COP without posting (FS) that they preferred lurking or silently participating on the site (FS). Even just browsing through postings prompted by notifications was beneficial to their learning: *"There are different videos and links that people had blogged, I would've clicked into them and seen if I could gain from them"* (p026, Int). Other students clarified that: *"The majority of the time, when I went on it I was looking at resources, other things people put up. I thought that was a lot more helpful"* (p004, Int), or *"I do not actively post in the community but I do sit back and look at the posts and take anything which is relevant to my topic"* (p024, Ref).

One student even felt that they became addicted to the COP: *"Yeah, because I remember I was at my house one day and my husband came home and say, 'Oh my God, you're on that website like Facebook'" [laughs]* (p029, Int). This silent participation engendered for some a sense of belonging to the community: *"I do not actively post in the community but I do sit back and look at the posts and take anything which is relevant to my topic. I think this kind of activity should be introduced at an early stage of the degree so the learners can engage fully in the degree and develop a sense of belonging just like I did during this semester"* (p024, Ref).

It was pointed out that you could identify a person on the COP who you could follow:

"*People don't want to ask the question, but they do want to hear the answer. They'll look for somebody, say, like [p042], who's quite forwards in coming with questions, and she's quite open about that and wants to learn. People will be able to learn off the back of that, because it's public and it's posted within the group*" (p065, FG).

COP as a safe space

Some students felt that the COP helped them overcome shyness within the class: "*The Community of Practice did break an ice for me. This year, as [p038] said, I've learned a lot more names [laughs] compared to last year, and talked to a lot more people, not in face-to-face, but even on the community, and on Facebook page as well*" (p024, FG). "*Also, for shyer people, who won't put their hand up in the class, and say ... you can put your question online without ... You can have a little red face and your type with it There's not a lot of people looking at you*" (p038,FG).

The Google+ platform and COP as a mandatory online interactive space appears to have provided an alternative to the classroom for some to express themselves: "*This platform for learning easily allows me to discuss topics with lecturers and students alike in a safe and informal environment*" (p055, Ref), and "*It encouraged us to interact with our classmates and express our own opinions and thoughts, which I feel some people may feel they are too nervous and reluctant to share in class*" (p044, Ref). *The task you do each week you're forced to think in a certain way which in turn has brought me out of my shell. It enables us to ask those silly questions that people are afraid to ask about* (p005, Ref).

5.2.1.2 Benchmarking

The students felt that the online learning community provided emotional support to them during the semester. This was evidenced in terms of benchmarking with peers: *"but the question you put up, everyone wants to know, as well. So you figure out you're not the only one"* (p004, Ref). The knowledge that others felt the same way provided support in that the COP *"showed you that you weren't alone in feeling overwhelmed and nervous about the research project and the final year"* (p017, Ref). Seeing that others were feeling the same way assured others in that *"being able to see that all my classmates were at the same level as myself was very comforting"* (p007, Ref).

"I felt much better at the beginning of the semester seeing that most of my classmates felt like the year was just as daunting as I did" (p061, Ref), and *"Despite everyone in the class working on individual research projects, it is nice to have 24/7 peer support from people who are going through the same as you are"* (p010, Ref).

5.2.1.3 Importance of lecturer presence

The majority of students who answered the final survey (34/36) felt that it was necessary to have a lecturer on the COP for three main reasons: guidance in the right direction; reassurance and feedback; and access to the lecturer. A number of students felt that the lecturer kept the COP focused on academic topics: *"Without a lecturer present it would just be like the class Facebook page – unsupervised and sometimes irrelevant, giving room for snappy comments"* (p052, FS) and *"yes to keep it academis [sic] and not turn in to a community where only nights out are discussed"* (p024, FS).

Students valued the guidance that was provided by the lecturer that kept them focused and on track: *"Yeah I found it was necessary as I felt the lectures helped to navigate us in the right direction and were able to reassure us constantly"* (p007, FS) and *"Yes because a lot of the questions or ideas were good but when you receive feedback from the lecturer it clears up any doubts and steers you on the right path"* (p009, FS). The lecturer was seen as the expert providing the correct answer and therefore necessary to the domain of the COP: *"Yes as a lecturer is overseeing the module and would be able to answer and [sic] question posed by pupils during assignments and due dates. As pupils are beginning there [sic] journey as a researcher is not yet an expert on the subject"* (p027, FS).

Students appreciated the reassurance and feedback they received: *"She directly answered our questions. Posted links. Kept us motivated. Because once you 'x' off that page, you leave it there so coming back to posts from our lecturer kept the focus in COP in my opinion and also assisted in community moral and the relationship we had with her"* (p064, FS) and *"without this feedback and the structured outlook given to the COP – my research would not have moved on in the positive way that it did without it"* (p065, FS) and *"Definitely. Motivation and leading us on"* (p054, FS). One student expressed her feelings succinctly: *"You need the 'thumbs up' to say you're going in the right way"* (p002, Int).

Students valued the access to the lecturer outside of timetabled lectures: *"It offered a direct way of communicating to the lecturers"* (p030, FS) and *"It was great to be able to talk and communicate with the lecturer outside of the actual lecture. If someone was stuck or in need of help the lecturer could be contacted"* (p044, FS). The class valued the lecturer input on the COP as part of the COP and accepted it as a necessary and useful element of the

interaction. Only one student answered no to the question of whether it was necessary to have a lecturer on the COP but they did not provide a reason for the answer.

5.2.1.4 Emotional Support

Confidence building

The ability to read other students' posts and to post their own feelings reduced stress: "*Having got onto the page my panicking stopped. I found that everyone got to help one another and everyone was so helpful*" (p023, Ref). "*As well as this, by allowing me to contact my peers about my project, COP has acted as a support network and has kept me stress free, even over the Christmas period, as I was still able to communicate with my classmates*" (p050, Ref).

"*I feel I would have struggled a lot more if it wasn't for the COP page. The page encouraged all the students in the class to interact and communicate with one another, most likely a lot more than they would in person in a lecture*" (p019, Ref). One student who had entered the class as a repeat student was particular grateful: "*The ET3 COP has been a life saver. The fact I can just log on and read other people's problems or progress in terms of ES314 has been immeasurably beneficial for me and my studies*" (p055, Ref). Others echoed the sense of community: "*The community established a sense of togetherness and I felt it took a lot of pressure off everyone helping to reduce stress levels*" (p015, Ref).

Feeling supported

The feeling of support and guidance was important for many students: "*As the weeks went on and we received guidance both on this page and in lectures I began to calm down and*

settle with the idea" (p014, Ref), and "*I felt supported by the online group, and felt that everyone was very encouraging*" (p004, Ref). "*Furthermore, I have found COP to be very useful, both academically and also as a support network*" (p050, Ref).

Some students referred to the COP increasing their confidence through interaction: "*It encouraged us to interact with our classmates and express our own opinions and thoughts, which I feel some people may feel they are too nervous and reluctant to share in class*" (p044, Ref). Although others are building confidence slowly: "*I still don't ask questions in class, but if a lecturer is talking about something that I know something about I would share now*" (p024, FG). The COP and the lecturers on it helped some to feel confident in their own capabilities: "*I felt with assistance from a few lecturers and indeed the extremely helpful advice on the COP page I began to find my bearings and I gained confidence knowing that I would be capable of completing the set assignments to a good standard*" (p026, Ref).

5.2.1.5   Learning space

In response to a query as to whether learning was taking place: "*Yeah, definitely. Just from comparing what you're thinking in your head to others, and seeing are you going in the right direction? Seeing what other people are focusing on*" (p002, Int). Others felt that the direct connection with others facilitated learning: "*It allowed for me to talk to people who were completing their research in relation to the topic I had chosen. Having this page it allowed for us to share articles, web-sites and names of books, in relation to our research projects. The ET3 COP page gave us the opportunities to ask questions and to discuss any queries I had about my research*" (p016, Ref).

This online interaction with peers was new to some: "*It's bigger though … like if I want to talk to [p038] about what he was doing with his research, but because we're on the same thing and we're looking at the same ideas and helping each other, whereas that wasn't done before in other assignments*" (p002, Int). A student referred to this as a 'collaborative power': "*Therefore it can be seen that ET3 has a collaborative power and allowed each individual to begin to grow there [sic] project week by week and begin to grow confidence in there [sic] abilities. I began to grow understanding in different people's beliefs and interest and linked me to individuals that had similar project titles*" (p027, Ref).

Source of new information

The COP was identified as a new source of information: "*Looking back this COP has given me a lot of information that I never had, I would recommend for everybody to have a COP as they can be so effective and valuable*" (p018, Ref) as well as a way of connecting by exchanging information: "*I found out new information by reading the posts and from looking up information for others to use. I felt that in doing that we were all sort of connecting*" (p052, Ref). This increased communication and access to information was expressed as an improvement on lectures: "*I feel it encouraged all class members to interact and communicate with each other much more than they might do in a lecture and it also provided me with many useful resources and information that I feel I wouldn't of been able to find on my own*" (p007, Ref), with the COP being identified as an additional resource for understanding: "*I know myself that I when I find a question difficult or don't understand something in class, I can log on to this community and chat with another classmate or read their answer and gain a better understanding*" (p006, Ref). This interaction and provision of resources was appreciated: "*I honestly think if it wasn't for this (COP) I wouldn't have half*

the resources I currently do and I'm extremely grateful for those who have shared links involving my area of interest" (p047, Ref).

This interaction and reciprocity on the site was a catalyst for some: "*I found that from fellow students posting readings and resources I was able to hone in on my research question a little more, the question I initially began with is not the question I am now researching*" (p036, Ref). Others explained: "*I didn't feel like it was a chore finding resources for other members of the community of practice as others had helped me so much throughout the semester*" (p041, Ref).

The notion of being able to help each other succeed was a recurring theme for students: "*Using the Google plus community group for our ET3COP community has been a very beneficial experience, and has supported the learning in this module. It has been great to have the opportunity to be part of a 'community of practice' where you can see first-hand how your class/peers can help one another with their academic work. I do not feel that this has happened in the previous two years of my course*" (p004, Ref).

"*We were all able to share each other's ideas and help each other if we found some information that we thought would help someone else*" (p057, Ref). "*Each week, I found myself gradually gaining an understanding of what exactly I had to do, and found the COP group that was set up a huge help as we all got the chance to share ideas, readings and thoughts*" (p037, Ref).

"Being part of the COP was great because if we came across something that may not have been best suited for our area but because we were members of the COP we knew that it may have been an excellent source for somebody else, we could share this with them" (p036, Ref), and *"I liked the way – like say if my research is special educational needs, but if I came across a good document on sport in post primary skills that I would just automatically post it in, because I know say [p003]I think is doing that. That I knew that it would help him, so I put it in. I think it was good that everyone in the class was doing that, because a few people put things up for my research topic that I could make up"* (p010, Int).

Student Vignettes

Below are two vignettes of two students in Case Study Two who interacted in different ways on the COP and Facebook for individual reasons:

P042	P024
Mary, a traditional student from Dublin, was very active on the COP – unafraid to express emotion or help out friends. She acted as an informal community leader in terms of posting and interaction. She was recognised by other students as a prolific poster and active in class and was openly admired and respected for this. She did not take a formal role as class representative but appeared to be eager to help others. She mainly asked questions on Facebook and often posted her opinion on other peoples' posts.. Accommodating by learning style – she was interested in others and their thoughts. *"I can find loads of information, and be like, "That's grand," but then in order to actually understand it, I would chat to P063 and stuff and be like, "Does this make sense now?" Talk it out, and in that way I'm able to understand at a greater capacity, because I've been able to converse with someone about it, and then tennis ball ideas back to each other."* She was very supportive of COP in the beginning but began to post less as assignment deadlines approached: *"Definitely in the beginning. I'm not so much sure now, because it's getting so close to deadlines. Even myself, I haven't been putting stuff up on the community of practice, whereas in the beginning I was really active. You're just trying to throw stuff up, like this is a new little thing that you can play with, just to put things up"* but clear that time has an impact on interaction *'I'm like, "Uh." I don't want to have to research stuff for somebody else, when I need to be researching stuff for myself.*	**Dilara**, a traditional student from Dublin, was very active on Facebook and had been voted Class Representative two years in a row. She was very helpful to classmates but showed frustration when she felt put upon. She posted 104 times on Facebook mainly answering questions, sharing knowledge and posting opinion. She has an Accommodating learning style and takes her class representative role seriously. She chose to concentrate on interculturalism as a topic and found herself to be the only student looking at this area. *"This year, I did feel a bit out of the community at one point I was like, "Why isn't there someone doing this same topic?" Then, other people did come to me and asked me questions like, "What do you think of this, of that?"* As a result she was reluctant to use the COP at first. Unsure why she gets so many requests for help: *"I don't know why I get so many requests. This morning, I had three messages asking me questions about the assignment. I was like, "I'm not a nerd or anything." [laughs]* She found the COP helpful as it put a face to the name and contextualized the person: *"The Community of Practice did break an ice for me. This year, as P038 said, I've learned a lot more names [laughs] compared to last year, and talked to a lot more people, not only face-to-face, but even on the community, and on Facebook page as well"*

Table 5.4: Student vignettes Case Study Two

Both students, Mary and Dilara, were active participants on the COP and Facebook. Mary

posted frequently on both online platforms mainly asking questions and posting opinions.

Dilara also posted regularly mainly answering questions and sharing knowledge on

Facebook in her role as Class Representative. Her postings on the COP were far less in

number and were mainly to answer to the Task questions and some posting of opinions on

others posts.

Mary (p042) Total Posts on COP and Facebook			
COP Interactions		**Facebook Interactions**	
Answering questions	6	Answering questions	5
Asking questions	13	Asking questions	32
Clarification	5	Clarification	5
Ideas from interactions	2	Posting opinion	24
Posting opinions	18	Sharing knowledge	6
Sharing knowledge and experience	13		
Using social cues	1		
Total	**58**	**Total**	**72**

Dilara (p024) Total Posts on COP and Facebook			
COP Interactions		**Facebook Interactions**	
Answering questions	3	Answering questions	32
Asking questions	3	Asking questions	9
Clarification	1	Clarification	6
Posting opinions	7	Justification	1
Providing feedback	1	Posting opinion	28
Relevance	1	Sharing knowledge	27
Sharing knowledge	1	Using social cues	1
Total Posts	**17**	**Total Posts**	**104**

Table 5.5: Number of interactions by criteria from Nandi, Hamilton, and Harland's

Framework of Quality Interactions (2012) on COP and Facebook

Shared learning experience

Students felt that the Community was a learning environment, somewhere they could communicate and collaborate with each other: *"Throughout the community based practice it created a shared learning experience that allowed us all as a group to help out with each other's research topics"* (p015, Ref). They talked of how the Community required you to think more deeply and express yourself clearly: *"It was like you put a bit of thought into it, bit of preparation. You typed up what you wanted to say. And it was being put into a learning environment, rather than just Facebook"* (p002, Int), and *"I found the ET3COP very beneficial for my learning in this module. The weekly tasks were challenging and started off easy enough but by the end it made us think more in depth about our answers"* (p032, Ref).

The COP was perceived as being academic, a place for learning: *"Yeah, definitely, putting more ideas out there, thinking, just thinking to themselves more how they're actually going to do this. And using the wording that they would have used in their assignment, I suppose"* (p002, Int), or a platform for learning: *"This platform for learning easily allows me to discuss topics with lecturers and students alike in a safe and informal environment"* (p055, Ref).

One student felt that the COP was the primary help to her during the module: *"The main aid to my learning was the online communities of practice learning tool"* (p008, Ref). The online Community and its structure was of particular interest to her as she planned her research in the area of ICT and learning: *"The idea of the online learning aid really struck an interest in me as I chose to do my own research around the idea of ICT within education. I was able to see through my own learning the benefits ICT can deliver to education"* (p008, Ref).

Other students appreciated the discussion of peers: "*I found the ET3 COP really useful specially at the start of the module when I was unsure of my topic and seeing other people discuss their possible topics and titles was really helpful as it was almost like a form of brainstorming*" (p028, Ref), and "*The ET3 COP page was another major success, as it enhanced and reinforced my ability to conduct research*" (p016, Ref).

A student commented on the support he got from peers: "*I can go off, do more bits of research, more bits of work, and then come back to that then and have 2, 3, 4, 10, 20 replies there to say, 'No, this is the way to do it', or 'No, you need to tweak this a little bit'. I think it's a great idea*" (p039, Int).

Focused educational space

Part of the perception of learning related to the COP providing a focus on academic work without distractions. The fact that it was implicitly linked to a college email account reinforced that perception: "*I didn't have a Google Plus account, some of the other people didn't have a Google Plus account, so people were specifically making their account to do this, so they already linked in Google Plus was for college. It already had a band of education over it*" (p042, Int), and "*It helped myself and my classmates to focus on our ideas and our main research question*" (p022, Ref).

The Community acted as a focusing tool for some: "*If I was ever not feeling in the zone for college, receiving constant emails from Jane made me zone back to college and this COP*" (p018, Ref). "*COP definitely is more educational kind of picture and grounded*" (p026, Int). A student reflected that the COP had changed her thinking: "*The et3cop group has been a very*

enjoyable and rewarding experience I think it has brought the class closer together and has

seen a more academic side and more helpful side to the class in terms of gathering

information for other. I think for me it has got me thinking more creatively" (p005, Ref).

COP as an academic space

Students observed that the site could be used like a reflective journal or repository: "*You*

want that critical thinking or analysis on things. In the end, like I know I'm going to go back

on to Google Plus. I'm going to look at what I said. It will help me to write my thesis and all

that, just because I've obviously put the information up there. It's the information that was

in my head, back at that time, but I might not remember it in the future. You know, I can go

back, just recap on what I said about this" (p002, Int). Another commented on the

convenience of the COP when away from campus*: "It's quite hard to get back into it, but it's*

nice to be able to, when you're in the mood, you might be in your pyjamas at 6:00 AM or

whatever, and you're able to get a couple of hours of material and work in when you

wouldn't have had formal learning" (p065, FG).

The nature of the site required thought when posting: "*It was like you put a bit of thought*

into it, bit of preparation. You typed up what you wanted to say. And it was being put into a

learning environment, rather than just Facebook. I think it made it a bit more professional as

well, as in people weren't kind of just throwing up whatever" (p002, Int). Another student

clarified: "*…the Community of Practice is so important. I can't just share anything. I can't just*

share my thoughts. I've got to have some sort of constructed reflection on what we've been

doing, and why this is important" (p065, FG).

5.2.1.6 Learning Styles and preferences

Students completed the Kolb Learning Style Inventory (2007, LSI Workbook) to ascertain whether their learning styles had a bearing on how they collaborated with peers and others both in the lecture theatre and the online space (N=37). Students felt that learning styles were important: "*Yeah. I think it's important to know your [sic] learning style, because I remember in school I did the VARK test. I was more visual, I'm doing stuff, kinesthesis or whatever it's called*" (p029, Int). Another commented: "*Sounds like this year you should have done this earlier. It would have been great if you did this in first year*" (p029, Int).

When asked whether in their opinion their learning style affected aspects of their interactions with others, the majority of respondents felt that their style influenced how they behaved in lectures, impacted on their view of group work and affected how they interacted online. See Figure 5.5 below:

% Influence of Learning Styles

- View of Groupwork
- interact online
- behave in lectures

35%

15%

50%
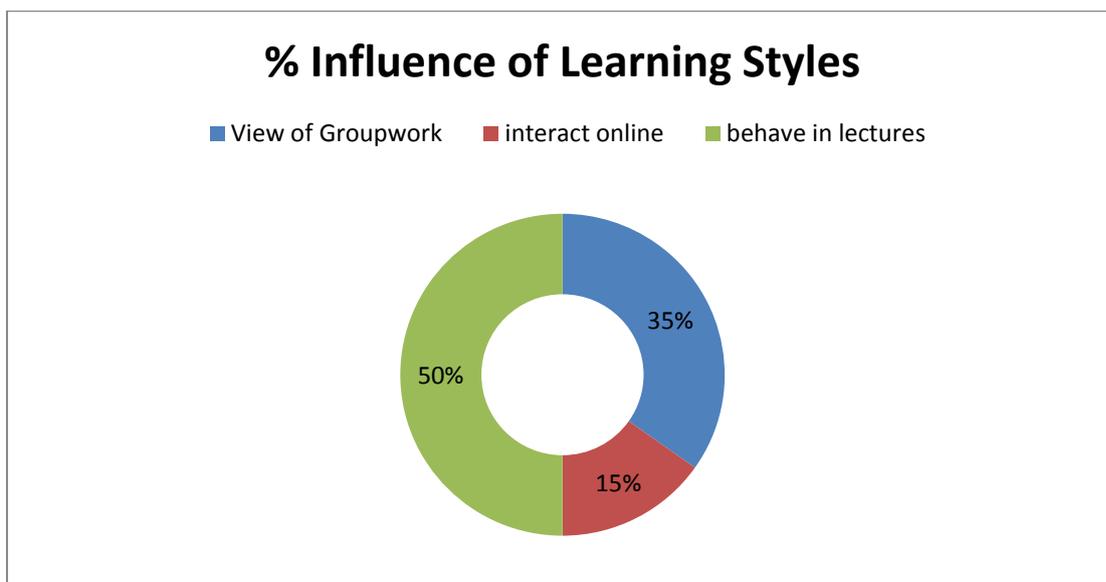
Fig 5.5: Percentage influence of learning styles

Another student, discovering that she was balanced between a number of learning styles explained: "*Yeah balanced, I was trying to ... I was really surprised with that, because I am the kind of person that 'Two heads are better than one.' I wouldn't be quite quick on my feet and thinking of ideas. I like people's opinions and thoughts. I gather them in my head, and then bang out an essay, or whatever I have to do. I was surprised that all was a balance between all that*" (p005, FG).

Most students when questioned on their learning style clarified that the designation was accurate:

"*Yeah. Like I knew myself that I think I have to be organised, and if I'm sitting down to do an assignment, or to study, I'd have to sit down with everything there in front of me with my bottle of water, and my different coloured pens, like comfy clothes*" (p010, Int). Another student realised that he was very much a solo learner: "*Also, as to actually collaborating big style, sharing articles and all that, I'm not really very good at it, but I think that's down to a learning style*" (p038, FG).

A student agreeing with her learning style explained: "*Yeah. I look for people usually, to confirm with people in my class. If I find information, I need to hash it out with somebody before I can put it into practice. Be like 'Does this make sense now?' Talk it out, and in that way I'm able to understand at a greater capacity, because I've been able to converse with someone about it, and then tennis ball ideas back to each other*" (p042, Int). Another student acquiesced: "*Yeah, I would be a deep thinker when it comes to different stuff*" (p026, Int).

Another student felt that the learning styles connected in a real way with his understanding of himself: "*I learned a lot about myself, and the penny only dropped with me when I did that learning styles test, because I was way over onto the right hand side. There was very, very little on the left hand side, and that's where I was falling down, and collaborating, and group work, and sharing, I was more reflective and a deep thinker*" (p038, FG).

A small percentage of students, 14% (5/36), related their behaviour in lectures to how they behaved in school with some feeling that it is the same learning environment with limitations on how they should interact and others finding the lecture format and group work very new to them: "*It is all new to work as a group coming straight in from the leaving cert setting, but I have found through experience that it is rather helpful and actually interesting to work with others*" (p062, FS). Another student explains their reluctance to speak in class: "*It affects how I behave in lectures as I would not usually communicate in class as in the traditional setting you were not really allowed to talk unless the teacher asked you a question or answer one in which you would have to raise your hand first as there was more discipline in the traditional classroom I feel I'm less likely to speak up like other students when I have a thought or idea relating to the discussion*" (p027, FS).

5.2.2   Process

These findings focus on the compulsory aspect of the COP and how students reacted to tasks and interaction that were graded and assessed by the lecturer.

5.2.2.1   Compulsory or voluntary use

Students who participated in the survey felt that the COP should be compulsory as it encourages participation. It was pointed out the marks attached to completion of tasks were the driver for engagement. Overall, on examination of the COP interactions, just over half the class engaged in posting and commenting over and above the requirements of the tasks (54%).

In terms of whether participation in the COP should be compulsory, the majority of respondents (75%) felt that it should (27/36): "*Yes, it's so beneficial to students, but I would have been hesitant to believe that back at the start of this semester. I think the marks drew everyone in to becoming very active on COP, making it a resounding success, but without the marks students may not be so keen at the start, therefore never realising the true potential and benefits to COP*" (p001, FS).

Compulsory or Voluntary

Compulsory   Voluntary   No opinion

8%

17%

75%
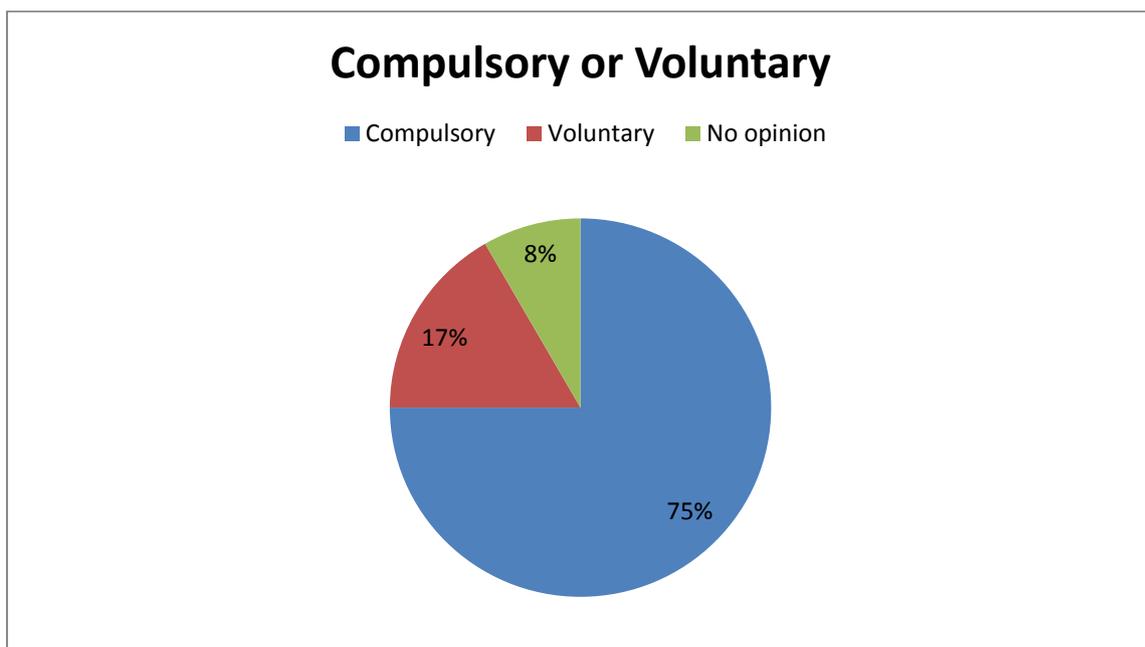
Fig 5.6:   Student opinion on compulsory or voluntary nature of COP (FS)

Sixteen percent of students (6/36) felt that the COP should be voluntary and used as an optional resource for students: "*Due to people's time commitments and varying levels of computer-literacy, I feel COP being compulsory could potentially be punitive for some students as they might be unable to get access to the internet to post something when they want to, but still have that research done. I myself like to participate freely – and it becomes obvious when people are free to participate who within the group values the community the most*" (p065, FS). Another student felt the online platform was inappropriate: "*I don't think it should be compulsory with marks attached as I do not regard social media as academic. And therefore felt I didn't use it with the seriousness it deserves*" (p027, FS).

The marks attached to the tasks were a definite draw for most students: "*yes especially in final year with so much going on. It was nice to get marks that were easy to come by which didn't take too much out of us plus I think people participate more by gaining marks as you go through the tasks on the etcop some lecturers give marks for turning up to class I think in the long run introducing marks that doesn't involve to [sic] much from a student will have full participation*" (p005, FS). One student suggested keeping the COP compulsory but with fewer marks attached: "*Yes, but perhaps less marks attached. I think students should experience being part of a COP and be rewarded for their participation. However if no marks were attached I feel many students would not use the COP*" (p038, FS).

5.2.2.2   Completion of tasks

Students felt that there was a need for there to be a compulsory element to the Community and that the tasks 'made' people use the space: "*Then even, you know the way you have set those tasks, I think they're needed as well, because you have some people that won't*

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actually write up those posts … Like they just need to be sit [sic] down and told that they

have to do it" (p002, Int).

The marks attached to the completion of tasks as part of the assessment for the module

were what motivated students to engage with the community: "*Whereas, before if it wasn't*

mandatory, they were probably like, 'I don't want to bother with that. That's a waste of too

much time' and people wouldn't see the benefits of it" (p042, Int).

One student noted that the posting behaviour was different to Facebook on the

Community: "*Even when I went on it, I'd notice that people were doing it in a more formal*

way when they were posting things because they knew they were being graded" (p049, Int).

The linking of Community activity to grading also ensured that every student in the class was

a member of the community. This was felt to be a positive especially for students who were

not part of the Facebook class page: "*I felt sorry for them because they weren't in on it,*

because if any links or something were put on Facebook … then you had the community of

practice that was compulsory, that everyone was involved in, so it was good" (p029, Int). The

design of the tasks allowed students to share their thoughts and information with each

other: "*It was great to be able to see what my classmates thought of all of our tasks and*

assignments and how they were getting on, especially those I would not talk too much in

college" (p061, Ref).

The tasks, though simple in nature, provided a signposting for students through the module

and the COP: "*Yea, I think it took us through the idea of the COP, how it works and how*

people actively take part in it. There was also immediate benefits to it with regard to our

own research but it opened up the concept of communities of practice for me and other

learning I acquired from other modules this semester" (p064, FS).

5.2.3   Technology

5.2.3.1   Google+ App

The students all responded positively to the use of Google+ through an App on their

smartphones. The Google Community is accessed through the Google+ App which must be

downloaded from the App store onto your phone or tablet. This App is free to use and

presents a user-friendly access route to the COP website. Increasingly, according to

comments, students are using their smartphones or tablets in lieu of laptop or desktop

computers and find the ease of access a key motivator for engagement in such a site. Part of

this motivation, which proved to be a positive and a negative in terms of number of

notifications, was the ability for students to have immediate access to the site to check who

had posted and what the post might say in relation to their own research.

The App provided a route into the Community that was immediate, user-friendly and part of

the student's personal communication through their phone: "*Yeah, because I would be*

reluctant to go and sit down with my laptop and read through things, whereas when I'm on

my phone, I might be just sitting there, not doing anything. It'll be like, 'All right. I'll have a

read at this' It's just so much easier" (p002, Int). The App increased the students'

opportunity to access the Community: "*I don't think I would have accessed it as much as I do*

if it was just online, because I don't really use the laptop an awful lot, so what I do more now

for study or like when I'm not home, I wouldn't turn on my laptop at all really" (p010, Int).
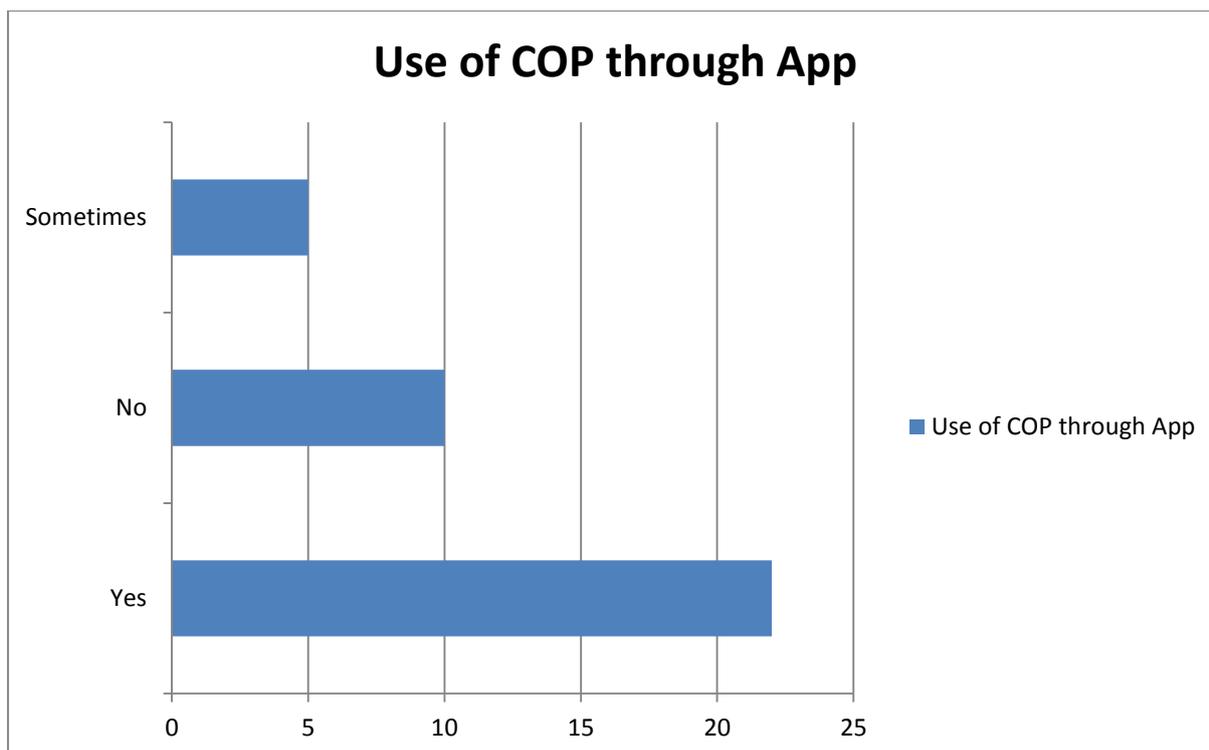
Fig 5.7:   No. of students who used COP App on smartphone

The easy access to the COP through an App proved to be more attractive to students than the fact that the community was linked to the students' college email account. Only one student felt that the link to college mail was useful: "*It was handy, connected to your college email*" (p029, Int). Others preferred not to have to sign into Gmail: "*Yeh I feel that I went on and looked at other people's posts more because I was getting notifications about them and it meant I didn't have to go online and sign in through my email I could just get to the COP straight away through the app*" (p032, FS).

Several students commented on the ubiquity of smartphones and tablets: "*As we are in a world of technology the COP is literally in everyone pocket*" (p018, Ref), and the ease of access: "*Also due to the fact everyone now a days has smart phones and spends most of their time on their phone I found this was very good idea as we would be on the google page*

a lot then it was easier to access and manage you could work from where you were" (p057, Ref). One student commented simply that: "*In this day and age, our phones are constantly on us*" (p002, Int).

Students appreciated the ability to access the community through their phone and the ease of use: "*also the ease if it is a great thing, due to it being widely available on nearly all smartphones and also an App for it*" (p033, Ref). The ability to access the community from anywhere you had your phone and Internet access was emphasised: "*I always felt that that was a lot easier because now you can just access from anywhere, and it's not actually stored on your computer. It's in the cloud, as Dad likes to call it*" (p049, Int).

Another student pointed out that you can work while travelling: "*You're sitting on the bus. You go in and check it, and then you can add to that. Obviously, it's more difficult to put up links and stuff, but in terms of just commenting on someone's thing, it's so easy to do when you just have it there as a separate app, not having to go into the Internet to do everything*" (p042, Int).

5.2.3.2 Notifications

A disincentive for some students was the number of notifications they received on their phone. A notification was sent by the App for every notification, which became quite numerous at submission dates. The notifications were an encouragement for some and a discouragement for others: "*Even though, one way, I was, 'Oh, I've gotten so many notifications.' The other way it was great that I was able to go and access them so easy*" (p004, Int).

Some students who had not checked the privacy settings on the site would have an overload of notifications: "*double notification. I get the Google+, and then the email*" (p038, FG). In this instance, it seems the student turned off all notifications and then ceased to interact with the COP without prompts. Another student commented that she "*found that I had so many notifications coming in, I had to delete the app and then the page itself would slip my mind and I would rarely look over it*" (p064, Ref).
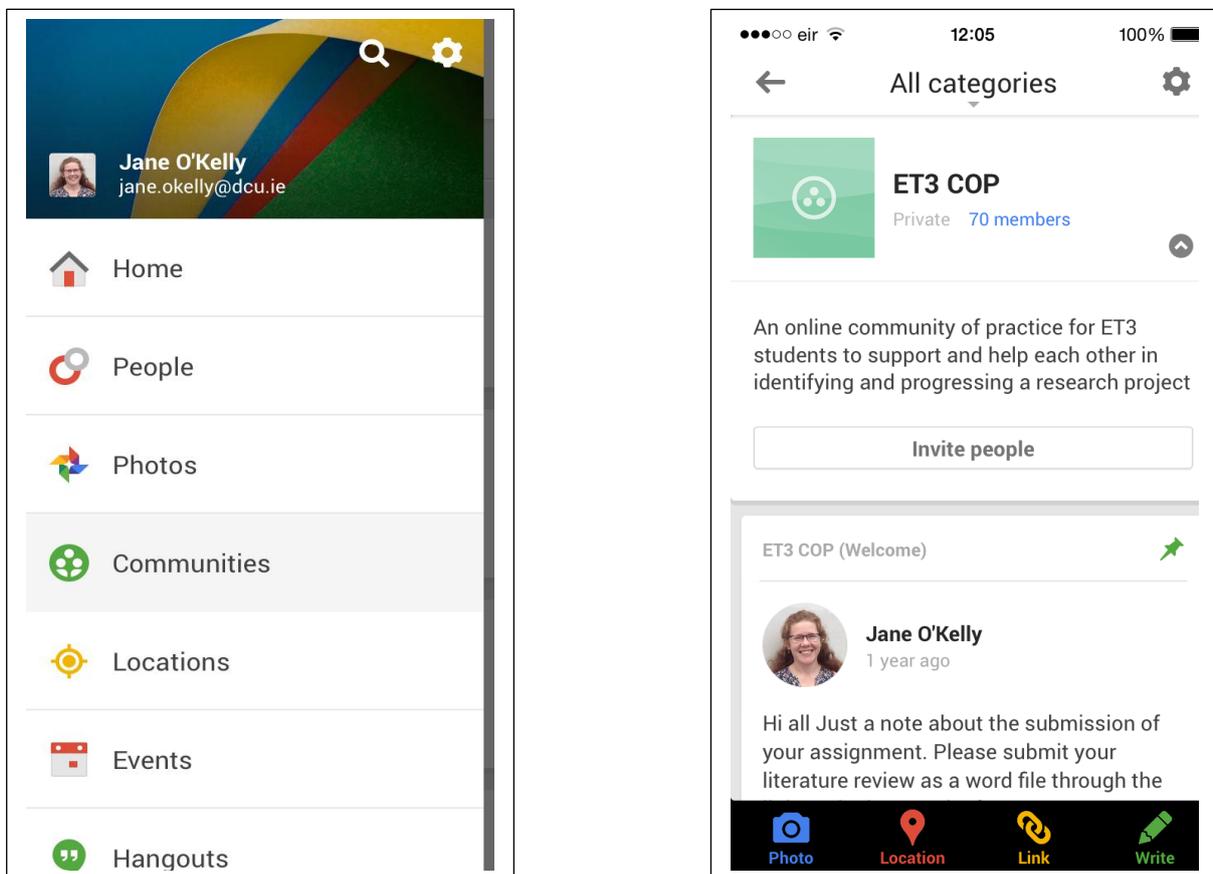
Fig 5.8:   View of Google+ App on smartphone

For others, the notifications were a welcome reminder: "*It is accessible with the Google+ app on my phone and even notifications appear when someone has posted so you don't miss a comment :)*" (p034, Ref), and "*Every time I got a notification about someone posting, I'd go*

on directly. It would come up almost like a text and I'd go on my phone and go straight into

it. I wouldn't necessarily comment under it but I'd read it" (p004, Int). Overall the App and its

notifications were appreciated: "*It's good having the notifications, and great having the app*

because you see the notifications there" (p042, Int).

5.2.3.3 Hangouts

Students were required to have a video chat with a peer about their research using the

Hangout feature of the Google+ community. Students reported a range of logistical and

technical difficulties with the feature: "*With a hangout, you have to get their email address*"

(p 042, Int). The feature appeared to work with some students and not with others: "*It*

didn't work with [p053]. I tried to do it with [p053]. I don't know. I think it was on the Google

Plus account we tried to do it, but when I just video called, I mean, you know the way the

chat bar, that's how [p029]called me in it" (p002, Int), and "*It was so awkward to do. It was*

kind of luck of the draw. If you pressed the right button at the right time, if we both pressed

the right button at the right time ... it was really awkward" (p042, Int).Technical drawbacks

included the lack of a webcam on laptops and uneven WiFi signals: "*A lot of people don't*

even have the webcams on their laptops these days" (p049, Int), "*You need very strong wifi*

on both sides" (p038, FG), and "*It was creating some problem on my laptop as well. I have*

Samsung, and you have to download some or enable some cookies on the actual page, and

then it would let you do the video talk. I'm not a very technological person. Me and

technology don't go well, so it took me a while to work it out, but we did get it" (p024, FG).

Some questioned whether the Google product would work properly on an Apple product:

"*The hangouts we had, [p064] and I tried the Hangout last Sunday I think it was again, and*

we both had technical problems. I think it is because we both had Macs, or it's optimized for

PC" (p065, FG).
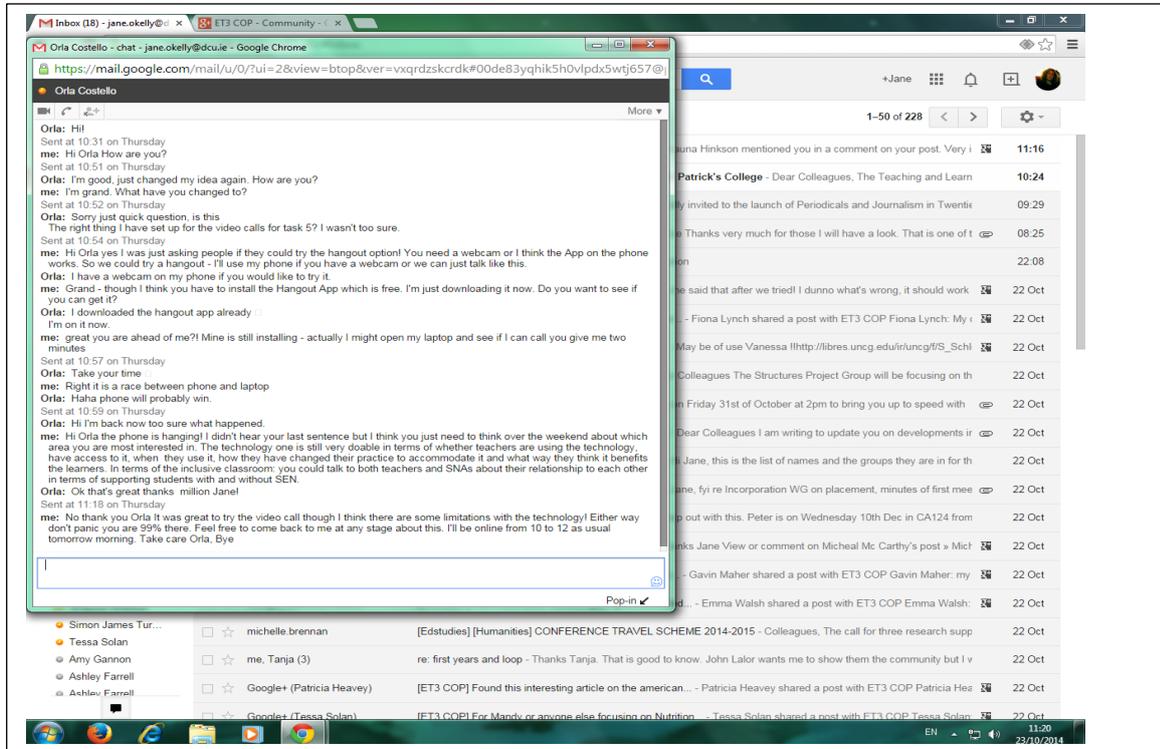
Fig 5.9:   Screenshot of Gmail chat between lecturer and student trying to set up a

Hangout

5.2.3.4   Loop

DCU provides a virtual learning environment (VLE) for students called 'Loop', which amongst

other technologies employs the Moodle platform as a Learning Management System (LMS).

Dobre (2015), in her study of LMSs for higher education, explains that they can be split into

"three main families and these families are: open-source LMSs, proprietary LMSs, and cloud-

based LMSs" (p. 314). Moodle (Modular Object-Oriented Dynamic Learning Environment) is

an open-source learning platform "designed to provide educators, administrators and

learners with a single robust, secure and integrated system to create personalised learning

environments" (Moodle, 2016). Moodle as an open source software "is under constant revision and feature-enhancement" (Melton, 2006, p. 2).

Ivanović et al. (2013) note that Moodle is "widely adopted at many universities and other organizations thanks to its tightly integrated set of tools designed from a social constructivist perspective" (p. 221). Students like Loop for access to course materials but find that lecturer use of the system is inconsistent: "*Yeah, like having access to obviously 24/7, but just having access to any lecture, so I could log on now, and go on to our first lecture, and have to know. For some lecturers would have like, actually set you up already, so you can go to any week that you want*" (p010, Int).

There is a perception by students that Loop is not really used well by lecturers or students: "*I think a lot of the lecturers just put up their notes, and leave it at that*" (p004, Int), and "*A lot of them [lecturers] barely use the Loop, really. I know you're supposed to, but some of them don't*" (p049, Int).

Students regard the purpose of Loop as a repository for course materials: "*To get materials and to get the briefs, and then to find out when stuff is due and all that kind of stuff that you need to know for assignments*" (p039, Int). Students appreciated the access to course readings and the currency of materials: "*Generally I find it well done. This year we had a module with [lecturer] for the exam, and he said, he really likes Loop, but he didn't want to put the notes up in advance of our lectures, so that was fair enough, so he just put it up like straight away after our lecture. Other than that everyone else did, it was always updated,*

others are constantly reading, so I'm there every week relevant to the topic that we've been doing" (p010, Int).
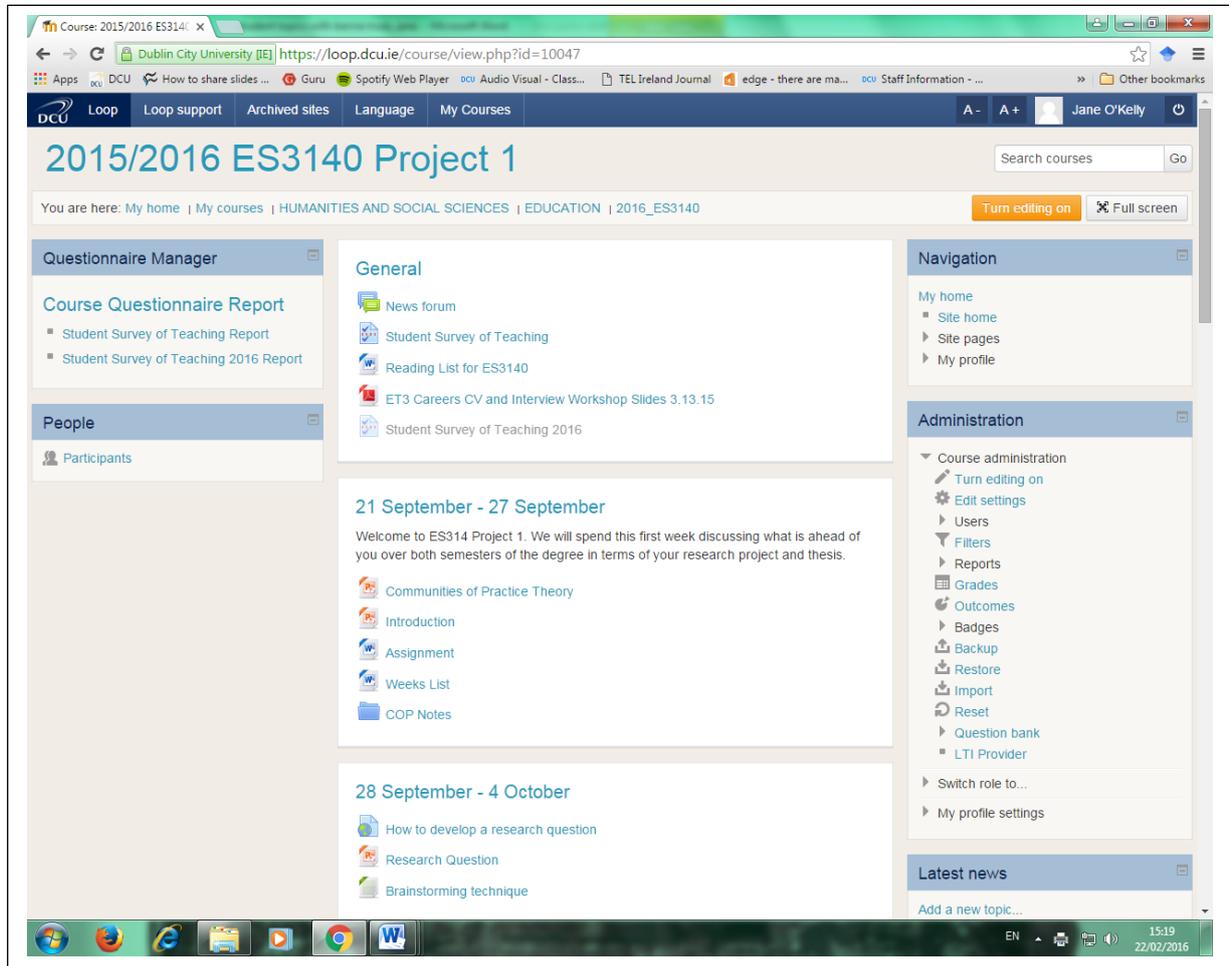
Fig 5.10:   Loop course material page

Students take the course readings: "*Yeah, but, other than that, no one uses it kind of as an interactive thing at the moment, anyway, and I doubt people will*" (p049, Int). It is perceived that Loop "*It's like the appendix of like a big catalogue of what you've been reading*" (p065, FG). A number of students use it in very specific ways: "*Most I've used it is to submit something through it, but that's as far as I've gone on it*" (p004, Int), or "*If you're going through a particular topic for your assignment, then you go, "Yeah, that's week five," pull*

them all in, but I download them all and save them on my own files on the computer. That's

all I use it for" (p038, FG), or "*Just download my stuff and that's it, leave it there*" (p024, FG).

Another student does not use Loop at all but prefers to take his own notes: "*I don't know. I*

think it's because I'm like, 'I'm OK. I've gotten what I need to out of the lecture'." (p042, Int),

or "*Loop? It's something I really don't use that often*" (p026, Int). Despite training in first

year, some students still find the Loop page daunting: "*I can find my way around, but if I'm*

asked to do something out of the comfort zone, I panic and I struggle, and I eventually give

up on it" (p039, Int).

5.3   QUANTITATIVE FINDINGS

5.3.1   CAP Perceived Learning Scale

The CAP Perceived Learning Scale was analysed by SPSS and found to be a valid and reliable

instrument in this study. Students scored highly in cognitive learning but scored maximum

points on affective and psychomotor learning. This may be attributable to the influence of

the tasks on COP interaction. As detailed below in the table (5.4) depicting Bloom's

Taxonomy and products of learning, affective learning can relate to a stimulus and the

reaction to it. The tasks that encourage interactions with peers and the examination of

expectations, time management, and reflection may have stimulated a high level of

affective learning.

Bloom's Taxonomy and Products of Learning		
Cognitive	**Affective**	**Psychomotor**
Knowledge or the ability to recognise or recall information	Receiving, or paying attention to some stimulus	Perception, such as detecting cues to act
Comprehension or the ability to understand by paraphrasing, describing, etc.	Responding or reacting to a stimulus in some way	Guided response such as being able to perform a specific act under the guidance of a teacher
Application of learned information to solve a problem or answer a question	Valuing particular ideas	Mechanism or the ability to perform a learned task without supervision
Analysis or breaking down a problem into its constituent parts	Organising different values, comparing them, and resolving conflicts, and beginning to develop a personal value system	Complex overt response, or the ability to perform a complex pattern of acts
Evaluation or judging the worth of an idea using explicit criteria	Commitment to a coherent, internally consistent value system	Adaptation or the ability to alter an act to respond to a new situation
Creation or reorganising knowledge into a new pattern		Origination or the ability to develop new acts

Table 5.6:   Bloom's Taxonomy and the products associated with each domain (Anderson and Krathwohl, 2001; Bloom and Krathwohl, 1956; Krathwohl, Bloom and Masia, 1964; Simpson, 1974).

High psychomotor scores may well relate to the asynchronous communication through posts and texts on the COP and the practical elements of tasks which encouraged students to search, source, and post appropriate links and resources to the COP site for other students. A guided response to tasks such as designing questions, writing proposals, and responding to peers can be seen to be part of the products of learning of the psychomotor domain.

5.3.2   Classroom Community Scale

The second quantitative instrument used in this study was the Classroom Community Scale.

The instrument was analysed using SPSS, and although the Cronbach Alpha score indicated a

high level of reliability, the factorial analysis was not valid in this study. The next section will

draw some conclusions from the individual student self-reporting scores in the instrument.

These findings should be viewed as tentative and descriptive based on examination of the

raw data.

Results of raw data

An examination of the raw data of the instrument does show that students' total classroom

community scores range from a low of 42 to a high of 76 (n=48). One hundred percent of

the responses were above the midpoint of 40 with 77% (n=36) above 50. It can be

concluded from these scores that the sense of classroom community in this student group

on the COP was strong. These findings are in line with the findings of Zhang, Lin and Xu

(2011, p.595).

In this study the minimum male connectedness score was 23 out of 40 and for females the

minimum score was 17. The maximum score for males was 37 and for females 32. The

minimum male learnedness was 25, and 22 for females. The maximum score was 39 for

males and 38 for females.

In their 2005 study, Rovai and Baker found that female students in online graduate courses

had higher scores than males in the area of connectedness and learning. In this study, which

addresses an online learning community website in support of a traditional face-to-face

lecture, it appears that males on average responded with greater learning and connectedness scores than females. This variability might relate to student characteristics such as learning style preference. This variable was suggested in a comparative study of sense of community in traditional and fully online graduate courses by Rovai and Jordan (2004, p. 8). They found that learning style preference can "facilitate the development of strong feelings of community in some online students while other students remain at a psychological distance from their peers in the same learning environment" (p. 8). Learning styles will be examined in the next section.

5.3.3 Learning Styles

Fifty-four percent of the student class group (37/67) completed the Kolb Learning Style Inventory. The majority of the students who completed the questionnaire found that they had an Accommodating style (44.7%). The second most represented style among the respondents was Diverging (26.3%).
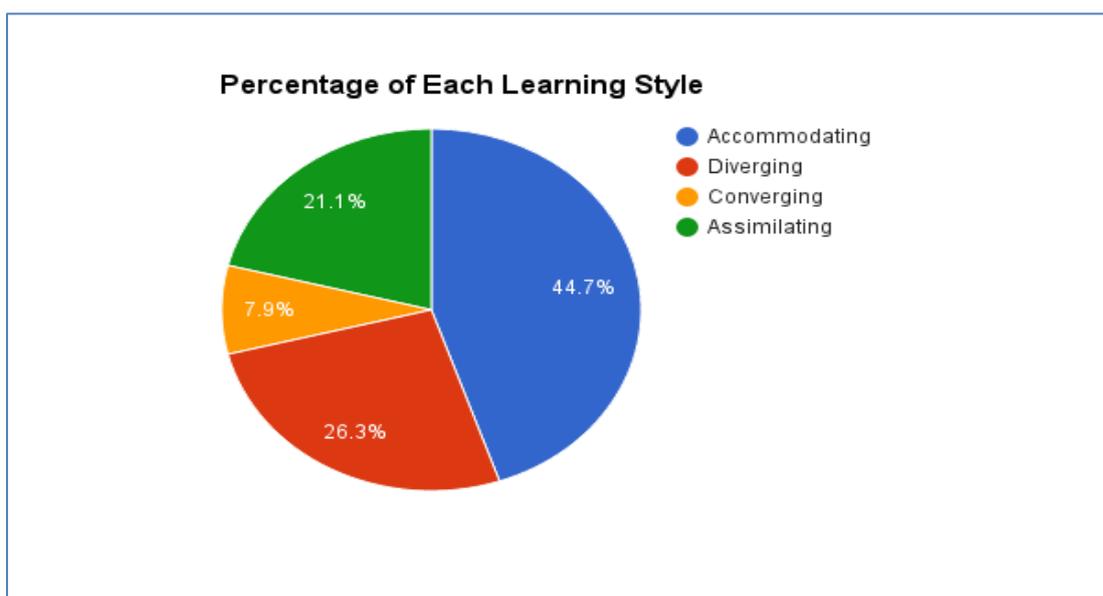
Fig 5.11:   Percentage of learning styles in respondents

The main characteristic of the Accommodating style include the ability to learn primarily from hands-on experience. People with this style enjoy involving themselves in new and challenging experiences and they tend to act on intuition rather than analysis. They like to work with people when solving problems rather than on technical analysis, and enjoy working with others to get work done (Kolb, 2007, p. 9). Uğur et al. (2011) add that people with the Accommodating style prefer to act on feelings rather than intellectual analysis and collect information through dialogue with others rather than technical analysis (p. 9).

The main characteristic of the Diverging style is to observe learning from many different viewpoints before taking action. Those with this learning style enjoy brainstorming sessions and working in groups. They like to listen with an open mind and then obtain personalised feedback (Kolb, 2007, p. 9).

The main characteristic of the Assimilating style is that learners are less focused on people and more interested in abstract ideas and concepts. People with this style tend to focus on a theory of logical soundness more so than the practical value of a theory. They tend to prefer working through things on their own through lectures, analytical models, and readings (Kolb, 2007, p. 9).

The main characteristic of the Converging style is the ability to solve problems and make decisions based on finding solutions to problems or questions. People with this style prefer to deal with technical tasks and challenges rather than social and interpersonal issues. They like to experiment with new ideas, simulations, and practical applications (Kolb, 2007, p. 9).

5.3.4 Learning styles and participation in the COP

The number of interactions on the COP were coded against Nandi, Hamilton, and Harland's Framework of Quality Interactions (2012) and recorded under a set of headings including date, learning style, whether the student initiated or responded to the post, the quality of the interaction, and where possible to whom it was addressed. The same coding was applied to posts on the Facebook class page over the same time period – the length of time from the start of Semester One modules to the assignment due date: 21/9/14 to 5/1/15.

An examination of the number of interactions of students with the Accommodating learning style shows that, of the top five posters on the COP, four of them self-designated as having an Accommodating style. This is consistent with the understanding that Accommodators enjoy working with others to get a job done. Out of 296 interactions by Accommodators, 107 were directed to the whole COP and 58 to the lecturer. The fifth student, self-designated as having an Assimilating style, directed 20 out of 32 posts to the lecturer. This is also consistent with the Assimilating style, in that people tend to prefer to work through tasks on their own but also want to ensure that theory and concepts are sound. This student's interactions show that she was anxious to receive confirmation of correctness on her topic and research approach. As a result, the majority of her posts were directed at the perceived expert in the COP, the lecturer. (Please see Appendix V for tables comparing the number of interactions on the COP under learning style against the number of interactions under learning style on Facebook.)

Five students out of nine who self-designated as having the Diverging learning style posted between one half and twice as many of the tasks required on the COP. This posting pattern

was not duplicated on Facebook, with only one student posting similar levels of times on the COP and Facebook: p18: 19/12 respectively. This interaction is consistent with traits of the style where people enjoy brainstorming and working in groups, but prefer to have individual feedback. Out of 129 interactions by Divergers, 57 were directed to the whole COP and 22 to the lecturer.

Four out of eight students who self-designated as having the Assimilating style posted between one half and three times more than required on the COP. Two of these students were also active on Facebook, seeking clarification and assistance on logistical and assignment matters. This is consistent with the Assimilating learning style where people prefer to work through tasks on their own but will seek clarification and feedback from others. Other variables influenced the interaction on the COP for some students. One student in particular, p038, was initially active on the COP and posted all his tasks, but joined a DCU research team early on in the module and felt that the COP lost value as he was focused on a radically different research area. He remained active on Facebook, seeking and providing clarification for peers on logistics such as group composition, timings of assignments, etc. Out of 122 interactions by Assimilators, 46 were directed to the whole COP and 28 to the lecturer.

The three students who designated themselves as having the Converging style completed the required number of posts on the COP and posted very little on Facebook. Out of 35 interactions on the COP, 16 were directed to the COP with no direct posts to the lecturer. This is consistent with the Converging style, where people tend to progress through their own work on their own.

There does not appear to be a clear relationship between the number of COP posts and the number of Facebook posts. In terms of levels of interactions in both online forums, there appears to be evidence that students with the Accommodating learning style post most often on the COP and on Facebook, although only two students consistently posted regularly on the COP and on Facebook: p42: 58/71; p10: 31/44 (numbers of posts respectively). These two students were both very ambitious and eager to do well on the module and in their research project for final year. P010, at interview, stated that she felt learning took place on Facebook because of the questions, but also appreciated the COP because there was access to a lecturer. P042 appreciated both for different reasons: Facebook because it is so informal and everyone is on it and the COP for "*Being able to engage in your class, having some sense of who the people are in your class. In communities, you know people's interests, especially in terms of research, so you can contribute to them and be able to collaborate*".

5.3.5 Quality of Interactions

According to the coding of student interactions on the COP using Nandi, Hamilton, and Harland's Framework of Quality Interactions, 17 students who self-designated as Accommodating provided 39 out of 296 (13%) interactions rated as excellent. Nine students with the Diverging style provided 8 out of 129 (6%) interactions rated as excellent, eight students with the Assimilating style provided 8 out of 122 (7%) interactions rated as excellent, and three students who identified themselves as Convergers provided 4 out of 35 (11%) interactions rated as excellent. See Table 5.7 below for examples of postings on the COP:

ET3COP	Excellent	Good	Poor	Satisfactory
Answering Questions	I think [p064] has it in a nutshell there, I'd say everyone was feeling a little anxious and overwhelmed after Monday's class. We all knew we had this thesis to do, but I think we all put the idea of this to the back of our minds for the first 2 years of college as it seemed so far off, but now we're here, we're final year students. The idea of doing our own research and putting together our own piece of literature is quite daunting to me and most people I'd say. But by taking each week as it comes and not leaving anything to last minute we should be fine (p036)	so finally that i have met with ger and now have an understanding of what my study entails I'm super excited to get started!!! i think its going to be a great experience and may lead me into further studies on this topic. I will keep you guys posted.(p002)	My area of interest was the Irish language but now focused on social media and academic students! (p018)	+[p022] and I had a video hangout a while ago which was more than helpful. I feel it put me on the right track and I was happy to be able to spend time getting ideas for my topic and to also discuss [p022] chosen topic with her. I definitely feel that a video hangout is more beneficial and effective to be able to have a full conversation, seeing each other rather than messaging back and forth. I look forward to more hangouts like this in Semester Two (p034)
Asking questions	Great idea. Where would you get your information for America and Canada? (p010)	Hi Jane im still really struggling to find any literature comparing playschool and Montessori all im finding is websites like this http://www.earlychildhoodireland.ie/information-for-parents/choosing-childcare/childcare-options/montessori-pre-school-education/ which explain a little about the types of preschool.. are these relevant to yous? (p014)	n/a	I'm not sure what I'm suppose to write for this.. As I'm not sure yet of what I'm even doing in regards of the research project. I keep bouncing back and forth. I originally wanted to dance in education, but the fact that there is an age restriction, I'm rather disappointed & not sure where to go from

				here.. (p052)
Clarification	Focusing on students at secondary level education (what level of secondary – pre 16 years? Pre 14? Cannot work with any students under the age of 18 for legal reasons and reasons of consent – therefore any work in this area will have to be done on a purely theoretical/compilation-style basis garnering all research from previous studies and framing it in a new 21st century context, based on current markets and market conditions." (p065)	Hi jane ok thanks, I think it may be harder than I realise to get resources and research on academic success. I want to stay with p.e and extra curricular in primary level so I think I should change the question. Rather than having academic success maybe how it benefits learning in the classroom or just the benefits of having p.e and extra curricular in primary level (p040).	n/a	[p055] you're a star!! She was regional coordinator of the whole scheme and I wanted to see if I could get an interview with her but found out she passed away in 2009! (p042)
Ideas from Interactions	Cool idea taking it from a teaching perspective! You may have many older teachers who are not happy with this 'new era' of teaching as they will also need to be trained in terms of technology, use of iPads, apps for learners etc. (p042)	[p004] my two sisters are primary school teachers who are both currently in resource teaching.. Dealing with children with dyslexia everyday! If it's allowed I'm sure they would have no issue answering questions for you when it came to the time! P.s. Coffee is on you tomorrow ;) (p001)	n/a	n/a
Justification				So am I, finding it difficult to think of one question relating to different topics that I am interested in! (p010)
Posting Opinions	Found this book on Google, found it quite useful for myself and may help anyone who`s area of interest and research is on sport. +[p030]	[p042] your flat out on this :) good work by the way (p015)	Haha no worries either by the way. (p055)	+[p054]I find your topic to be interesting in the education within Irish prison system, as I would be interested to know what type of education people receive within prisons in Ireland and the

				healthy living in terms of sport education and exercise they receive. I am interested to see your findings, (p060)
Providing Feedback	Thanks [p028] :) ye I hope it works out now I just need to find some more research and talk to nurses and schools to get their opinions from working in the environments! Thanks for the help (p057)	well just if u guys wondering....click on the link and it should open up as terms and conditions...also the popup blocker should be unblocked for your browser (p024)	n/a	That's a great idea you can look at all the positives from it and how this can be implemented in more schools [p048] (p002)
Relevance	I have always had problems with managing my time when it comes to study. This year is no exception, however I have noticed a change that somehow I manage to get a lot more done in the library than at home (a little different for me). I try to be very organised, a bit of OCD problem but this year I feel like everything is on top of each other. All the assignments are due soon and then lately it is very hard for me to take time off from work.+[p042]'s idea of dedicating a day to each module seems very reasonable and doable. I am going to give it a go. :) I usually start the essays as soon as I feel the relevant material has been delivered in the lectures. This way my work load is easily spread over time (p024)	Same thing happened to me! (p047)	n/a	In the same boat really as +[p003] and +[p055] as regards to time management. It's never been my strongest point when it comes to managing school/college work. I feel slightly under pressure with things outside of college occupying my time as well. Regards to looking forward. I like to do one assignment at a time so as not to get mixed up also. Similarly to Davey, I plan on getting all the assignments competed, then focus on my literature review leaving enough time to study for the exam (p030)
Sharing	I feel this semester flying	I always find time	I find I have poor	https://www.ics

knowledge	in on top of me anytime i sit down ive an article or book in my hand. my notice board is full of sticky notes with ideas in my head. i would normally do 1 assisignment at a time but now feel i need to juggle 2 assisignment at a time . it is a challenge but i have also noticed the modules are linking and you can take piece of information from other modules and pull out info from other modules from previous years. i wish there were more hours in the day im trying to have essay assignment done before christmas than concentrate on literature review and exam but having said that so comforting to u know help is only a click away thanks to all. (p005)	management difficult. I make study plans, yet I never seem to stick to them. We have so many assignments and group work this year. I try to get one assignment done at a time usually, but I feel I should do two at a time now. I wasn't really worried about the literature review as it was at the back of my mind, but since everyone else seems to be, now I'm worried! I'm hoping since I'm involved in the dyslexia intervention with Ger that it will be beneficial and help me with my literature review. I plan to do a bit of college work everyday, even though its hard when you have a part-time job. For the exam I plan to get a group and we all do one question really well. Then we can share all our questions so we all don't have to waste time making up sample answers. The only thing left will be to learn all the questions off (p029)	time management skills. Were at the end of semester 1 and I'm still finding myself very stressed and trying to meet deadlines. As semester 2 is the last semester in college, I will try to do better with my time management in order to decrease stress and increase organisation :) (p054)	spe.org/sites/default/files/PhysicalActivity.pdf+[p051] this might be helpful to you it is from the world health organization and it's about PHYSICAL ACTIVITY AND ITS IMPACT ON HEALTH BEHAVIOR AMONG YOUTH (p017)
Using social cues	n/a	+[p015] is doing the same area [p006] maybe you two could help each other out! (p042).	n/a	n/a

Table 5.7:   Examples of interactions on COP using Nandi, Hamilton, and Harland's Framework (2012)

A similar coding of Facebook interactions resulted in only one entry in Facebook meriting an

'excellent' on the Nandi, Hamilton, and Harland Framework of Quality Interactions (2012, p.

38). See Table 5.8 below for examples of postings on Facebook.

Facebook	Excellent	Good	Poor	Satisfactory
Answering Questions	n/a	just told be that our timetable has changed and were now in on a Friday till four ! I have to work on Fridays and I'm sure this won't suit a lot of people so can people get email [name] and see can we get it changed back to the original I'm going to send one now (p029)	n/a	Posted timetable (p068)
Asking questions	n/a	I cannot access this timetable. Can someone who can please copy it to et group please, would be appreciated (p012)	Anyone got an iPhone charger PLZZ (p042)	Heya, those who have registered, did you find how what our CA is like ? Any exams ? Etc. (p019)
Clarification	n/a	I just emailed saying I received the first time table and have now got a job and agreed to work on a Friday and is there anyway this can be changed back as I know a few others are now in the same situation (p02)	n/a	n/a
Ideas from Interactions	We're up next for the reading on Thursday (Group 3) we've to read Casey. How are we fixed to meet up before the lecture around 10 30 in the Helix just to put down on paper our thoughts from the reading.	I am going to this work shop tomorrow in the RDS it's suposed to be really worth doing and good for anyone thinjing of working in early childhood education its on tomorrow 10-5 in the RDS for anyone who is interested http://www.educationshow.ie (p014)	n/a	n/a
Justification	n/a	ok guys i have created a document and shared it with both of you...sorry i am a bit late just got home from work unsure emoticon (p024)	n/a	n/a
Posting Opinions	n/a	Some improvement we in on Friday of week 12 so we are free on Friday until then. Should suit everybody (p012)	n/a	n/a
Providing Feedback	n/a	n/a	n/a	n/a
Relevance	n/a	n/a	n/a	n/a
Sharing knowledge	n/a	And here are links to the three acts we need to know for our exam! (Is the last one right actually?) Employment Equality Act:http://www.irishstatutebook.ie/pdf/1998/en.act.1998.0021.pdf Equal Status Act:...(p042)	n/a	Guys the timetable for the presentations for Justin and Francesca's module (p032)
Using social cues	n/a	I have noticed that this year I get a lot of work done when I am in the library study rooms and	n/a	n/a

| | | get sooo lazy when i get home....so from now on I will try and book a room from 10am to 12 pm on Mondays and Thursdays to do some work. Everyone is welcome to join me and this way we can help eachother as well. For thursday 23/10/14 I have booked room 16 so feel free to join me grin emoticon Good Luck with studying. (p024) | | |

Table 5.8:   Examples of interactions on Facebook using Nandi, Hamilton, and Harland's Framework (2012)

Overall the quality of interactions across the 11 headings of interaction: (providing feedback, answering questions, asking questions, clarification, ideas from interactions, justification, posting opinions, providing feedback, relevance, sharing knowledge and experience, and using social cues), were 'good', with 483 out of 1060 (46%). Only 7% of interactions were rated as excellent and 19% (201/1060) were rated as satisfactory. The remaining interactions (60/1060) were rated as poor, as they were purely social commentary or 'thank you's and did not advance the learning, though they did add to the nature of the social space as a respectful and courteous community.

The quality of interactions on the class Facebook page scored less on the quality of learning and sharing of knowledge but were rated overall as satisfactory in that students who posted, received the answers they required to logistical questions (67%, 583/860). Both the COP and Facebook scored similarly on levels and qualities of interaction in asking questions, answering questions, and posting opinions. The main differences occurred in the sharing knowledge and experience criteria, where the COP measured 247 interactions to 87 on Facebook. Also there were 177 interactions on the COP providing feedback to peers where there were no feedback interactions recorded on the Facebook page. Another difference was the level of clarification on Facebook, with 128 clarifications to 57 on Facebook. It is

difficult to draw conclusions on the use of the COP and Facebook except in terms of quality of interaction. This can be difficult to assess, as students on the COP were responding to direct questions as tasks that required answers that diminished the higher order level of the response, effectively acting in some cases as closed questions, e.g. What is your topic? The subject matter on Facebook, by its nature an open, cross-modular, and social tool, varied between social interactions, commentary, and questions. Further research could focus on the type of questioning on each online platform and how students interpreted this questioning and answering as learning. Please see Appendix L for a summary of interactions on COP and Facebook.

5.3.6 Comparison of student learning styles with the Classroom Community Scale (Rovai, 2002) and the CAP Perceived Learning Style (Rovai et al., 2009)

There does not appear to be any clear relationship between learning styles and sense of community on the COP. Although the Classroom Community Scale was not valid in this research, some insight may be gleaned from an inspection of the individual scores. Eight of the students who scored the highest on the Classroom Community Scale: p002, p003, p018, p033, p036, p055, p063, and p065 varied widely in their learning style, use of the COP, and use of Facebook. See Table 5.6 below for a comparison of scores (total highest score on CAP = 54, CCS = 80; highest number of individual interactions on COP: p42/588, highest number of interactions on Facebook: p24/104).

	Gender	Learning Style	Sense of Community	CAP	Number of interactions COP	Number of Interactions Facebook
P002	F	Accommodating	65	36	8	11
P003	M	Accommodating	76	42	9	18
P018	M	Diverging	69	39	19	12
P033	M	Assimilating	69	41	8	4
P036	F	Assimilating	66	51	8	0
P055	M	Accommodating	70	27	22	6
P063	F	Diverging	66	39	15	4
P065	M	Assimilating	70	50	15	8

Table 5.9:   Comparison of scores

It appears that students who had relatively low postings on the COP (four students posted less than the recommended posting of 10) and on Facebook still self-reported high levels of learning and a sense of community. This could be due to a number of variables including personal circumstances, timing of lectures, commitments outside of college, perception of support, lurking or silent participation on the COP, access to the lecturer and willingness to please the lecturer. There is no clear relationship between the individual student learning style and their preferences for learning, although two students (p33 and p36) achieved the maximum score on the affective scale of the CAP.

5.4   Conclusion

This chapter brings together the findings of the qualitative and quantitative data collection effort of Case Study Two to present an exploration of students' perceptions and use of an online community of practice in their final year of study. The chapter aimed to describe the findings under the thematic headings of people, process and technology in order to delineate student opinion of the benefits of a community of practice to themselves and others, student experience of how the community of practice worked for them as a tool for

communication and learning, and student attitude to the technical aspects of an online community, e.g. choice of platform, integration of platform into the wider university landscape, and access and use of the platform. Students overall found the community useful for communication and cooperation, as a learning platform, and as a safe non-judgemental forum that provided opportunities for benchmarking against peers and access to the lecturer.

The next chapter will discuss the findings of the collective case study under a series of thematic headings.

6.1   INTRODUCTION

This chapter draws together the findings of the qualitative and quantitative analysis of data under themes from the two case studies that comprise this research. It will first outline the range of technological tools and supports that are available to the students in this study in their personal and educational lives. The technical functionality of the online COPs will be presented, and 14 findings that were distilled from the analysis of both case studies as individual components and comparative components of a collective case study will be discussed. It will review the reactions of students to the introduction of an online COP into their final year and their opinions of the benefits and drawbacks of its use. It will examine whether learning took place in the COP and whether students felt a sense of community while using the COP. The discussion will also take into consideration the role of Facebook as a space for communication and/or learning in a student's university experience.

6.2   LANDSCAPE OF TECHNOLOGY

Any discussion on students' attitudes to the COP and their use of it for collaboration and discussion must acknowledge the range of information and communication technology supports in the university and in their personal lives. The following sections in this theme provide an overview of how the students individually use their own technical devices and software for communication and coursework, as well as their interaction with the university's virtual learning system 'Loop' and Google Apps.

6.2.1 Student use of technology

Students access a wide range of software, Apps and webtools depending on their access to technological tools, IT skills, personal interest, and need. Their use of laptops, desk computers, tablets, smartphones, voice and text only mobile phones, and DCU computer resources is varied and changeable. The majority of students asked still prefer face-to-face communication, especially for group work: "*Face to face was the primary one, but we would email each other stuff*" (p026, Int). Students felt that face-to-face work is preferable to the online space, although students recognise the ease and efficiency of the COP: "*I feel like face-to-face is a lot easier, and a lot more beneficial than an online community, although, an online community is a lot more accessible, and time efficient, if that makes sense*" (p042, Int). Face-to-face work is supported by texting for meet ups and email for exchange of documents.
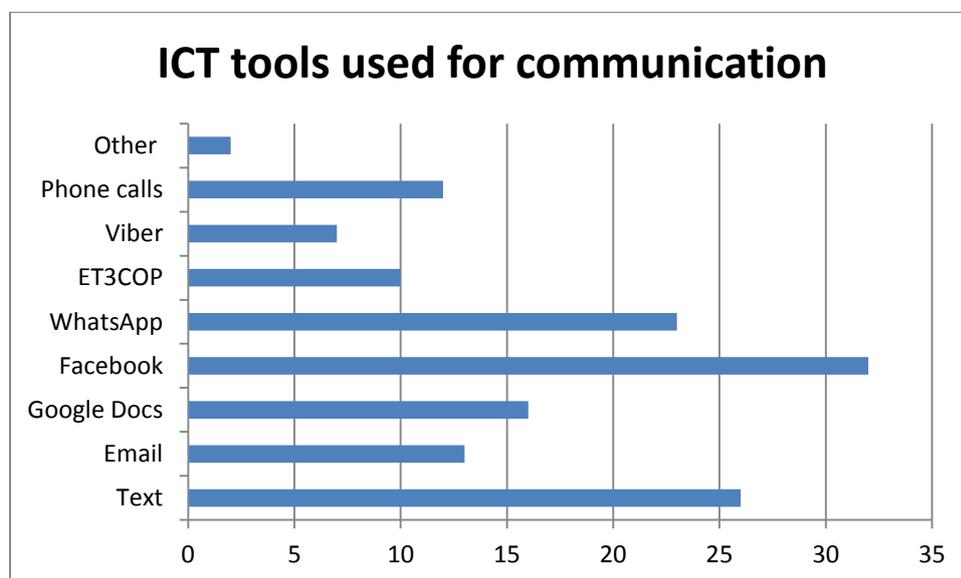
Fig 6.1:   **ICT tools used for communication in group tasks (Case Study Two)**

The Undergraduate Students and IT study conducted by the Educause Centre for Analysis and Research (ECAR) in 2015 found that, from the students' perspectives, some activities lend themselves better to face-to-face or online environments with significant overlap between them. The results were interpreted as students expressing online preferences for assessments and personal assignments, while "interactive and group assignments typify preferences for face-to-face learning" (p.33). In Robinson and Stubberud's study of communication preferences among university students (2012, p. 112), they found that students still prefer face-to-face interaction for working together on projects, and still use email to circulate documents and receive messages from teachers. Their analysis showed that "the methods that were most preferred were those with the lowest perceived time to response" (p. 111). Findings from this study are consistent with the literature with students emphasising their appreciation of a speedy response time (see section 6.4.12).

It is interesting to note that in this study, students indicated a move away from desktop and laptop computers and an increased focus on their smartphones and apps for communication and collaboration. According to the Eir Connected Living Survey (2015), 70% of the Irish population now own a Smartphone (2, 377,000 users). In the U.S., Pew Research Centre (Anderson, 2015) data found that smartphone ownership is highest for younger, more educated, and higher income adults. However, they found that minorities and lower income Americans depend on their smartphones for Internet access at higher rates than the general population. Moreover, first generation students "gave higher importance ratings to their mobile devices for academic and administrative functions than other types of students" (cited in Undergraduate students and IT, 2015, ECAR, p. 20). The increased access

and ability to connect, anytime, anywhere, with online resources and lecturers was part of the attraction of the COP through an App for students.

6.2.2   University provision of technology: Google Apps

DCU uses Google Apps across the university for students and staff. The Google Apps suite of tools includes email, office tools for presentation, spreadsheets, word processing, and forms, as well as video chat and the Google Community app. Google Docs is used for group work by some students, although it is still perceived as new by others: "*Yeah, I use Google Docs for everything. I don't use Microsoft Word or anything like that*" (p049, Int). Another student found Google products confusing: "*On Google, even COP or the documents, it's very much, there's a lot of buttons that things pop out. A lot of slide tools or whatever they're called, and I find that very confusing*" (p004, Int).

In their piloting of Google Apps with undergraduates, Cheung and Vogel (2013) found, "compared with other e learning applications, the adoption of collaborative technology is strongly influenced by peers. Furthermore, because of the highly interactive nature of the collaborative platform, the perceived ease of use of the system is important and is strongly predicted by compatibility with existing tools and practices" (p. 172).

Findings from both cases confirm that students want to benchmark their progress against peers, a space to interact with peers, and access to an expert or lecturer who can guide their progress and provide individual and group feedback. These findings confirm the results of the latest ECAR technology survey "sent to approximately 970,000 students at 161 institutions, yielding 50,274 responses across 11 countries and 43 U.S. states" (2015, p. 4).

The ECAR survey demonstrates that students are interested in "technologies that help them complete courses, improve learning, achieve their degrees, and generally improve their experiences as students" (p. 26). See Table 6.1 below:

Personalised support and information on degree progress	**92%**
Personalised dashboards that give you real-time feedback about your progress	**89%**
Suggestions for how to improve performance	**88%**
Personalised quizzes or practice questions	**88%**
Real-time feedback from your instructor about your performance or progress	**88%**
Guidance about courses you might consider taking	**87%**
Alerts if it appears your progress in a course is declining	**86%**
Suggestions about new or different academic resources	**84%**
Feedback about performance compared with that of other students	**82%**

Table 6.1: **ECAR Survey. Student interest in early alerts, personalized messages, and intervention notification services**

These technologies (described above) are driving a focus on real time analytics that feedback individualised information to students on their academic performance. Buzzetto-More (2012), in her article on social networking in undergraduate education, describes students as digital natives in university, "permanently tethered to ubiquitous, highly accessible, ever evolving technologies that transform users from passive consumers to prosumers (creators) of user-generated content exchanged through a host of networked communities" (p. 63). The findings from this research show that students still prefer the personal experience of face-to-face lectures and face-to-face group work facilitated by communication technologies that allow instant peer-to-peer communication. Although, Aleman and Wartman (2009) observe that the "Net Generation college student consumes, produces and makes meaning of social bonds and relational connections in the new real time of online communication" (pp. 21–22), it was found in this study that the concept of an

online COP for discussion, collaboration, and feedback on coursework is still a relatively new environment for students to explore, adapt, and incorporate into the college experience.

6.2.3   University provision of technology: Loop

The introduction of an online COP into the research module of a final year degree class was appreciated by the students as a safe, academic space in which to communicate and support each other and access definitive, valuable support and feedback on their coursework. Students commented through interview and reflection in both cases that they had not had the opportunity before in the degree to communicate online with peers in a mediated space facilitated by a lecturer. Students noted that individual lecturers on certain modules had attempted to set up discussion forums using functionality within the virtual learning environment (VLE) in DCU.

The VLE in DCU is named 'Loop' and is an attempt to create an integrated system of supports and tools for students and lecturers for coursework. The main presentation of Loop is the Moodle based VLE where lecturers upload course work such as Powerpoint presentations, documents, links to relevant websites, and resources. Lecturers can also use Loop for assignment submission, anti-plagiarism software tools, and discussion forums. The use of Loop by lecturers is idiosyncratic and varied across modules, programmes, and schools. Loop is described as an online learning platform by DCU:

> Loop allows students to connect with course content, their teachers and fellow learners. It's where students access their notes, participate in discussion fora, construct their ePortfolio and participate in webinars. Loop is an amalgamation of several different

learning technologies into one platform. By creating this brand 'Loop', we take the emphasis away from the individual technologies and their brands and concentrate on their pedagogical use (DCU, 2016).

Students like Loop for the ability to access course materials and submit assignments: "*To get materials and to get the briefs, and then to find out when stuff is due and all that kind of stuff that you need to know for assignments*" (p039, Int). Some students download all of their course material to their personal computers at the start of a module and do not access Loop again during the semester: "*If you're going through a particular topic for your assignment, then you go, "Yeah, that's week five," pull them all in, but I download them all and save them on my own files on the computer. That's all I use it for*" (p038, FG). Another student commented: "*I think a lot of the lecturers just put up their notes, and leave it at that*" (p004, Int).

6.2.3.1   Limitations of Loop

On Loop each module is managed by the lecturer of that module. There is one module per designation per semester. There is no way to link the module materials or discussions with other modules through Loop. This is especially restrictive in final year when students have three modules that are integrated in terms of learning outcomes and individual lecturers but are delivered separately. These lecturers, although working closely together to design and deliver the modules, cannot link them through Loop. Students cannot upload materials to Loop or use it as an interactive space unless the lecturer designs it that way and allocates them teaching roles.

Students perceive Loop as confusing, "*I know how to get into the presentations and the notes, but go a bit further, I get a bit lost*" (p004, Int), despite the fact that they have a full module dedicated to using Loop for structuring and uploading of course materials for a lesson in first year.

6.2.3.2   Individual attitudes to technology

Students in both case studies had individual and subjective views of technology that related to personal experience, access to hardware and the Internet, possession of a smartphone versus a voice and text based phone, and their personal preferences for communication: "*I suppose maybe for me, I wasn't that great on technology. I am more of an outdoor person. For me, doing this course I have learned a bit more about technology than I did previously. That's good for me really. I think about teaching later on and whatever type of teaching you're doing, it's a plus, we need to be engaged with technology*" (p005, Int).

The largest age group of 25–34 year old users of Facebook and the second largest, 18–24 year olds, are known as 'Millennials', the generational cohort comprising those born between the early 1980s and early 2000s. This cohort is also known as 'Digital Natives'. Prensky (2001a) defines digital natives as the generation who "are all 'native speakers' of the digital language of computers, video games and the Internet." This new digital language is thought by many researchers to require new teaching pedagogies to cater for new learning styles (Palfrey and Gasser, 2008; Tapscott, 2009). Hargittai (2010), in her study of the Internet skills of digital natives, points out that "The particular societal positions that people inhabit are reflected in their Internet uses. Those who are already more privileged tend to have more Internet use autonomy and resources, more online experiences, higher

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levels of know-how and report engaging in more diverse types of uses than the less privileged" (p. 109).

Margaryan and Littlejohn (2008, p. 22) state that:

> While the use of technologies is limited in terms of the range and the nature, there is some evidence that younger students use some tools more actively than the older students, but neither of these two groups uses these technologies to support their learning effectively. Educators therefore cannot presume that all young students are "digital natives" who understand how to use technology to support and enhance their learning.

Indeed Internet use may be related to personality or attitude: Amichai-Hamburger (2002) ascribed certain Internet behaviours to the personality dimension that differentiates people in the way they approach change (Kirton, 1994). "Innovators are nonconformist, creative and feel comfortable in an unstructured situation; conformists need roles and norms and seek stability and order" (Amichai-Hamburger, 2002, p. 7). He explains that "conformists are likely to prefer a website with many constant components and find it stressful if the website is changed frequently; whereas innovators will be stimulated and happy with a website that changes often and will become bored with an unchanging website" (ibid.). White and Le Cornu's (2011) theory of visitors and residents may influence how individuals navigate the Internet and their online social spaces. They suggest that "some people may operate entirely as Visitors, visiting specific Web places for specific purposes, entirely on their own and never leaving a footprint behind. At the other extreme, 'total' Residents spend all their

online time in social interaction, never using the Internet for information–gathering yet

leaving behind significant evidence of their presence" (VI).They emphasise the visitor

resident continuum as one where an individual can move freely along it, conceptualising the

Internet and its platforms as either a 'tool' or a 'place' as needed. (III).

The UK based Committee of Inquiry into the Changing Learner Experience (CLEX, 2009)

concludes that: "Web 2.0, the Social Web, has a profound effect on behaviours, particularly

those of young people whose medium and metier it is. They inhabit it with ease and it has

led them to a strong sense of communities of interest linked in their own web spaces, and to

a disposition to share and participate" (p. 9). McLoughlin and Lee (2010), in their study of

personalised and self-regulated learning in the Web 2.0 era, point out that moving towards

a more personalised learning environment means that learners must be aided in

"developing the fundamental skills that enable them to manage their own learning" (p. 37).

Students in Case Study One referred to the novelty of an online COP and a demonstration of

its value: "*If you wanted people to actively use it, there could be more uses for it. You could

encourage people to use it at many different times as well. Show them the full use of it*"

(p012, Int). Students in Case Study Two accepted the premise of the COP more readily, as it

was presented as a learning support with mandatory tasks attached to marks. One student

expressed his personal attitude to technology while valuing his infrequent visits to the COP:

"*I wouldn't be mad on social media at all. I'm useless at technology. I wouldn't be going on it

an awful lot, but when I am on it I'm do find it useful*" (p039, Int).

Students in this research reported benefits from using an online COP if certain criteria are

met, including accessible technology with training where appropriate; familiar and user-

friendly functions for peer interactions; quick and constant access to an expert; relevance of practice to coursework; and assessment or allocation of marks, guided tasks, or facilitation of discussion to focus participation. These issues will be explored further in section 6.4.

6.3   TECHNICAL CHANGES IN PLATFORM CHOICE FROM CASE STUDY ONE TO CASE STUDY TWO

This section will explore the move from one technical platform in Case Study One to the use of another in Case Study Two. As will be described below, the findings from Case Study One prompted the researcher to use a platform that was integrated into the student university experience and supported by an App version for access through mobile phone or tablet. The use of video was introduced in Case Study Two through the requirement for students to use Hangouts as a communication tool.

6.3.1   Move from Ning to Google+ as the platform for online COP

The decision to move the platform from Ning to Google+ was prompted by the findings from Case Study One that access to COP as an App would be useful. Findings show in Case Study Two that easy access encourages use, as students are notified through the App when posts are made. These notifications were a valuable tool for some that encouraged participation in the COP and allowed students to 'silently participate' or 'lurk', reading posts and accessing sources without posting themselves: "*I find it quite user friendly on the phone. It's quite good. The same detail is there that you would have on your computer. I got all my emails, everything, the personal email, the college email, Facebook, Google Plus, all on the phone and all the notifications that come up*" (p038, Int). The notifications were also a source of annoyance for many who found the volume of notifications distracting: "*I found*

that I had so many notifications coming in, I had to delete the app and then the page itself would slip my mind and I would rarely look over it" (p064, Ref).

The use of the App encouraged ease of use and frequency of use, as one student put it: "*As we are in a world of technology the COP is literally in everyone's pocket*" (p018, ref), and from Case Study One in response to whether the COP should be an App: "*I think so because my phone is like my baby or something because I don't go anywhere without it*" (p009, Int).

6.3.2 Video

Video was introduced on the COP only in Case Study Two as Google+ offers a video chat facility called 'Hangouts' accessed through Gmail, the Hangout icon, or through the Hangout App on a smartphone. "Google Hangouts is a communication platform developed by Google which includes instant messaging, video chat, SMS and VOIP features" (Wikipedia, 2016). Students who managed to use the Hangout function successfully found it very useful and fun: "*the video calls were also helpful as it was a nice break from the books and fun way of sharing information with one another*" (p048). There were a number of technical glitches using Hangouts which resulted in students trying it once and reverting back to more tried and tested ways of communicating. "*Google Hangouts is something I need to get used to – but when there are multiple alternatives, it seems somewhat arbitrary as people feel more comfortable with other services*" (p065).

Students found that some of their laptops did not have webcams and many used their phone instead, as the Hangout App was more straightforward than Hangouts through computers. Students found Hangouts tricky to set up: "*It was so awkward to do. It was kind*

of luck of the draw. If you pressed the right button at the right time, if we both pressed the right button at the right time... it was really awkward" (p042, Int). Connections also depended on Wifi strength and the type of computer that you used; Apple Macs in particular seemed to be problematic. Other students worked through the glitches: "*I have Samsung, and you have to download some or enable some cookies on the actual page, and then it would let you do the video talk. I'm not a very technological person. Me and technology don't go well, so it took me a while to work it out, but we did get it*" (p024, FG). Thirty-five out of 68 students successfully managed to have a Hangout with a peer, and two students contacted the lecturer for Hangouts where they discussed their individual research: "*Just had an interesting video call. It took us a while to get used to it but when we got the hang of it we found it very beneficial. Although the connect wasn't great and the video was blurry we could still use the chat to talk instead*" (p068, COP).

The lecturer posted a short video on the COP site to provide general guidance to students over Reading Week when they would be away from campus. Students responded well to this video and according to the COP site it was viewed 572 times. Only one student posted a video from Youtube on the COP – an inspirational song. Although students were encouraged to post video to the COP, the only imagery posted was photographs of study plans and Memes. This could be due to students' understanding that the COP was a focused, academic space or could reflect a more general text based focus for communication through WhatsApp, texts, and Facebook. The use of video or imagery may well be associated with more social sites such as Facebook or Instagram and as such may not be part of a student's perceived accepted use of an academic site.

6.4   ASPECTS OF USE OF AN ONLINE COMMUNITY BY FINAL YEAR UNDERGRADUATE

STUDENTS

The following 14 sections present discussion on the main findings of the case study in terms

of how students perceived community and how it related to them as a student and as a

member of the COP. Overall, the students found the COP a valuable experience that

enhanced their learning, improved relationships with peers, and illustrated the benefits of

communication and discussion to their understanding and completion of coursework.

Aspects of students' perceptions of their peers and also their own learning styles will be

discussed in the context of social networking and learning on the COP.

6.4.1   Learner perception of community

The findings of both cases have shown that the student perception of community is firmly

anchored in the process of interaction with peers and the lecturer. This interaction with

peers in the online space engendered a sense of camaraderie: "*queries I was panicking over*

my classmates were in the same position so that was reassuring" (p048, Ref). Students

regard asking questions and receiving posts and comments on their own posts as

participation meriting recognition and response by their peers and the lecturer. This

stimulus and response interaction, for them, is a manifestation of community. When asked

what a sense of community is, learners describe it as "*almost family like*" (p052, Ref), "*a*

stronger bond" (p026, Int), and a sense that the COP "*definitely enhanced feeling of*

community" (p049, Int).

The ability to help others was a strong indicator of community, with students feeling that

the "*social online contact forms a bond in the class*" (p026, Int), that it "*was a bonus to be*

able to help others" (p044, Ref), and that the COP was a "*great way for students to share knowledge and information*" (p046, Ref). There was a sense that "*people [were] helping each other more this year*" (p049, Int).

When asked about a sense of community, many traditional students refer back to their class page on Facebook as the accepted and consistent forum for interaction in the class. In each case study, the Class Representative (one or two students voted as Class Representative through the Students' Union in each course each year) is the person who establishes the Facebook class page in first year. In Case Study One, the majority of non-traditional or mature students in the class were not members of the Facebook class page, although opinions differed as to whether invitations were issued or accepted to the page. There was also confusion around the need to 'friend' others or open your personal Facebook page to scrutiny by the class group.

In Case Study Two, there were fewer non-traditional students in the class and less of an issue around membership of the Facebook class page. Indeed it appeared that all the class were members of the page but accessed it at their own discretion. Students who used the Facebook page described it as a "*notice board*" (p065, FG)", "*as a social community*" (p029, Int), and in first year "*as a forum for venting*" (p065, FG). It was regarded as very informal, mainly comprising questions and "*a bit too open*" (p004, Int). It appears that, in the absence of any university provided online forum, Facebook performs as an online social tool for students to communicate. As such it can be said to be operating as a community of practice with the domain being the degree course, the community being the class group, and the practice being the job of being an undergraduate student: understanding, describing,

evolving, and practising the rites and rituals of a student in a university. Madge et al. (2009) found that students in a British university used Facebook as a social tool to aid them in settling in to university; it is a tool that "aids the 'social glue' of college life and is most important for social reasons not for formal teaching" (p. 152).

Students who completed the Classroom Community Scale (Rovai, 2002) (n=48) self-identified as having a strong sense of community. Interestingly, although the majority of students recorded a strong sense of learnedness and connectedness, male students felt a slightly stronger sense of learnedness and connectedness in the community than female students. It may be that male students in the class, who anecdotally tend to be from a sports background, identified more strongly with an online social networking approach that facilitated access to resources and feedback on a continual basis and from any location. A number of students who had only minimal engagement on the COP in Case Study Two also reported high levels of a sense of community, learnedness, and connectedness. It may be that the COP engendered a sense of community by its presence as a support in the class whether or not students engaged actively within it. The reported but undocumented levels of lurking due to restrictions on the ICT platform may account for the high levels of sense of community. It has also been suggested that learning styles may influence levels of participation in an online community and the sense of community that the student may feel.

Rovai and Jordan (2004) found, in their examination of the variables of learnedness and connectedness in the Classroom Community Scale between students on blended courses and fully online courses, that the scores from online students were more diverse than those of the blended students. They suggests that "such variables are likely to be related to

student characteristics, such as learning style preference, that facilitate the development of strong feelings of community in some online students, while other students remain at a psychological distance from their peers in the same learning environment" (p. 8). The influence of learning styles will be discussed in section 6.4.10.

The perception of community and what this means for students can be linked to their identity both as students as learners and students as students. Yu et al. (2010) found that online social networking can help university students "to develop satisfying relationships with peers" as well as fostering "integrity and commitment to their universities" (p. 1502). The findings of this research shows that online social networking through a branded, commercial product in conjunction with online social networking through a dedicated online learning space can serve twin purposes for the students' journey at university, i.e. the creation and resolving of an undergraduate student identity and the provision of a supportive learning environment for students to develop peer relationships and a learner identity. The next sections will examine issues of student identity.

6.4.2   Identifying as an undergraduate student

In Case Study One, students emphasised the ubiquity and the importance of Facebook in their daily lives. The wide availability of smartphone technology has allowed students to align their virtual life with their physical life, with one student confessing that "*I access most things through my phone – its instant. I also think that, again, it would lend a less formal feel to the COP. I think young people would be more inclined to use it from their phones too*" (p025, FS).

Students who were on Facebook felt that it was a community in that the class had a Facebook page and would have shared freely: "*I feel that the class was already a distinct group, joined by mutual study of education, we worked together in many ways over the course of our degree before the online community of practice*" (p053, FS). The use of Facebook as a settling-in tool is evident from students reporting that class representatives establish a Facebook class page or Group in first year almost as a matter of course. An analysis of the Facebook class page in Case Study One and Case Study Two showed that the interaction was primarily an exchange of opinion and practicality, with activity peaking according to college and class timetables of assessment and examination.

Selwyn's (2009) analysis of a Facebook Wall showed that the educational aspect of students' use of Facebook involved either "the post-hoc critiquing of learning experiences and events, the exchange of logistical or factual information about teaching and assessment requirements, instances of supplication and moral support with regards to assessment or learning, or the promotion of oneself as academically incompetent and/or disengaged" (p. 170). He suggests that the use of Facebook is just one of the many interactions and dialogues that go into meaning-making around the identity of an undergraduate student. It helps the students work through the nuances and roles of the undergraduate culture (p. 171).

In Case Study Two, all students, traditional and non-traditional, were clearer in their understanding of Facebook as a social networking tool, useful for logistics, questions of clarification, and arranging social events, but not as a tool for focused, academic learning. In their words, Facebook is good for "*using Facetime [sic] for chatting*" (p049, Int), "*people*

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who miss class" (p042, Int), "*people help on Facebook for quick and easy things*" (p042, Int), and "*beneficial at exam and assignment deadlines*" (p030, Ref). As the Facebook class page is established early on in the first year of the degree course, it is difficult to measure or estimate how important a role it plays in supporting or representing a student's undergraduate identity. Some research has found that prospective students may join Facebook just prior to entering third level education. Madge et al. (2009), in her study of British university students using Facebook, found that Facebook in particular, due to its origins as a US college networking site, is associated with university (p. 144), and Boyd (2007) asserts that Facebook attracted individuals with aspirations to go to university.

Students in Case Study One suggested that your identity on Facebook remains static – if you are sporty, you interact as a sporty person; if you are academic, you retain the knowledgeable, studious persona on Facebook. It was felt that you would not post anything that would upset that presentation of your student self: "*That whole notion, because the social, each of us have got a social identification with each other. You'd be the cool guy, and she'd be the smart girl, or she'd be the dumb girl, or whatever. If you post something that's real serious, you risking changing that identification*" (p013, Int).

It appears that Facebook is a tool that can be leveraged for social capital within the class group and also act as a support for the transition from school pupil to college student. Greenhow (2011), in her study of online social networking and its use for students, found that students "positively identified with Facebook and Myspace as part of their learning and college transition strategy" (p. 9).

6.4.3 Identifying as a Student and as a Learner

The idea of student identity as learner centres on the use of a social networking tool for learning as a support to a face-to face-module. The students, who were used to interacting on Facebook, found that the interaction on the COP was different – more focused. The students felt pressure to think more about their posts, craft their sentences, and position their comments against relevant topics. Students felt the COP "*worked like a journal where you write better*" (p002, Int), and that the "*COP has brought out a more academic and helpful side to the class*" (p005, Ref).

This was also found in a study of students' experience of Moodle versus Facebook, where students found that the need to write more structured, academic type posts restricted the ease of interaction that they felt on Facebook, which was student initiated and student maintained (Deng and Taveres, 2013, p. 174).

Halverson (2011, p. 65) discusses identity as a person's psychosocial understanding of 'who they are' and how they 'try out' and explore identities through producing and interacting with online content including social networking (Greenhow and Robelia, 2009). Formal learning environments tend to focus on what she calls 'identity as', e.g. identity as mathematician (Cobb, 2004) or identity as student (Oyserman and James, 2008). Her research calls for 'key design trade-offs' when using a social networking technology as a formal learning space:

1. Privacy versus redundancy – the need for educators to provide privacy for students takes away from the perceived freedom of social networking use.

2. Endogenous versus exogenous learning goals – the formal learning embedded in learning environments can be inconsistent with the informal learning that is gained from participation in social networking.

3. Identity versus identity – learning from a sociocultural perspective is connected to identity (Wenger, 1998) and as such identity is linked to social interaction rather than focused on content or structure of a course (Halverson, 2011, p.63).

The issue of privacy versus redundancy influenced the choice of platforms for this research and the response of students to each platform indicated the divisiveness of that choice. In Case Study One, due in part to the juxtaposition of traditional student views against non-traditional views, the perception of Facebook as a more open space, connected to peers and accessible 24/7 was preferable to the Ning platform, which was perceived by some as restrictive and separate, with separate logon, structured input, and protocols. Some mature students, who were not familiar with Facebook and distrusted its privacy settings, perceived invasiveness through connecting personal pages with group pages and refused to engage with the class Facebook page. These students opted in to the COP Ning platform and engaged frequently with peers and the lecturer.

The notion of identity as researcher was an underpinning, if not explicit, aspect of the COP. Students were using the online space as an extension of the physical learning environment and a facilitated online space for interaction with peers and with the module lecturer. As such, students were tentatively applying new skills as researchers, evaluators, and judges of peer reviewed literature in topics about which they were passionate. In terms of research they were all new members of a COP where some members had more innate interest and

skills than others. The most experienced member of the COP was the lecturer who devised the assignment and would be marking the assessment. The interaction between lecturer and students was a key incentive for student participation. This will be discussed more in section 6.4.12.

The identity of the students as novice researchers changed through the lifespan of the COP as students benchmarked their progress against peers and also noted the posts and comments of classmates disclosing shared worries and concerns. This change was reflected through comments from students about a growth in confidence and understanding of what research is: "*COP helped me come out of my shell this year*" (p005, FG), "*feel more confident about my research proposal*" (p021, Ref), "*COP has improved everybody's confidence*" (p039, Int). One student felt that "*the COP helped students to grow their own project and their confidence in their own abilities*" (p027, Ref).

Ke et al. (2011, p. 366) found that, although individuals are limited in online learning environments, they could create their identities by revealing their life experiences and insights. They further suggest that individuals should be encouraged to share their values, experiences, and opinions to facilitate knowledge-based learning interactions as they put their identities into play. In this study, students were encouraged to share expectations, experiences, and reflections through the ten mandated tasks.

Students noted that their feelings of concern and stress lessened over time as they were able to view other students' confessions of stress and upset about coursework. Student identity as learner takes time to evolve and "*takes time to mature through the degree*"

(p026, Int). Some students admitted that the *"class was very big and had lots of cliques"* (p029, Ref), and were *"scared of group work in first year because you don't know people"* (p004, Int). Some would describe first year as *"torture"* (p005, FG), *"challenging"* (p038, FG), and *"everything is new"* (p024, FG). This embryonic identity for some students can consolidate into a type of persona that is quiet and reticent: *"slow to voice opinion in class in case you're wrong"* (p004, Int), *"reluctant to email lecturer or disturb them"* (p002, Int), *"everyone sticks to their own group"* (p010, Int). The COP helped students to overcome these fears and communicate in a safe environment without fear of judgement or censure. Wenger (2009) describes this process as 'modulation', which will be described in the next section.

6.4.4 Identifying as a member of a COP

Wenger (2002) explains in his book, *Cultivating Communities of Practice*, that a community of practice can provide a "home for identity" for individuals who are apart through travelling or lack of time, in terms of their belonging to a community of colleagues (p. 20).

Wenger (2009) talks about participants in a community having their own experience of practice, which can be key to the learning that takes place. He posits that "learning can be viewed as a process of realignment between socially defined competence and personal experience—whichever is leading the other" (p. 3). Findings from the research demonstrate that students found individual benefits to their learning and identity as a student at different times and in different ways. Students who did not post by their own admission would lurk: *"I personally found it rather difficult to post on the page itself but found it a great help looking through everyone's different posts and talking to them in person about*

them" (p062, Ref). (See section 6.4.14 Lurking.) The overall communication, affirmation, and application of learning to community practice through posts and comments represent a history of learning through participation and reification that forms an "informal and dynamic social structure among the participants", which Wenger maintains is what a community of practice is.

This participation and reification within a community where a member develops competence and shares competence involves what Wenger calls 'modulation', where a person can identify with the community, the need to belong to it and consequently to adhere to its "regime of competence". Wenger suggests that this identification with the community, the modulation of identity through interaction, and the relationships within the community contributes to the individual's identity. As such, this identity reflects the social interactions and the personal resulting in "learning as a social becoming" (p. 3).

Findings from this research show that students have a need for both types of COP: firstly, a social, student initiated social space where logistical, quick questions on coursework that require short posts and directions can be asked and where meet ups, nights out, and college related issues can be discussed; and secondly, a facilitated, academic space where students can benchmark their own progress against their peers, find support and empathy, and discuss in longer posts and chats the micro issues within their course work to the mutual benefit of all members of the space.

6.4.5 COP as bridging space

The benefits of interaction on the COP in both cases had two impacts on the class groups: students stated that the online interaction connected them with students that they did not know; and the type of interactions on the COP and their outcomes influenced how they behaved in the physical classroom and on Facebook. In Case Study One, a clear finding from the data was the extent to which the mature students were using the COP and how they were interacting with traditional students. As the COP in Case Study One was voluntary, students opted in to the COP out of choice. The timetabled chats that were facilitated every Monday of the semester were also voluntary.

"Tinto and others (Tinto and Goodsell-Love, 1993; Tinto and Russo, 1994) has shown that participation in a community of learners benefits students both socially and academically by providing social support, introducing multiple perspectives on course content and learning strategies, enhancing student performance and increasing persistence" (cited in Kearns and Frey, 2010, p. 41). The findings suggest that non-traditional students benefit more from participation as they are not as involved in campus life as traditional students. The obvious and consistent participation of the non-traditional students in the COP in Case Study One was noticed by some students who felt that the Ning COP was established only for the mature students: "*The way I see it, you'd be using the community nearly for the sole purpose of bringing the matures into the conversation*" (p013, Int).

The traditional vs mature student divide was felt only in Case Study One: out of 67 students in the class, 12 were non-traditional students (18%). In Case Study One; a student captured the general feeling: "*As a class we were very engaging. However, there was a sense the class*

was split between mature and undergrad [sic] students. The COP allowed the class to become one COP opposed to the Facebook group which was mainly undergrad, however mature students joined it as well, which I found very beneficial as their input helped me" (p034, FS). Kelly (2004) argues that the mature learner is more "orientated towards deep learning" and that "learning which is based around the memorizing-regurgitation cycle does not appeal to them" (p. 51). This in part could explain why the non-traditional mature students participated on the COP to a greater extent than the traditional students.

Brooks (2005) pointed out in her study of further education that "there was a very strong stereotype which indicated that adolescent learners would be "less responsible and have independent attitudes to learning", while "older learners were typically perceived as self-motivated and strongly committed to their studies" (p. 59). These stereo-typical attitudes were evidenced in the comments from non-traditional and traditional learners: *"One of the younger students approached me for information based on something I had shared on the COP site. We had an interesting chat, discussing concerns and stresses of doing the research. She was amazed to discover we had all the same worries as everyone else. Sometime later she came and sat with the 'matures' at lunch; it was the first time she had ever done this, but she felt comfortable doing it because we were so 'normal' (her word)"* (p020, FS) and, from a traditional student: *"I think it gave me the opportunity to talk to some of the mature students who I wouldn't have normally talked to in class. by taking part in the community of practice, it made me approach these students in class and ask them questions about my topic and give them any useful advice that I could regarding theirs but doing this also allowed me to get know them on a more personal level which I liked"* (p041, FS).

The perceptions of peers according to age changed through interaction in the COP. The online platform acted as a bridging space that allowed the entire class group to engage with each other through online chat and posts. Mature students reached out to traditional students and encouraged them to engage. Traditional students responded by approaching mature students off-line to continue the conversation. The COP acted as a catalyst for engagement for the participating students and the COP was perceived as an academic safe place where students could connect on issues pertaining to their studies. One mature student in particular engaged consistently with the COP, on chat and also through posting links and resources. This student was repeating the year and by her own admission found the COP extremely useful for integrating into the class. She was also active on Facebook, using all avenues of communication open to her to engage with her classmates (See Figure 6.2 below):

Well as you, when you walk into a classroom that you're relatively new to and you understand that these people have been together for two years before me. There was obviously … The groups are already formed and normed together. It was good, to be able to say 'Thanks very much for that'. I'm not saying that you got to know [them], but at least then I could put a face to the name, I could carry on the conversation the next day in college and say, 'Listen, thanks very much for that information that you posted up there for me. I really appreciate it (p016, Int).
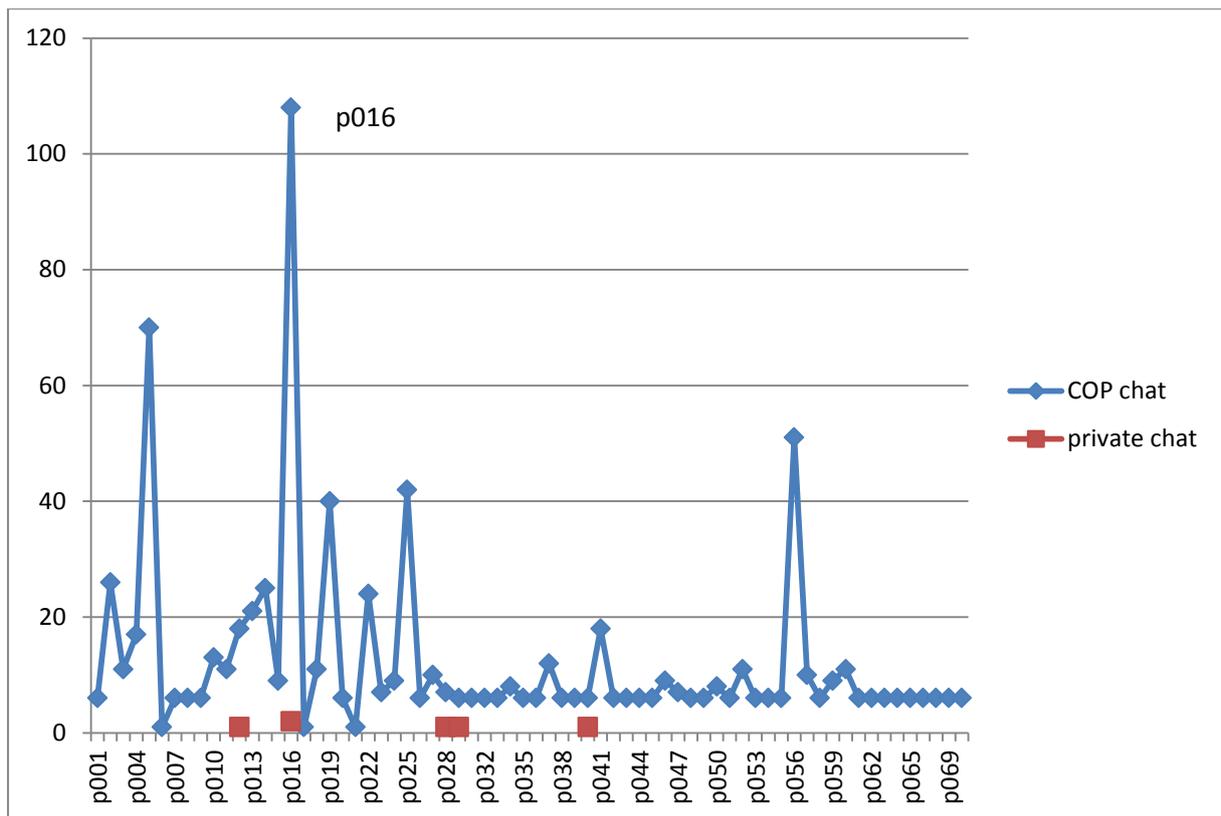
Fig 6.2:   **Case Study One individual level of interaction on COP**

In Case Study Two, the class predominantly comprised traditional students. Out of a class

group of 68, only three could be described as mature students (4%). Some students felt that

the small number of college hours in final year discouraged interaction: "*I think as well*

because we have such few contact hours that people do come in for the two hour lecture and

then leave" (p004, Int). The COP encouraged students to communicate more with each

other and to share opinions and knowledge. It was observed by some that the

establishment of the COP at the start of final year coupled with the graded tasks

encouraged instant engagement: "*Everyone in COP straight away, Facebook took time*"

(p004, Int). There was a sense that everyone was involved: "*everyone got a chance to help*

another student" (P019, Ref), and "*I felt each class member helped everyone out*" (p009,

Ref).

A comparison of participation on the COPs in Case Study One and Case Study Two shows that, except for one or two students in each year group, every class member participated in either an online chat, posting of a comment, or lurking. Only one student did not post at all or involve herself in the online chat in Case Study One. This student was a self-confessed technophobe who was, in her own words, "*Like that, it was like me and computers should not mix at all*" (p017, Int).
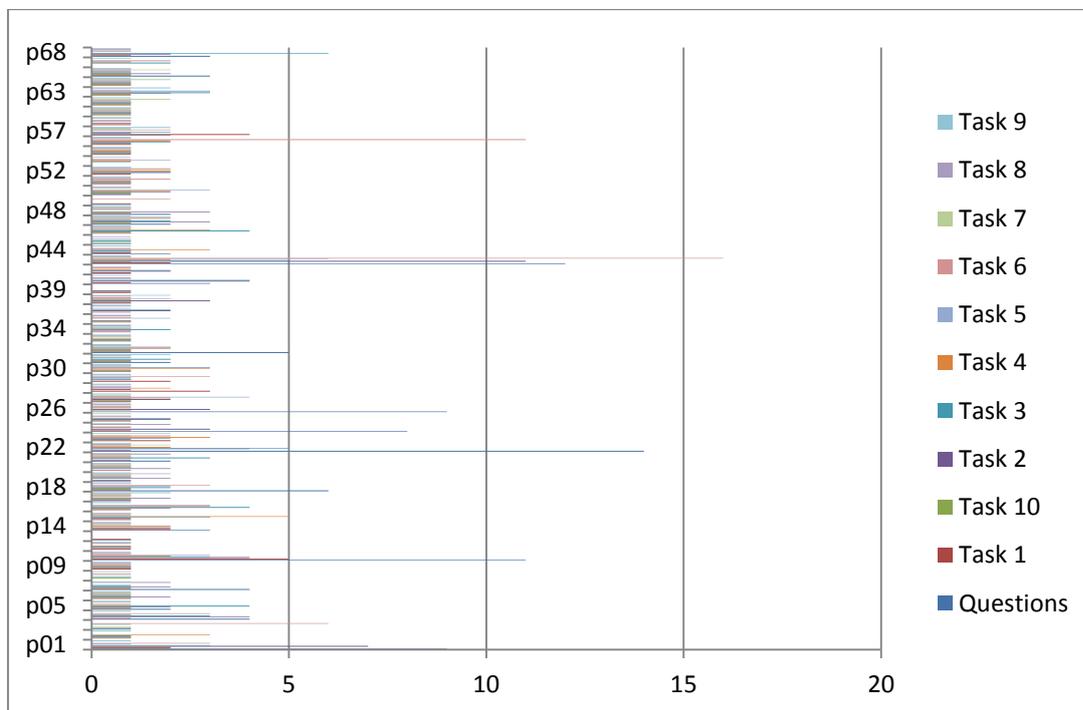
Fig 6.3:   Case Study Two interactions on the Google+COP

In Case Study Two the lowest number of individual interactions was two (p012) and the highest 58 (p042). The participant who interacted the most earned a reputation as a leader on the site. The interactions were consistently positive, valuable, and honest (see section 5.2.1.5 Student Vignettes). The lowest number of interactions were from a student who was forced to drop out of the course due to illness.

6.4.6 Valuing interactions with peers

Students valued the opportunity to engage online with each other and felt that this was something that had not happened up to that point in the degree. Students from Case Study One commented: "*I think that our class group are very close, share opinions and help each other as best we can, however before COP was introduced we didn't have an online area where we could all contribute to*" (p037, FS). Another student agreed that there was interaction and chatting before the introduction of the COP but only to friends or people in your immediate group: "*because we were already chatting amongst ourselves about course related topics. However I only ever chatted to those who I felt had similar insights and attitudes toward education*" (p004, FS).

This broadening of relationships and interaction online on the COP and its rollover into both the physical lecture theatre and students' interaction on Facebook was recognised by many students. One mature student observed "*how previously non-participating members of our class who openly declared they did not believe in the sharing of ideas as it 'undermined their work' (their words) as we were, after all, in competition with each other, actually share documents and tips quite openly on the online COP*"(p060, FS). Another student in Case Study One appreciated the usefulness of the COP concept, commenting to the lecturer that, "*as a result of your collaboration, the Ning that you set up, we actually set up four pages for our different modules for our group work, this semester, on Facebook*" (p012, Int).

The strengthening of ties and sense of community that grew and cemented through interaction on an online COP may be seen to contribute to the bridging capital and bonding capital of members of the class. Bordieu (1983) defines social capital as "the aggregate of

the actual or potential resources which are linked to possession of a durable network of more or less institutionalised relationships of mutual acquaintance and recognition" (p. 249). Oztok et al. (2013) describes bridging social capital as the importance of relationships with people from other communities, cultures, or socio-economic backgrounds with bonding capital referring to strong ties of attachment between relatively homogenous individuals (p. E204). Oztok further suggests that "the educational value of social capital lies in its ability to provide opportunities for members to establish a common ground (bridging capital), where a relatively coherent sense of community can be created (bonding capital)" (2013, p. E204). Students valued the COP's focus on learning and collaboration as part of their coursework and associated it with stress-reduction, support, and learning in an accessible, convenient, and focused academic space. Peer interaction has been identified as critical to the development of communities of learning by Wenger, McDermott, and Snyder (2002), as it allows learners to develop interpersonal skills and to investigate tacit knowledge shared by community members as well as a formal curriculum of studies.

6.4.7 COP as emotional support

Students appreciated the opportunity to benchmark their level of knowledge and competence with their peers but equally welcomed the facility to view and understand that students were sharing their anxiety, stress, or worry about the coursework of the module and their own ability to complete it: "*Firstly it gave me an idea of other people's research perspectives and secondly it helped me realise everybody was at the same stage making me feel under less pressure*" (p020, FS). Students recognised that everyone was having some difficulty or worries: "*Yes, at the beginning I remember being afraid to ask a question that everyone could read in fear that I'd seem silly, however over time I realised the importance*

of asking the questions and felt that it was easier to ask through the COP rather than in a lecture hall" (p037, FS). The online space removed the focus of attention from students and allowed them to express themselves without fear of censure: "*No longer shy or embarrassed to say things, because it doesn't put all the attention on me. I also felt better knowing it was there if I needed help*" (p038, FS).

In both case studies, students valued the emotional disclosure on the COP that comforted them, gave them a sense of community, and bonded them in a shared, challenging experience: "*I might not talk to other people in the class but online it's different. You don't mind talking behind … do you know, behind the screen. You just don't mind giving your opinion. I think if you're hidden whereas in class sometimes it can be a bit daunting as some other people have more of a voice than others whereas on the screen you've got to think about what you're going to say and write it then and so I think even if the COP was made in first year like I know a lot of classes have the Facebook page, but a lot of people wouldn't have access to Facebook*" (p007, Int).

Greenhow (2011) claims that "social support has long been identified as an ecological construct that influences individual wellbeing (Schwarzer and Knoll, 2007) often as a buffer to stress, as moderator of stress's effects, or as direct emotional, psychological, cognitive or practical aid" (p. 7). The provision of an online COP facilitated by a lecturer and focused on academic work seems to have given some students the opportunity to communicate with their peers and to draw comfort from viewing others' opinions and feelings on their learning experiences and coursework.

In Case Study Two, building on findings from Case Study One, the lecturer put ten tasks in place to encourage interaction each week of the semester. The tasks were graded as an additional incentive to students to participate. Task one sought student expectations of the module to encourage disclosure and to establish a connecting bond to each other in their shared domain. Zambylas (2008) states that "it is valuable for online instructors to find mechanisms that encourage learners to evaluate their positive and negative feelings alike, and thus contribute to the constitution of a supportive emotional climate" (p. 818). Students' expectations centred on fear of the workload and expressions of worry and concern about completion of the module assignment and confusion around what the work of the module constituted. These disclosures of emotion helped create a safe space for students to communicate with each other: "*Everyone is in the same boat and the COP opened our eyes to it*" (p052, Ref), and "*by allowing me to contact my peers about my project, COP has acted as a support network and has kept me stressed free, even over the Christmas period, as I was still able to communicate with my classmates*" (p050, Ref).

Students valued the COP as a safe space that facilitated learning and sharing of resources and opinions: "*Probably for me as an individual, and I'm always being that kind of shy, quiet person. It kind of made me come out of my shell this year*" (p005, FG). The lecturer was also able to view the progress and emotional state of students through their disclosures on the COP. This allowed her to intercede where necessary, facilitating learning through feedback and encouraging statements to students on an individual basis. As Järvenoja and Järvelä (2005) point out in their study of critical reflexivity on learners' emotions, expressions of emotions have implications because they provide evidence on learners' vulnerability and therefore can guide action for change. Järvenoja and Järvelä (2009, p. 465) further

emphasise that the situated approach within the classroom (Volet and Järvelä, 2001) "considers that in social learning situations the meanings of actions, including shared regulation of emotions, are negotiated and co-constructed among group members in context rather than just individual processes influenced by others" (p. 465). The individual disclosure of emotions and the individual and group responses to these displays of emotion may also contribute to a complex set of social processes that influence learning in an online COP.

6.4.8   Learning on the COP

Students in Case Study One used the COP in a number of ways that they found of value, communicating with peers and the lecturer through an online timetabled chat; posting links and sources on the site, setting up small group areas on the COP for discussion on specific topics, and commenting and responding to peers about their research topics. See Figure 6.4 below:
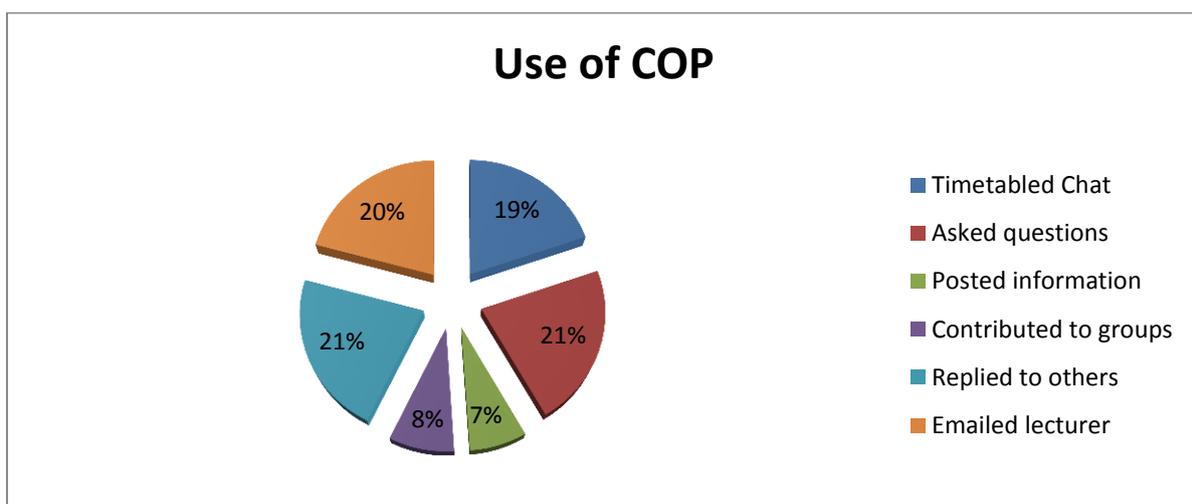
Fig 6.4:   **Case Study One use of Ning COP**

Students in Case Study Two reported that they felt learning took place on the COP for a number of reasons: "*gained new sources of information*" (p007, Ref); a "*great method to facilitate discussion*" (p064, Ref); "*interaction built their confidence in their own abilities*" (p027, Ref). A number of students felt the COP was a tool for learning and referred to it as "*as a main learning aid*" (p008, Ref), "*a learning environment*" (p002, Int), "*a platform of learning*" (p055, Ref); "*a space that has them thinking more creatively*" (p005, Ref).

Students within the community found that they had to take more care with their posts – that the COP was a more academic space that required more thought than Facebook. "*It was like you put a bit of thought into it, bit of preparation. You typed up what you wanted to say. And it was being put into a learning environment, rather than just Facebook*" (p002, Int). This was also found in a study of students' experience of Moodle versus Facebook where students found that the need to write more structured, academic type posts restricted the ease of interaction that they felt on Facebook, which was student initiated and student maintained (Deng and Taveres, 2013, p. 174).

6.4.9   Cognitive, Affective and Psychomotor (CAP) Learning Scale

Henning (2004) surmised from a social learning perspective that knowledge is constructed while individuals are engaging in activities, receiving feedback, and participating in other forms of human interaction in public, social contexts (cited in Hill et al., 2009, p. 89). The results of Rovai et al.'s (2009) CAP Perceived Learning Scale based on Bloom's Taxonomy demonstrated that students in Case Study Two felt that learning took place in the COP. The identification of cognitive, affective, and psychomotor learning as the key elements of the learning scale is significant as it draws on the three domains of Bloom's Taxonomy (1956).

The students scored themselves highest on the affective and psychomotor scales. These scores can in part be explained by the nature of the construction of the COP and the series of ten tasks that students completed over the 12 weeks of their coursework.

As noted in the findings from Case Study Two, the action of responding to a guided series of tasks can result in strong psychomotor learning. Receiving or paying attention to a stimulus, such as peer questioning or facilitating questions of a lecturer, can also result in strong products of learning in the affective domain. High levels of learning in the affective domain may also relate to the disclosure of emotions and affective language used in describing expectations, time management issues, and reflections as part of the prescribed tasks on the COP.

Jarvis (2009) believes that the intersection of the person and lifeworld begins with experience as disjuncture (the gap between our biography and our perception of our experience). He explains that the first stage of human learning requires us to transform sensations into the language of our brains and minds so as to make them meaningful to us. This meaning must happen in a social context as "we are social human beings, always in relationship with us, and as we grow, we acquire a social language so that nearly all the meanings will reflect the society into which we are born" (p. 25). The notion of disjunction (Jarvis, 2009) or disequilibrium (Meizrow, 2009) as catalysts to learning, where a learner must respond to a new and potentially challenging situation, may also explain the emotional language used by students as they negotiated the challenge of a new module on research process and thesis design.

Tallent-Runnels et al. (2006) note that many online studies use single-item measures of key variables and that there should be more systematic studies specifically designed to measure learning effectiveness of online educational practices (p. 117). They also note in their review of research on online teaching and learning that:

Research demonstrates that students value meaningful interaction, but further research is needed to better understand the way in which online interactions, student-to-student or faculty-to-student, enhance thinking and learning. What online discussion formats improve and increase students' thinking? How can faculty members confidently design and manage online discussions that include critical thinking at the higher levels of Bloom's taxonomy? (p. 118).

Although the students responded to the set tasks, completing all ten for assessment purposes and expressing their feeling that they had learned through the COP, more research needs to be done on the levels of learning within Bloom's Taxonomy instigated by the tasks and interactions on the COP.

An examination of interactions in the COP and Facebook did not appear to have a clear correlation with the student self-reported levels of learning. The top eight students who reported high levels of learning on the CAP Scale (over 65 in total) were not regular posters on the COP or Facebook. In fact, one of the students was not on Facebook at all and submitted eight out of ten required postings on the COP. Five of these eight students were male, with all reporting high levels of cognitive and psychomotor learning. Two of the male students also reported the highest level achievable of affective learning (18). Enjoyment of

learning has been linked to positive self-evaluations of competence, task-related goals, and interest in academic tasks (Pekrun & Stephens, 2010 cited in Rowe, Fitness, and Wood, 2015, p. 2).

Pekrun et al. (2011) subsequently validated an instrument to measure emotions in students' learning and performance: The Achievement Emotions Questionnaire (AEQ). This instrument, validated in its use by 389 undergraduate students of psychology, found that students' achievement emotions are linked to their control and value appraisals, motivation, use of learning strategies, self-regulation of learning, and academic performance (p. 46). It may be that the positive emotions engendered by the perception of 24 hour access to peer support and a lecturer provided a feeling of support and care that contributed to high levels of affective learning.

It would be useful to explore the relationship between learning and the range of interaction that students experience with peers, lecturers, and other university staff during the final year. It would also be important to ascertain how students define learning and whether it is an individual and/or collective experience.

6.4.10 Impact of Learning Styles

Almost half of the students who completed the self-reporting learning style questionnaire were found to have an Accommodating learning style (48%), with Divergers (26%) and Assimilators (21%) making up the next two largest groups. The Converging learning style was the least prevalent in the class, making up just 8% of respondents.

It is clear from the data that students with the Accommodating learning style used the COP most, with three out of five of the students with the most posts self-assessing with that style. Interestingly, the lecturer who facilitated the COP in both cases also self-assessed as having an Accommodating style, which may account for her high levels of engagement with the COP that encouraged the students to participate.

As anticipated, students with the Accommodating style had high levels of interaction on the COP and Facebook, aligning with their style preferences for brainstorming, group work, and discussion with others. Students with the Diverging style had twice as many interactions on the COP as on Facebook, which implies that the COP was providing them with enough information and support. Clearly there are a range of other variables that are outside the scope of this study, including personal attitudes to social networking sites, practical needs relating to assignments and planning for assignments, attitudes towards socialising in college, ability to clarify details of assessments, and logistics on an individual level. Two students who were moderately active on the COP and very active on Facebook self-identified as Accommodators, which could also provide a reason why they both volunteered to be class representatives in final year. The Class Representative is the conduit for the class to the lecturers and the wider university. Both of these students were serving dual roles as students and as class representatives on Facebook and the COP.

The eight students who identified as having the Assimilating style were moderately active on the COP, with two students not completing the mandatory tasks. It is not clear why these two students did not complete these tasks, as they both reported very high levels of learning and sense of community in the quantitative instruments. It may be that practical

considerations and time issues precluded them from finishing tasks with relatively small marks assigned to each.

The three students who identified as having Converging learning styles had, as may be expected from their learning style, moderate to low interactions with the COP and even lower levels of interaction with the class Facebook: 34/4 interactions. Lu et al. (2007), in their study of the relationship between Kolb Learning Styles and online behaviours, found that Convergers and Assimilators spent more time on online reading than Divergers and Accommodators, while Divergers and Accommodators spent more time on online discussion than Convergers and Assimilators (p. 193). While it is not possible to assess reading times in the online COP, it is clear from the data that the Divergers and Accommodators in this study spent more time posting online, which is consistent with Lu et al.'s findings.

While a useful indicator of how students might engage with a community of practice, learning style is dependent on a range of variables that influence student engagement with the course and the university. One of these variables is involvement in activities outside of college, including sport and employment. A number of students on the course are involved in organised sport and find it difficult to maintain attendance at lectures; they also tend to prefer face-to-face learning and group work, and eschew technical supports over and above their phones.

Abrami et al. (2011, p. 87), in their study of interaction in distance education and online learning, define a knowledge tool as "educational software that scaffolds and supports

student learning." He posits that a number of factors may be at work in preventing more "pervasive and persistent use of knowledge tools by students":

- Learners do not value the outcomes of learning sufficiently to increase their efforts to learn – it is not so important to do well;

- Learners believe that gains in learning from increased effort are inefficient – it takes too much effort to do a little bit better;

- Learners do not want to become more responsible for their own learning – it is too risky unless the perceived chances of a positive outcome are increased; and

- Learners believe that novel approaches to learning (use of unfamiliar knowledge tools) increase the likelihood of poor outcomes, not increase them – it is not of interest or too risky because they do not believe the tool will help them (2011, p. 97).

The factors found in Abrami et al. (2011) can influence the take up of any new technology introduced to a group of learners. Students in Case Study One expressed concern about the novelty of an online community environment and expressed a need for more time to acclimatise to it. Students in Case Study Two found the online community platform more familiar, and similar to Facebook. They too expressed the desire for more time, suggesting that an online community could be introduced in first year of their course. The need to 'sell' the concept of a community of practice, underpinned by theory and evidential research and the modelling of how such a community may work and add value to their learning outcomes, may well outweigh the need to support the variety of learning styles present in the class. In terms of good instructional design, the design of tasks and/or activities on a

COP can encompass the varying traits of learning styles including group activities and collaboration for Accommodators and Divergers as well as online resources and reading for Convergers and Assimilators.

6.4.11   Learning on Facebook

Although many students felt that learning did take place on Facebook (64% in Case Study One; 36% in Case Study Two), the data showed that many students also felt that Facebook was purely for socialising rather than social learning, in that it connected students and allowed them to interact, but was without guidance or direction in terms of learning. Time for posting and commenting and expediency appear to be issues: "*I feel like Facebook is too informal for that [learning] to be happening. If someone wants a quick and easy answer, I can give that to them right away, because it's in the midst of everything else. If someone wants a lengthy reply, then, no*" (p042, Int).

The question of whether learning takes place on Facebook is an interesting one, depending on what we perceive learning to be. Jarvis (2009) defines human learning as:

The combination of processes through a lifetime whereby the whole person – body (genetic, physical and biological) and mind (knowledge, skills, attitudes, values, emotions, beliefs and senses) – experiences social situations, the perceived content of which is then transformed cognitively, emotively or practically (or through any combination) and integrated into the individual person's biography resulting in a continually changing (or more experienced) person (p. 25).

It could therefore be argued that learning is taking place in a social situation on Facebook where content received is transformed and integrated into a student's biography.

The use of Facebook as an online community of practice for final year was disregarded by this researcher for a number of reasons: the need to keep the community private; the desire to present a different platform for interaction; and, in Case Study Two, the attempt to integrate platforms with the existing university online provision of learning supports. Research has shown that students may be reluctant to use Facebook for educational purposes but will continue to use it for socialisation purposes (Madge et al., 2009). Conversely, research has also emphasised the potential of social networking systems in education in terms of "the process of building networks of information, contacts and resources that are applied to real problems" (Anderson and Dron, 2011, p. 87).

Students in both cases felt that learning took place on Facebook but not to the same level as on the COP. One student felt the difference was in the focus on coursework and the understanding that all members of the COP were interacting for academic reasons: *Because you could talk to each other. You could talk with your class, which you can do that anyways, but they can talk with you and not be afraid that you've been judged or, like some people don't like talking out in class. You're getting a response there and then. Even though you might not understand the response, you can ask more questions whereas sometimes in class, you ask a question and it might not be the response you want but then you feel like you can't ask another question*" (p018, Int).

Students understood that the focus of the COP was academic and centred around their research module and assignments. It seems that the combination of an online platform, the perception of unbounded access to the lecturer, and the invisible presence of peers may have been a freeing experience for some. The physical confines of the classroom can be a limiting factor for some students who feel that there is a maximum number of questions that can be asked of the teacher as if they are using up their time or questioning quota. The familiarity of Facebook and the ease of communicating through text without perceived limits may also engender a sense of comfort and assessment free interaction for students when communicating online with a lecturer.

6.4.12 Lecturer on COP as incentive for participation

The presence of a lecturer on the COP was an incentive for all students in both case studies. Key aspects of the students' perception of this contact was the 24/7 access, speed of response, and the appreciation that the response from the lecturer was the correct answer and definitive in terms of process and structure of the assignment submission: "*the contact with lecturers and their speedy responses. It made a huge difference seeing that gap close, and have that assistance*" (p064, FS). Findings from this study confirm Ellison and Wu's (2008) recommendation in their study of student blog usage that students "need explicit guidance in regards to defining their positions and reflecting on their ideas in the context of others' writing" (p. 119).

Fifty-three percent of the class in Case Study Two felt that "*accessing the lecturers when I need to*" was the most beneficial aspect of the COP (FS), followed by "*taking control of my own learning through connecting with peers*" 59% (FS), and "*seeing where peers are in*

relation to me" 31% (FS). The majority of students felt that it was necessary to have a

lecturer on the COP "*to guide you in the right direction*" (p045, FS), "*yes definitely to give us*

feedback on our ideas (p014, FS)", "*most definitely. Firstly for support and advice and*

secondly, to monitor and police the COP insuring it is being used for its intended purpose"

(p038, FS). These findings support Rogers, Usher, and Kaznowska's (2011) observation that,

"Far from preferring to be immersed in a digital world of self-directed learning, students

seem to still have an enormous desire to learn directly from a 'sage on the stage'. The

advantage they see in e-learning resources is that they give them the freedom to make

occasional mistakes – missing class, forgetting a textbook at home, etc. – with less fear of

falling behind" (pp. 17–18). This was evidenced by the emphasis that students put on the

presence of a lecturer or 'expert' on the COP.

Students in Case Study One were more divided on the need for a lecturer. The majority of

respondents to the final survey felt that a lecturer was necessary:

> *The COP is directed to helping learners gain more in formation in relation to a topic of*
>
> *study. If a lecturer was unavailable, a crucial link to expert knowledge would be missing.*
>
> *For example; if I were to ask a specific question in relation to an assignment such as 'How*
>
> *best should I structure a particular essay?' I feel that the best answer would come from*
>
> *the person who is going to mark it [i.e. the lecturer]. Peers may give direction on specific*
>
> *topics and this would be valuable, however I would think that a lecture would guide me*
>
> *best* (p019, FS).

Two students who did not believe lecturer presence was essential for the COP offered clear justification for their views: "*People are old enough when in a university in order to talk and relate to each other*" (p027, FS), and "*Students can become fixated on putting up things they think will please the lecturer*" (p040, FS).

In both instances the same lecturer facilitated both COPs. In Case Study One, the lecturer engaged in 230 separate chat interactions with students. In Case Study Two, the lecturer engaged in 217 interactions with students, giving feedback, reassurance, or guidance on coursework. Only 36 (53%) of the students in Case Study Two directly engaged with the lecturer on the COP. Dennen, Darabi and Smith (2007) suggested that there is a threshold at which an instructor's heavy-handed or overwhelming amount of communication inhibits or discourages learner communication and participation (p. 69). The balance of feedback and stimulation is difficult to maintain, and Stodel, Thompson, and MacDonald (2006) recommend that educators cannot presume that a feeling of community and collaboration will just happen. They "should articulate best practices, be role models in their online interactions, provide examples of strong community building behaviours, remind learners of the important role they have in the discussions, offer constructive feedback, and be present to coach and support learners in their interactions" (p. 18).

The lecturer maintained a constant presence on the COP in terms of replying to posts and using the + sign (a way of liking a post on Google) to provide support and affirmation. The lecturer was also available to students in each case study through email, telephone, face-to-face consultations and lecture time. The ubiquity and availability of the lecturer was a key factor in the success of the COP. Students commented on the speedy response time and

24/7 access. Ke's study on effective online teaching presence (2010) found that adult

students identified instructor presence as a key driver of learning satisfaction. Findings

indicated that "instructors are expected to skilfully orchestrate (neither dominate nor

ignore) online discussions, provide prompt and meaningful feedbacks, and monitor or

support students at individual level" (p. 818).

It is not clear whether the ubiquity of the lecturer presence and response inhibited the

potential of the COP to develop into a primarily student managed space. There were other

variables at play; the presence of assessment tasks on the COP relating to one module, the

linking of the work of the COP to the creation of a research thesis with the decrease of

collaborative tasks, the move into individual work, and the limited timeframe of the COP in

final year may have impacted on student usage. Students have suggested that the COP be

introduced in first year as part of student induction and encouraged as part of a degree-

wide initiative across all modules.

Another aspect of the lecturer presence and its influence on the COP may relate to self-

disclosure and the lecturer's teaching style. Mazer, Murphy, and Simonds' (2009) research

into the effects of teacher self-disclosure via Facebook on teacher credibility found that

"participants who accessed the Facebook website of a teacher high in self-disclosure

reported higher levels of teacher credibility than participants who viewed a low self-

disclosure Facebook website" (p. 175). In an earlier study (2007) by the same researchers, it

was found that students exposed to a high self-disclosing teacher on Facebook reported

"higher levels of motivation [and] affective learning, and evaluated the climate of the

teacher's classroom more positively than students who viewed a teacher's Facebook page

featuring limited self-disclosures" (p. 9). The lecturer who facilitated the COP in this case has high levels of self-disclosure in terms of posting photographs, sharing personal anecdotes of her learning experiences, and aligning herself as a researcher with the class as novice researchers. It may be that this high level of self-disclosure influenced the high levels of affective learning self-reported by students through the CAP Learning Scale.

6.4.13   Perceptions of lack of response from peers

One of the limitations of the COP was the perception of a minority of participants that some students received more help than others. These feelings can be traced on the COP to a few instances where students did not receive a response to a question requesting assistance. Through interview it was disclosed that some students experience the same indifference on Facebook and carry those feelings of isolation and discrimination with them. It is difficult to ascertain where fault in these instances lie. In Facebook it has been observed and commented on by students that questions that can be answered quickly will be prioritised over questions that require longer answers. It has also been remarked at interview that students who do not attend lectures regularly will request high levels of information and advice at assignment and examination time periods. Students reported that these requests are generally ignored as most students in the class are aware of who is attending or not. These 'value judgements' on whether to respond or not to a student request have not been examined in this research, but may yield interesting opportunities for further research in terms of student support and collaboration. Students remarked that there is a general reluctance to spend time on constructing complex or time-consuming answers on Facebook. It is not clear whether the same attitude to providing detailed answers exists on the COP.

An examination of the top five students who received the most comments or suggestions from other students on the COP in Case Study Two demonstrates that two of the five students were very active on the COP with 31 posts (p10) and 58 posts (p42) respectively. These posts were weighted more towards peer interaction than lecturer interaction (71%/29% and 88%/12%). Interestingly, the third most active student on the COP, with 32 posts, was engaging with the lecturer directly 63% of the time. It is not clear from the data whether students prioritise their friends over their peers in posts and comments. Other variables such as content of posts, timing and receipt of notifications, similar research topics, need for sources or suggestions, and convenience can influence how students engage with each other. One student in Case Study Two observed that not everyone received help: "*I didn't encounter many problems, I did find however that a lot of people would help one particular person and give them loads of links and then there would be others who didn't get any links or information shared with them in relation to their topic*" (p32, FS). Her response rate from other students was low with only four responses from peers to 18 posts. It is difficult to explain why one student's experience of peer support is different to another without factoring in personality type, experience, attitude, relationships, and need. This student did find the COP useful for her learning as she read others' posts and obtained sources and useful links. Lurking will be examined in the next section.

6.4.14 Lurking

The concept of Legitimate Peripheral Participation (LPP) as the main principal of situated learning arose from the work of Lave and Wenger in their book, *Situated Learning – Legitimate Peripheral Participation* (1991, p. 81), to describe the process whereby novice

members of a community of practice (COP) can progress through the COP to becoming full members by participating and communicating with more established members of the COP. Analysis of the data from Case Study One showed that some students chose to 'lurk' during the online chat tutorial sessions until they felt ready to participate. This 'lurking' behaviour was of value to them, allowing them to view others' submissions so that they could gauge whether they were ready to participate at the same level.

One benefit of using Ning as a COP in Case Study One was that you could view when a student was online even when not contributing. Some students would log into an online chat session and observe. Some would eventually contribute after three or four sessions, but several students never contributed visibly to the COP. As indicated on the chart below, some students attended five online chat sessions for the full two hours without participating:
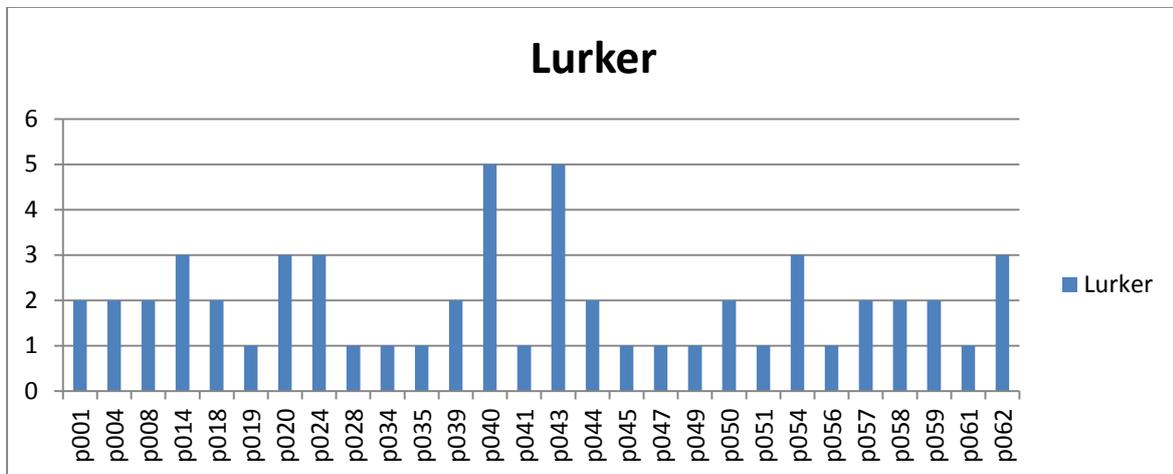
Fig 6.5:   **Case Study One: Lurkers by number of online chats and participant number**

Nonnecke and Preece (2003), in their chapter "Silent Participants: Getting to Know Lurkers Better", define lurking as a "situated action with many personal and group, work, and tool related factors affecting the activities and level of public and non-public participation". They

suggest the term 'non-public participant (NPP)' should be used as it is not pejorative and suggests that there are other forms of valid participant other than public posting (p.130).

Gulati (2008) raises important issues relating to the use of the constructivist approach in designing compulsory activities. In her study of "Compulsory participation in online discussions: is this constructivism or normalisation of learning?", she concludes that "current learning strategies do not see learner decision and suggestion of discussion topic as important. The suggestion that active learning is demonstrated through participation in online discussions is challenged for normalising participatory behaviour and removing the choice of learning in silence" (p. 189).

This is an interesting point of view in terms of the construction and progression of a COP. The Ning COP in Case Study One was voluntary, free from assessment, and facilitated by the lecturer through a voluntary online chat once a week. Students were invited to engage but were free to participate or not participate as desired. Student numbers in the online chat varied from 4 to 30 at its peak. The chat was presented on Ning as a fast moving asynchronous text based interaction where contributors had to be focused and quick to post and follow responses to their posts. The chat was archived and emailed to all students after each session. Students found the chat beneficial with or without participation as they were able to benchmark their progress against other students' comments and also receive answers to questions that they felt unable to ask through the questioning of the lecturer by other students. For some students, lurking or non-public participation was adequate for their needs and satisfied their questions without the need for interaction. The students' ability to type at speed or to read at speed was also a factor in participation in the Ning COP,

as some students who were slow at typing or slow readers felt intimidated by the pace of the text flow on screen. Although students were free to interact individually through online chat with the lecturer and to post at their own time and pace on the COP forums, the online chat once a week was the main interaction point on the COP in Case Study One.

Hoadley (2012) makes the observation that, if a student wishes to 'lurk' in class before they identify enough to contribute, they need to do this in a legitimate space on the periphery of the classroom. The COP allows students to take the time to participate in the community through reading and exploring comments and posts, familiarising themselves with the norms of the community and the conventions and boundaries of interaction. This process can be linked to legitimate peripheral participation, which is the process by which newcomers become included in a community of practice (Wenger, 1998, p. 101). This process must allow the newcomer to engage in the practice of the community and to develop a status in the community. Students in the COP are invited to be members and can access all posts and sources that are posted. Their membership of the COP confers access and permission to participate at their own pace.

Gulati (2008) goes further to link silent participation to Maslow's Hierarchy of Needs. She suggests that "the issue of safety is not only central to participation in discussions but according to Maslow (1971, p. 43) it is central to all learning" (p. 187). The inability to silently participate in a COP or learning environment can be difficult for some students who find disclosure in a public space uncomfortable or feel disconnected from their class group and consequently vulnerable to criticism. She warns of the increasing culture of surveillance due to concerns about safety and risk when using technology which can remove individual choice for types of participation (ibid.). The ability to silently participate is also one of choice

for many students who not have a particular question or comment but wish to engage with their peers and resources through observation. It was not possible to clarify numbers of students who 'lurked' in the Google+ COP as analytics are only available for public COPs. The establishment of the COP as a private space inhibited the availability of analytical statistics on usage and times of use. Students in Case Study Two admitted at interview that they often browsed the COP without posting, instead viewing comments and examining resources without posting themselves. The availability of the Google+ COP as an app for smartphones greatly increased the browsing behaviour of students, as they received notifications on their phones of new posts, which prompted them to check the post for relevance to their own research: "*Yeh I feel that I went on and looked at other people's posts more because I was getting notifications about them and it meant I didn't have to go online and sign in through my email I could just get to the COP straight away through the app*" (p032, FS).

Ten students confirmed that they would often browse the COP without posting, "*reading in detail*" (p026, Int), "*the majority of the time I went on it I was looking at resources, other things people put up. I thought that was a lot more helpful*" (p049, Int), and "*the COP was useful not only for communicating with each other and posting resources but for simply browsing and looking at what other students' interests are and looking at resources which were posted*" (p009, Ref).

Lurking on the COP in both cases was a positive activity for students where they could benchmark with peers, access lecturer feedback and support to peers, explore resources and links, and engage passively with student interaction. The compulsory nature of the

Google+ COP in Case Study Two was designed to encourage students to initiate engagement with each other through set, assessed tasks which may or may not have inhibited the more introvert learners and the less technically proficient students from the COP. Findings indicate that every student in Case Study Two engaged with the COP and found it of value. It is important that each student is afforded an equal opportunity of access and participation within a community space that includes the ability to engage silently. The recognition and incorporation of learning styles, multiple intelligences, social learning theory, Special Educational Needs, and Web Accessibility is a challenge for the construction of open, inclusive learning spaces and communities. The COPs in both case studies provided opportunities for students to browse without comment and access sources without public engagement. The establishment of a COP can take into consideration the need for a range of accessible technologies and diverse mediums of expression, e.g. blogs, wikis, video, and imagery, as well as addressing whether there is a need for assessment and grading as incentives for participation. These aspects of COP design could be discussed with students to invite ownership and interest in the community.

6.5   CONCLUSION

This discussion brings together the qualitative and quantitative findings of Case Study One and two to provide a comprehensive exploration of the attitudes, experience, and opinions of students to an online COP introduced as a support to their research studies in final year. Students identified a range of benefits to them from the COP, including emotional support from peers through lurking, benchmarking, and connecting with individuals who would not necessarily be within their social sphere in the physical classroom. Other benefits included access to the lecturer that was not dependent on contact hours through lectures or

individual meetings. Instead, students could direct questions to the lecturer at any time, from any location connected to the Internet through an appropriate device. The availability of the COP through an App on a tablet or smartphone in Case Study Two was a motivating factor for students who, familiarised through Facebook and other social networking sites, will respond to notifications consistently as they connect with others through their smartphone.

Cognitive and psychomotor learning was shown to take place on the COP in Case Study Two, with especially high levels of affective learning, possibly as a result of the lecturer's teaching style and emotional language used during completion of tasks. Many students also felt that learning took place on Facebook, which may relate to the perception of what learning is and how it is conceptualised. Although the Community Classroom Scale was not validated in this research, the raw data from students' self-reporting on the questionnaire and their statements at interview and in reflection show that the majority of students felt a sense of community while engaging with the COP. All students felt that they had benefitted from their interactions with peers and the lecturer as well as with the 'shared repertoire' of resources and references that were compiled and shared through task completion.

The self-reporting of learning styles and affirming results for some students proved to be illuminating for students and lecturer alike in terms of how students engaged with the COP. It highlighted the complexity and range of learning styles and learning preferences that exist in any class group.

The next chapter will present recommendations based on the findings and subsequent

discussion.

CHAPTER SEVEN: CONCLUSION AND RECOMMENDATIONS

7.1   INTRODUCTION

The introduction of an online community of practice to two classes of final year students has

been shown to have positive benefits and outcomes for learning, sense of community,

stress reduction, communication between lecturer and students, and opportunities for

students to benchmark and collaborate with peers outside of their immediate social group.

This chapter will present conclusions drawn from the case study, answers to the research

questions, and recommendations for future work.

A welcome aspect of the COP for some students was that they found they could share ideas

and resources without fear of criticism or judgement. The COP was a safe space for

expression of knowledge and lack of knowledge. A distinction was drawn by students

between their use of COP and their tendency on Facebook to limit academic discussion to

lower order questioning relating to logistics and clarification of timings of classes,

assignments, and locations. It was found that students would use both types of online

support networks: a COP for purely academic discussion and cooperation, and a Facebook

class page for socialising and clarification of logistical details relating to coursework. Both

serve multiple purposes, not least in relation to supporting the identity of students as

undergraduates, prospective researchers, and peers.

The value and benefit of a shared online academic space was recognised and recommended

as a valuable support for undergraduate students from first year onwards. The value related

to peer support, online access to peers and lecturer, a shared understanding of the focus of

the COP, a tool to encourage a sense of community, an aid to learning, and an online resource that reduced stress and provided comfort to many.

It was proven that learning took place on the COP, with students expressing high levels of affective, psychomotor, and cognitive learning. Students also self-reported a sense of community within the COP, although no clear relationship between numbers of interactions, sense of community, and learning styles was found.

The lecturer too found that her own learning style as an Accommodator and as an individual with high levels of disclosure contributed to the interactions on the COP. An educator can effectively provide guidance and supportive feedback to students to assist them in directing their own learning and identify when students are struggling or needing extra support. As Yang (2009) points out, in an online community teachers can observe and identify students' motivation, misconceptions, struggles, discomforts, and learning experiences to make necessary accommodations in the instructional activities (p. 282).

An online community of practice can be an effective learning aid to a traditional module delivered face to face, through lecture and group work. It serves a dual purpose as a community space for students and as a pedagogical tool for learning and sharing good practice. This study highlights the benefits of an online COP for students and for educators within higher education. The bridging space for traditional and mature students offered opportunities for peer support and cooperation that had not evolved through two years of coursework in lectures. Students, who were navigating the degree as an individual within

small cliques of friends and peers, widened their perspective and engaged with others for

mutual benefit.

7.2   RESEARCH QUESTIONS

The research questions posed in the introduction chapter will be answered below:

R1:   How does an online community of practice support the learning of undergraduate

students?

In this study, an online community of practice has been found to support the learning of

undergraduate students through the provision of a mediated academic space for

brainstorming and discussion, access to the lecturer for guidance and feedback on proposed

ideas or activities, sharing of relevant sources of information, and tasks focused on a

sequential accumulation of ideas and knowledge in support of individual and group

understandings of research. In addition, Rovai's (2009) CAP Perceived Learning Scale

demonstrated that students reported high levels of cognitive, psychomotor, and affective

learning and also felt an increased sense of community. Findings from this study support

Top, Yukselturk, and Inan's (2010) research outcomes in that "course satisfaction and

perceived learning were found to be related to learning community, suggesting that, when

students have a higher sense of learning community, their course satisfaction and perceived

learning increases" (p. 217).

R2:   What are the benefits for students who participate in online communities of practice?

The study shows that, while students still prefer face-to-face interaction, they also appreciate the ability to communicate with each other on coursework through an online COP. They found that the COP helped focus them on their work and encouraged them to phrase their postings in a more academic style. They reported that the "*COP brought out a more academic and helpful side to the class*" (p05, Ref). Using the COP helped some students to become more confident in their coursework and to engage more with peers. Students in Case Study One in particular found that the online COP gave them a voice which they sometimes found difficult to use in the traditional lecture theatre due to fears around judgement and criticism. Traditional and mature students found the COP brought them together with a shared focus. Students in both cases found the COP useful to gain new sources of information and read of peers' approaches to coursework. This study supports Wong and Abbruzzeses' (2011) contention that when participants interact and share their ideas with each other, "they develop the ability to present and defend their opinions. The learner is not passive in a collaborative environment" (p. 85).

R3:   Can an online community of practice improve the social cohesion of an undergraduate class group?

In this study, it was found that students benefitted from participation in the online community of practice primarily through the sense of camaraderie that they felt with each other as they read each other's posts and honest responses to task questions. In Case Study One, the value of interaction between traditional and mature students was recognised by students as a benefit. Students acknowledged a separation in the traditional classroom of

traditional and mature students that was bridged in the online COP. In Case Study Two

students acknowledged the merit in a sense of community: "*Being able to engage in your*

class, having some sense of who the people are in your class. In communities, you know

people's interests, especially in terms of research, so you can contribute to them and be able

to collaborate" (p042, Int). The Irish Survey of Student Engagement 2015 found that "52% of

traditional students have 'never' or 'sometimes' worked with others outside class to

prepare assignments while 65% of students age 24 and above, report the same" (p. 64). The

introduction of a COP to final year class groups in this study has shown that the provision of

an online space for students will encourage them to discuss and collaborate with their

peers. Findings from this study have also shown that the practice of being a member of a

community can encourage students to create their own micro-communities on other social

networking media such as Facebook. Students who had not encountered the concept of

COP before found it a useful framework for discussion for other modules and group work

for assignments.

R4:   How important is the level of participation of the lecturer in the Community?

The importance of access to the lecturer was identified as a key driver of participation

within the COP. The lecturer or moderator must set the parameters of interaction and the

mode of language used to feedback and comment to peers within the COP.

Students emphasised how much they appreciated the access to the lecturer outside of

lecture time and the speed of response. As found in Robinson (2011, p. 111) the methods of

communication that were most preferred by university students were those with the lowest

perceived time to response. Students valued the speed of response that allowed them to

proceed with their coursework knowing that they had the correct answer to their questions.

Two students in particular in Case Study One felt that there should not be a lecturer on a

COP as students can get fixated on pleasing the lecturer. It was also felt by a small number

of students that people are old enough in university to regulate their own learning without

assistance from a lecturer. It is interesting to note how these students perceive age as a

determinant of ability to learn independently without regard to self-efficacy, self-

determination, or, indeed, opportunities to debate and discuss topics relevant to

coursework.

The Irish Survey of Student Engagement, 2015, found that "half of all students have 'never'

discussed ideas from their coursework or classes with teaching staff outside class.

Postgraduate students report more occasions of receiving timely feedback on academic

performance - (43%) 'often' or 'very often' more than first and final year students (33% and

36% respectively)" (p. 53). The provision of a COP afforded students the opportunity to

access teaching staff as and when queries relating to learning arose. Students expressed

their appreciation for the COP and access to the lecturer to talk about their course work,

advance ideas and arguments, and receive feedback on these in a timely manner.

Students have suggested that the COP should be introduced in first year and students

should remain members of the same COP through the lifetime of their programme. The Irish

Survey of Student Engagement 2015 found that of each of the three year groups "it appears

that first year students have the lowest levels of interaction with academic teaching staff"

(p. 75). It is presumed that first years in university have contact with other staff such as

student support services and induction programmes as well as student unions and other

groups, but it seems counterproductive that a student would have low levels of interaction with academic staff at a time when it could be argued they need it most.

Arguably it could be said that academic staff are not employed by universities to provide pastoral care to students but, in the context of improving retention rates and raising awareness of the importance of wellbeing in the student population, a community of practice can be shown to provide a safe, respectful, academically focused space for students enhanced by the supportive presence of peers and lecturers.

R5:   How important is the selection of technology that hosts the online COP for the students?

As pointed out in the discussion chapter, students have access to a range of information and communication technologies in their personal and professional lives that they use in a practical and needs driven manner. This study demonstrates that the ability to access the COP through an App on a smartphone or tablet enhanced students' inclination to participate through notifications and 24/7, geographically neutral access. Research around technology use in the US has shown that the "digitally fluent next generation of college students could have a touchscreen mentality and the digital dexterity to use smartphones as their *only* computer" (ECAR, 2015, p. 13). These findings suggest that a COP accessed through an App on a smartphone may be one of a range of access routes on varied technological platforms that will facilitate access for minority groups or non-traditional students to navigate the first years of university.

7.3 RECOMMENDATIONS

The preceding three chapters have presented findings and discussion of this collective case study focusing on the response of students to the use of an online COP as a support for a research module in the final year of an honours degree. The analysis of data and discussion have raised a number of issues that will form the basis for recommendations that relate to programmatic arrangements in the structure of the degree programme, academic support services for students, and the technical infrastructure of the university.

7.3.1   Recommendations

The following recommendations are presented under five themes drawn from the findings of the collective case study.

7.3.1.1   A COP would be a valued addition to the student experience

University level: It is recommended that the university should develop functionality on the current virtual learning environment 'Loop' that would facilitate cross-modular discussion and/or storage of resources, e.g. documents, video, links. It is suggested that the relevant centres or units within the university explore the attitudes of academic staff to the introduction of an online COP facility for student and staff interaction. The outcomes of this research process, if in favour, should inform the identification of an online platform that would facilitate the creation of an online COP. A set of guidelines or protocols and/or training that would encourage the use of online community space for student-lecturer communication could be developed contemporaneously.

7.3.1.2 **Incorporating a COP into an initial teacher education qualification models professional practice in the sector**

Programme level: It is recommended that an online COP should be introduced to students in the first week of first year or as part of an induction programme for the degree. The same COP would exist from year one of the programme through to final year. The purpose and use of the COP should be demonstrated in lectures, and training given to students in how to use the functions and privacy settings of the platform. This skills based training should be complemented by presentation and discussion of theories of communities of practice, social learning, and the benefits of collaboration. The COP should be presented as a year-wide support with the membership comprising students and lecturers from each module on the year of the programme (e.g. year two – 10 modules: 7 lecturers). Lecturers, with the support of their programme Chair, should be encouraged to share their experience of designing and establishing online discussion forums or tools with students in their individual modules. This sharing of practice could be facilitated by a programme level online COP for lecturing staff.

7.3.1.3 **COP as an evaluation tool**

The benefits of the COP can be evaluated for students, lecturers, and the improvement of course delivery and materials.

Student level: Students should be encouraged to use the COP as an assessment for learning mechanism that provides an opportunity to benchmark their learning against peers.

Lecturer level: The COP can be used as an informal monitoring mechanism on student comprehension of coursework. The COP provides a "window" for evaluation on the effectiveness of instruction and the gaps in knowledge that may be articulated by students. Additionally, the lecturer can provide targeted feedback to individual students and the class group. This feedback in turn can be used as a tool to model and demonstrate effective, respectful collaborative practice.

7.3.1.4 An inclusive COP

The ubiquitous presence of social networking sites such as Facebook, Twitter, and LinkedIn in students' lives and the use of communication and sharing Apps such as WhatsApp, Snapchat, and Viber demonstrate that students are connected through a maze of software and devices. The potential for isolation and/or segregation of students without the access, ability, or skills for such technologies is high.

It is recommended that care is taken in the design of any COP to facilitate the membership of all students regardless of age, gender, technical ability, or familiarity with social networking sites. The design of the COP should adhere to constructivist principles. "Students have more control of the learning process as a result of being able to access course material on their own and a greater propensity to directly contact the instructor" (Schell and Janicki, 2012, p. 34). On demand training (including video demonstrations) for the range of functions within and attached to the COP should be provided, e.g. online chat, video chat, access to links, and documents. Materials, resources, or recorded discussion through chats and forum posts should be duplicated where appropriate in other formats, e.g. integration of learning from COP into lectures, distribution of outcomes of discussions

on Loop, and email of key points from discussions. Silent participation or lurking should be recognised along with posting and uploading of resources as equal engagement with the COP potentially through digital badges or buttons onsite; and care should be taken to positively reinforce learning and encourage communication between students and students and lecturer.

7.3.1.5 Digital competency

A tangential finding of this study showed that students familiar with intuitive technical devices, software, and websites that are responsive and pre-emptive in functionality, are not well equipped to troubleshoot technical glitches when using a function for the first time, e.g. Hangouts. Many of the students tried the Hangout function and when they encountered a problem, gave up and reverted to tried and tested methods of communication. There may be a need to research further the optimum level and provision of technical training for students on the programme. One aspect of this research could focus on digital literacies and digital competences in relation to how students engage with online tools and the depth and type of learning that takes place through this engagement. There may be a need to rethink how training as part of digital learning is delivered within specific modules, particularly with regard to 'student amnesia', where students who have attended a range of technical training sessions relate the skill to the module and seem unable to apply it to other settings.

7.4 SIGNIFICANCE OF THIS RESEARCH

The findings of this study add to the current body of literature on communities of practice in education and the importance of social learning as "a change in understanding that goes beyond the individual to become situated within wider social units or communities of

practice through social interactions between actors within social networks" (Reed et al., 2010, p. 6). This research presents a holistic, 360 degree viewpoint of the undergraduate experience of the concept and process of a Community of Practice. Findings have relevance for university approaches to supports for students in their learning and their experience as a student in higher education. The research has shown that students valued the experience of legitimate peripheral participation, the process of 'becoming' a member of a COP, and grew in confidence in their professional practice as researchers and novice educators. This reinforcement of a professional identity for undergraduate students is an important part of their educational journey and as such can provide solutions to the challenge for educators of how to share tacit knowledge and learning with peers in the learning space.

Analysis of the data in both case studies confirmed Dennen's (2008) study of lurking as a "current activity label" for learners who "will engage as appropriate for them to meet their learning goals" (p.1628). It is significant that students who had not posted frequently or consistently still reported high levels of affective and psychomotor learning from their non-public participation in the COP (Nonnecke and Preece, 2003, p.130). This research contributes to the hypothesis put forward by Gulati (2008) that issues of safety are central to learning (p.187). Findings demonstrated that some students adjusted to the novel environment of a COP through lurking and browsing posts before responding to the safe and respectful environment by posting their own thoughts. The affective language and expressions of growing confidence in posts and interview demonstrated that emotional wellbeing through interaction with peers can "be a buffer to stress and….a practical or cognitive aid" (Greenhow, 2011).

The voice of the student experience of an online COP has relevance for the design and delivery of online supports to university students, particularly undergraduates. The findings articulate a need or wish for interaction with lecturers as facilitators and guides to learning, and a burgeoning recognition by students of their peers as a resource for learning and emotional support. This research shows that the opportunity for students to interact with lecturers as co-members of a COP can strengthen their identity as a legitimate member of the community and a contributor to the shared knowledge and practice of the community space.

The findings of this study contribute to the emerging field of cross-generational and intergenerational learning through examination of the mutually beneficial relationship that emerged between mature students and traditional students in the online COP. Both mature students and traditional students overcame assumptions to acknowledge the worth of cross-generational relationships and the broadening demographic of student populations. Newman and Hatton-Yeo (2008) note in their paper, "Intergenerational Learning and the Contributions of Older People", that "the increasing importance of education, for economic success and the concerns over the impact of educational failure in a proportion of younger people, provides a developing role for older people as mentors to transmit knowledge and provide additional resources to educational systems to raise students' achievement and self-esteem" (p. 38). COPs are a powerful tool for engagement of adult learners and recognition of their contribution both personally and professionally as participants in a student community.

7.5   LIMITATIONS

This study had a number of limitations in that the sample size was small in each case, with 67 participants in Case Study One and 68 participants in Case Study Two. Students were also in the final year of an education and training degree which is an applied degree focused on professional practice, information and communication technologies (ICT), and reflective practice within all education settings. As such, students would have already completed modules in the areas of information and communication technologies (ICT), web-based pedagogical tools, and the importance of collaborative teaching strategies. It can therefore be presumed that students could have been positively pre-disposed to the concept of communities of practice.

Time was also a limiting factor as students used the community for the first time in final year and were under pressure of final grades, more challenging modules, and career decisions. Findings demonstrate that students feel that the community should be introduced in first year and that familiarity with the concept and the process could grow over a number of years to final year. More time would also allow members of the community to introduce experts in education and training and/or experienced teachers into the space to present new ideas and practice based experiences and stories.

Students were also at the same level generally in their studies and as such looked to the lecturer as the more knowledgeable 'other' in the COP. A key concept of communities of practice focuses on the participation and meaning-making that happens when a new member of a COP learns from older more experienced members. This situated learning or legitimate peripheral participation may have happened between the students and lecturer,

but it is not clear whether it is legitimate peripheral participation, as the community was established by the lecturer and issues of locus of control and power could have subtly or unconsciously influenced the interaction.

7.6   SUGGESTIONS FOR FUTURE RESEARCH

Future research would be useful in a number of areas:

The community of practice could link into the field of cross-generational learning to explore mentoring between traditional and mature students on specific topics to be identified through consultation with student bodies and student support services. This community could be broadened to retired faculty staff and/or teachers in further education.

Consultation with student support services on the benefits of online community support could be carried out to explore how social networking sites are currently being used by the university as informational or promotional vehicles. Is there a need for a more formalised yet accessible online community support for undergraduates that could link to induction and settling in of new students? Learning communities are being used extensively in the United States of America to physically link disciplines and student bodies together in higher education in college faculties in order to facilitate staff in focusing on a specific cohort or topic, and in schools to focus on improvement of student results through staff collaboration and sharing of best practice.

The concept of student identity as an undergraduate student experiencing university life and the concept of student identity as learner would be interesting to explore through

membership of an online community of practice and Facebook. The concept of identity may well be linked to the higher levels of learnedness and connectedness felt by male students on the Classroom Community Scale (2002). It would be interesting to explore how concepts of self as a learner and as a graduate, as well as other life roles – sportsman, athlete, and father – influence engagement in an online space.

7.7 CONCLUSION

This study presented the findings of a collective case study comprising two individual case studies of two final year class groups using a COP for the first time. Communities of Practice in education and training can be powerful tools for collaboration, identity formation and sharing and improving practice. Communities of Practice are part of teaching and learning across all sectors of education. The social learning and affective learning that took place in the COPs in this case study benefitted students and contributed to their understanding of the coursework, and to the alleviation of their stress and worries in final year. The COP contributed to class cohesion, bridging a physical gap between traditional and mature students. Communities of Practice are increasingly recognised as valuable resources for teaching and learning for teachers and students. This research contributes to the body of knowledge on communities of practice and how they might be utilised in higher education as learning supports for students, monitoring and feedback mechanisms for lecturers and to illustrate the COP's power as a community space.

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