Social networks: Encouraging collaboration among first year undergraduate students at the University of Cape Town

by

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ABSTRACT

In recent years, social networks or use of Information and Communication Technology (ICT) in tertiary-level educational environments has experienced exceptional growth. An extensive body of research has established the pedagogic potential of social networks. The literature has identified factors that can encourage or constrain participation in learning activities supported by social networks in a university setting.

In response to these concerns, this study intends to examine the pedagogical application of integrating social networks in-class interaction to leverage out-of-class interaction with the aim of supporting learning for first year undergraduate students at a contact university. The study seeks to gain a rich and in-depth understanding of the nature of students learning, mediated by their participation in social networks in three learning locations at the University of Cape Town (UCT), namely, (i)***formal learning locations,*** such as scheduled classes and laboratory sessions; (ii) ***semi-formal learning locations,*** such as libraries, walk-in laboratories and mingling areas; and (iii) ***informal learning location*****s**, such as after-hours work, university residences, and weekends in private homes.

By using an activity theory perspective and thereby highlighting mediated activity, this inquiry intends to use an expansive conception of student participation that takes into account social, cultural, and historical factors as well as academic integration in the local and broader context.

To investigate the nature of the learning that results from participation in the three above-mentioned learning locations, the research design has been shaped by qualitative orientation. The study has used a case study approach, by formulating an exploratory research question, and it has drawn from ethnographic research methods to allow the nature of participation to emerge through the experiences of students. Data have been systematically gathered by way of semi-structured

interviews with first year Information systems students who come from diverse backgrounds at UCT. Using activity theory as an interpretative tool, the collected data have been analysed, and the findings emerging from this process have thus been grounded in data.

The findings show the complexity of social networks and emphasise the crucial role that social as well academic integration play in shaping participation and formation of learning communities via the provision of a variety of means of interactivity and collaboration, including social network sites. The study has shed light on the ways in which students make sense of the learning communities they themselves have created by exploring the intersection of their beliefs and understandings with emergent practice. The students indicated that their participation in the classroom is sometimes limited and that they generally feel a lack of academic support, as they pass through various learning locations.

This has been particularly evident in relation to the credibility of students to act as knowledge creators for each other and the common approaches used in social and academic participation. Finally, this inquiry adds to the growing body of work that emphasises the fact that social learning communities are a preferred option for first year undergraduate student's interaction with peers. They also prefer these communities as a source of academic and moral support because they are task-oriented and an efficient means of utilising time effectively between classes. Moreover, the assistance, guidance, encouragement and emotional support offered to one another by group members through the establishment of social networks help students to engage more effectively with the university environment.

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Declaration

This work has not been previously submitted in whole, or in part, for the award of any degree. It is my own work. Each significant contribution to, and quotation in, this dissertation from the work, or works, of other people has been attributed, and has been cited and referenced.

Signature: _____Date:_____

CHAPTER 1: INTRODUCTION AND OVERVIEW

1.1 Introduction to the chapter

There is a growing interest by university students in the usage of social network sites as a learning tool; however, the understanding of a pedagogical application for integrating social networks into in-class interaction with the aim of leveraging / increasing / improving / encouraging out-of-class interaction to support learning has not been exploited.

The current interest and popularity in the Web 2.0 applications has led quite literally to an explosion in the popularity of social software tools, such as *Facebook, MySpace, Mxit, Twitter, blogs, wikis, podcasting*, online photo blogging etc (Alexander, 2004; Fielder, 2004). Studies conducted by ECAR (2009: 7) show that "students own a variety of Information and Communication Technologies (ICTs) and use them as tools to regularly communicate, find and exchange information on the internet, do class work, and recreate." ICT's coupled with social networking tools have the potential to provide the basis for enhancing teaching and learning in virtually any discipline, providing an environment that stimulates reflection, critique, collaboration, and user generated content.

This study focuses on pedagogy from a student perspective, concentrating on the social constructivist environment. However, the crucial element in the success of implementing social networks as an enabler of learning is the intentional integration into teaching and learning, both in a traditional classroom and outside the classroom setting. Initially, the study gives an overview of existing ICT applications that fall into the Web 2.0 category, and discusses the potential for employing these applications in education.

The role of ICTs in education in South Africa in creating new ways of learning has been explained in national and institution policy documents such as the National Research and Technology Foresight ICT Report (Department of Science and Technology, 2000), and the White Paper on e-Education (Department of Education, 2004). Social interaction using ICTs within an online framework can help students to share experiences and to collaborate on relevant topics. As such, online social networks can act as a pedagogical agent, for example, with problem-based learning.

This study discusses how online social networks may be utilized within university education by students sharing information and resources that are originally developed for themselves, but that can be made available to others – for instance notes, bookmarks, links and references (Dalsgaard, 2008). A pedagogical framework for integrating online social networks can be developed by drawing on concepts from constructivism, social constructivism, communities of practice, and the connectivism model of learning. These theories underlie the capacities that are the theme of this study which include: collaboration, interactivity, transparency, communication, critical thinking.

Today, instruction has shifted from a teacher-centred to a student-centred environment (Suhunk, 2004). Students are no longer passive information-receivers; rather, they are active knowledge-constructors. The online social networks shows great potential for enhancing collaborative learning between students, and the role of social networks has become increasingly relevant in recent years (Selwyn *et al.,* 2008).

For the university students who participate in this study, a viable alternative to the conventional style of teaching is one that complements existing opportunities, which is to engage in academic interaction activities through social interaction using available online social networks available. The researcher conducted the

study at the University of Cape Town (UCT) in South Africa for the following reasons:

- This university is one of the largest players in the higher academic circles in South Africa when it comes to enrolling first year undergraduate students from diverse social backgrounds, with different cultures and languages; and,
- While studying at this university, the researcher became aware of concerns around the learning that was happening in different locations and the problems that students encountered with the need for academic support as they passed through these various learning locations. The following learning locations were identified: (i) formal learning locations, such as scheduled classes and laboratory sessions; (ii) semi-formal learning locations, such as libraries, walk-in laboratories and mingling areas; and (iii) informal learning locations such as after-hours work, university residences, and weekends in private homes (Ng'ambi, 2006; Kekwaletswe, 2007).

This following section presents the background to the research, defines the research problem, and discusses the aim of the study. This chapter concludes with an outline of the rest of the document.

1.2 Background

This study investigates the pedagogical application for integrating online social networks to support collaborative learning at a contact university. The study builds on the research conducted by Kekwaletswe (2007), who indicated in his research that students frequently encounter problems that may need immediate attention or are time-driven. Generally, however, they feel the lack of context– sensitive "anywhere and anytime" academic support, as they pass through various learning locations. Kekwaletswe's (2007) empirical work focused on the potential of using mobile instant messages to contribute to learners' interaction within a learning setting. In his study, Kekwaletswe (2007) concluded that social presence afforded by synchronous mobile instant messaging could successfully maintain social

networks for ubiquitous mobile learning and enable the kinds of interaction whose outcome is knowledge creation.

Numerous studies (e.g. Brass, 1984; Smith, 1999) indicate that a stable social and economical background among students is a key factor in ensuring that they succeed in their studies and in preventing drop- outs. Two underlying socio-economic factors have been identified as having a significant influence on the integration of first year undergraduate students at a contact university, namely: (i) The changing role and status of the university in society, and (ii) the changing role of university studies in the lives of students (Lahteenoja & Pirtilla-Backman, 2005). However, these differences have not been observed in the context of students having access to different learning locations, with which technology students are most familiar.

In order to mitigate this tendency, a number of approaches are suggested by various stakeholders. They include encouraging student interactions at the university, both inside the classroom and outside, to promote a sense of belonging and to engage students in the type of active learning that is known to enhance academic outcomes (Bryant, 2006; Kekwaletswe, 2007; Ng'ambi, 2006c). Considerable resources have been dedicated to establishing effective methods for locating people in suitable working groups. This study investigates the role of social networks at a contact university and focuses on analysing the role played by social networks in improving students' learning experiences.

In universities, study groups are frequently created among students to improve their performance. Some success has been attained in the use of web-based study courses using shared spaces for accessing their evolving contents. Wikis, weblogs and online documentation are also gaining popularity and pedagogic credence as part of the learning process (ECAR, 2009). The arrival of "Web 2.0" a term coined by O'Reilly (2006) to imply a second generation of web development, where web content is characterised by interconnectivity, interactivity and collaboration, has

inspired new wave of interest in students' use of the internet. This interest is especially in relation to new social media, such as social network sites, wikis, and blogs, as these are web services that are particularly popular among the younger generation (JISC-Ipsos Mori, 2008; Selwyn *et al.,* 2008).

The explosion of new ideas in the arena of social networks and their possible application in formal and informal learning environments has raised some serious questions regarding good pedagogic practice vs. technology. A series of reports have emerged in recent years, highlighting the extent to which new social networks are becoming increasingly embedded in the educational experiences and everyday lives of today's student population (JISC-Ipsos Mori, 2008; Johnson *et al.,* 2008 & 2009; Jones and Madden, 2002; Katz, 2008; Kvavik and Caruso, 2005; Salaway and Caruso, 2008; Selwyn *et al.,* 2008).

Today's university students are part of what has been termed the "Net Generation" (Tapscott, 1998; Tapscott, 2009). How important are social networks today for students? Moreover, how potentially effective could they be if there was a synergy, rather than a friction, between the drivers social networks of the new generations and the goals that universities in general are trying to achieve?

The first year of undergraduate studies at a large university is a daunting one for many students, a fact acknowledged by many universities in South Africa and elsewhere in response to the findings of published research (ECAR, 2009; Lenhardt *et al.,* 2005). Studies conducted by McInnis *et al,(*2000); and Pascarella and Terenzini (1991) have highlighted the fact that the first year experience is critical to a student's commitment to learning, and that new students in general feel less positive about university than do students in senior years. However, social networks place their focus student users, and the interactions provide a relatively informal location that allows students to express their own thoughts and reflections and to make their own connections.

First year university students attending university studies at a contact university come from diverse social backgrounds, with different cultures and languages. A ***contact university*** is an educational setting where students, perform academic tasks in three learning locations: ***formal learning locations,*** such as scheduled classes and laboratory sessions (where a student's behaviour is modelled according to the university class timetable), ***semi-formal learning locations,*** such as libraries, walk-in laboratories and mingling areas, and ***informal learning locations*** (the characteristics of informal learning location are not explicit; however, these locations include after-hours work, weekends in private homes and university residences) (Kekwaletswe, 2007; Ng'ambi, 2006c). Academic support is normally limited fixed times (i.e. during lectures or in the classroom or laboratory for tutorials, workshops or seminars) (the traditional classroom setting), and the prospects for engagement in large lecture theatres are limited (Kekwaletswe, 2007; Ng'ambi, 2006c). The challenge is how to sustain these social and academic communities when students enter university in their first year.

Burmeister and O'Dwyer (1996) call for an approach that "allows first year students to draw the two worlds of academic and social together". Students' persistence and success in their university studies depends largely on their ability to negotiate two major interdependent transitions from high schools to university, namely, in the academic and social spheres (Pascarella & Terenzini, 2005; Tinto & Goodsell, 1993). Brown (2005) notes that by coming to grips with the digital identities of local youth and by understanding what kinds of new practices students bring, we can better design appropriate educational interventions."

Social networks provide a community-based website where students can share personal and academic experiences and construct their own knowledge. Online social network sites like MySpace, Twitter and Facebook are networked informal locations where people are connected through networked technologies like 'the blogosphere'. Whenever a student logs onto a social network site (Facebook, MySpace, LinkedIn), or accesses an online communication portal (Yahoo, Google

etc.), the learning that takes place through the site and others around the student can be accounted for by connectivism. This is facilitated by the learning community created through social networks. Learners are connected all the time and share their learning experiences on real time. Social networks are key mechanisms of connectivism, and within such networks there are key people who are well connected and who can foster and maintain the knowledge flow.

Social networks facilitate collaborative learning, expose students to multiple perspectives, and provide opportunities for students to fill their knowledge gaps with the knowledge of others (Singley *et al*., 2000). Collaborative learning using social networks offers an alternate for teaching and learning to that of traditional locations (classroom) structure. As the bridge between the human being and the technology, devices must be constructed so as to maintain high physical and psychological comfort levels.

Collaboration learning using social networks provides behaviours that characterise positive social interdependence, which includes giving and receiving help, exchanging resources and information, giving and receiving feedback, challenging and encouraging each other, and jointly reflecting on progress and process. Social networks can be a key enabler of student achievement.

Lahteenoja and Pirtilla-Backman (2005) urge educators to adopt measures intended to “build learning communities”, which they explain as follows:

> *One response to (the need for more lecturer-student interaction) may be building “learning communities” (Tinto, 1997; Tinto & Goodsell-Love, 1993), which would concurrently accomplish the main goal of learning as well as build contacts among students and among faculty. Using collaborative learning or coordinated study programs (Tinto & Russo, 1994) allows the students to participate in shared learning experiences. This is also what Braxton et al. (2000) found in their study: teaching methods encouraging active learning had an impact on integration, commitment and persistence. These methods of*

> *teaching do require more planning on the teacher's part than traditional seminars. They are more complicated socially, and require a balance of guided group work as well as carefully given input from the teacher. However, not only do students become educated that way, but their social needs are met as they build a network of peers, and the classroom becomes a place of active interaction between teacher(s) and students. Such learning environments will also help meet other goals set for a meritorious university degree, those 'transferable core skills', 'effective communication, creativity and personal growth (Scott, 2002: 16).*

Learning communities created through online social networks enable students to engage in instant real-time communication with peers, family and colleagues via the internet. "The social presence by the student in a social network community gives a sense of the extent to which a communication medium facilitates awareness of the other students" (Kekwaletswe, 2007). This is a measure of the feeling of community experienced by the student (Tu & McIsaac, 2002). The university can be a transitional environment for first year students in which students may experience the benefits of their new- found independence on campus, their participation in an online social network community, a sense of pride in their academic accomplishments, and increased confidence (Pascarella & Terenzini, 2005).

Indeed, a recently commissioned British JISC Learner Experience Project (2008) concluded that universities could no longer afford to ignore online social network communities in the Web 2.0 context, as these have the potential to bring students closer together outside classroom in what would in fact be a virtual campus. These online learning communities are the preferred option for first year undergraduate students in interacting with their peers because they are task-oriented and an efficient means of utilising time effectively between classes.

In light of the benefits associated with increased student engagement, many universities are beginning to adopt learning communities using online social

networks. The assistance, guidance, encouragement and emotional offered by group members to one another through online social networks, thereby establishing friendship, increases their persistence and success in their academic studies; these informal online learning communities assist students to engage more effectively with the university and with their peers. When students work collaboratively in an authentic activity, they bring their own framework and perspectives to the learning community.

1.3 The research problem

As discussed previously, online social networking is emerging as an effective tool in leveraging formal and informal collaboration in educational settings. The enormous interest of student's with regard to the uptake of the online social networks is because "Web 2.0" technologies display characteristics such as interactivity and collaboration that are closely linked to social-cultural theories of learning, which tend to stress the construction of knowledge in social settings (Selwyn *et al.,* 2008).

Social networking is one of the latest and arguably one of the biggest current social software trends, as evidenced by the proven popularity of sites, such as Facebook, MySpace, Friendster and Bebo (Ellison and Boyd, 2007). Social networks place their focus on the student and these interactions provide a relatively informal location that allows students to express their own thoughts and reflections, and to make their own connections.

In the traditional classroom, effective interaction and collaboration with fellow students and lecturers have proven themselves a successful and uniquely powerful learning method (Brown and Palincsar, 1989). But the strong transformative power of online social networks that lies at the basis of development of the so-called 'knowledge society' is increasingly exerting its influence in fields that have traditionally been quite resistant to changes, such as education (ECAR, 2009).

The educational challenges facing the South African education system are sandwiched between systems previously designed to create and perpetuate inequality, and ubiquitous technologies with the potential for creating equal learning opportunities for all. In South Africa, however, because of social/educational problems relating to youths in the group of 16-24 years, such as poor literacy/numeracy, poverty, non-participation in conventional education and lack of access to education, there is a need to incorporate constructivist environments in the pedagogical practice at a university setting. A constructivist learning environment allows students to build up their own knowledge (based on their previous knowledge) while working jointly with peers and colleagues in a reflexive process.

The literature suggests that a student-focused approach that fosters academic peer interactions and collaboration using social networks is particularly applicable and useful for encouraging learning among undergraduates and fostering positive academic outcomes (Owen *et al.,* 2006). Today's student's socialisation and interaction are facilitated by technological advancements. The use of social networks is so widespread among university students that it has begun to reach a ceiling. A study conducted by Wang (2008) reported that social networks (Facebook, wikis, Mxit, MySpace) support teaching effectiveness and learning outcomes. Consequently, many people have recognised that acquiring information by using through the use of social networks in education is of critical importance (Baartman, 2003).

For this reason, this study investigates first year students' general use and perceptions of online social networks, focusing specifically on how these social networks support learning, and how they assist these first year students to engage better with the university. In order to do so, the study traces the learning behaviour of first year undergraduate students using social networks at one of the largest contact universies in South Africa.

1.4 Research question

In accordance with the research problem, the main research question is formulated as follows:

What are the pedagogical potentials of social networks at a contact university?

In order to answer the above question, the sub-questions are expressed as follows:

1. What are the benefits of integrating social networks in order to extend learning beyond the classroom?
2. How do social networks affect the learning experiences of first year undergraduate students at UCT?

1.5 Research objectives

The focus of this study was to examine the pedagogical application of integrating online social networks into the learning environment at a contact university. The study explores how social networks might prove useful to first year undergraduate students at UCT to support and facilitate learning.

In particular, the aim of this study is to:

1. Understand the ways in which social networks alter the student's relationship to the familiar physical educational setting.
2. Investigate how educationists can capitalise on the popularity of social networks and harness them for learning purposes.

The researcher explored the patterns and behaviours of a selected group of 16 first year undergraduate Information Systems (IS) students with regard to the levels of interactivity and collaboration as they utilised social networks in a context of learning at UCT.

UCT is a South African University, which offers research, teaching and pioneering

graduate programmes. As discussed above, UCT students perform tasks in three learning locations, namely, formal, semi-informal and informal. Although learning locations are physically different and learning tasks change, both the student and his/her social networks remain the same. These students furthermore have much in common with their fellow classmates, because they share the experience of lectures, tutorials, residence, etc. The need to maintain these social networks with friends, student peers, and even lecturers, can be a real asset in forming support networks and creating learning communities.

1.6 General outline of the chapters

This dissertation consists of five chapters, which are outlined as follows:

Chapter One explains the background to the study, the research problem, and the aim of the study.

Chapter Two provides a theoretical basis for the proposed research. It discusses social networking technology and provides clarity and guidance on a set of interrelated complex phenomena pertaining to learning theories. This chapter also discusses the need for social and academic interaction to encourage and increase academic achievement.

Chapter Three presents the research design and methodology used in this study.

Chapter Four discusses the findings of the empirical research. This chapter also combines the information gained from interviews conducted with first year undergraduate students and other literature from the field of study.

Chapter Five discusses the achievement of the aims of study and concludes with a presentation of the recommendations for future research.

1.7 Conclusion

In this chapter, the study was introduced the research problem was motivated and the aims and research questions were presented. The next chapter examines social networking technologies and learning theories in more detail.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction to the chapter

The previous chapter introduced the overall background and aim of the study. In this chapter, the researcher provides the theoretical basis for the research. Driven by the research questions, the literature review examines the existing research on how social networks may be utilized within university education by first year undergraduate students sharing information and resources that, although they may have originally developed for themselves, can be made available to others. The intention of this literature review is to find a theoretical basis for the following research question: “What are the pedagogical potentials of social networks at a contact university?”

To do this, the following sub-questions are investigated:

- What are the benefits of integrating social networks in order to extend learning beyond the classroom?
- How do social networks affect the learning experiences of first year undergraduate students at a contact university?

This chapter provides a theoretical analysis of several key focal areas:

- General overview of social networks
- Learning theories
- The need for social as well as academic integration
- Social networks to support interactivity among students
- Social networks to support collaborative learning

This chapter begins with a brief overview and various definitions of social networks, followed by a discussion on how a university setting should incorporate social networks to support learning at a contact university. It discusses the need for

students and lectures to support each other in order to achieve the desired academic performance in a community of practice. The chapter concludes with literature review findings that outline the need for integrating social networks in educational settings.

2.2 General view of social networks

Social networks grew out of previous forms of social media. Because many of the characteristics of social networks already existed in such previous forms of social media, it is difficult to identify exactly where, when and how social networks originated. While various public social collaborative environments existed on the internet as early as the 1980s, the emergency of social networks as they are understood today only arose with large commercially-supported sites such as Friendster (2002), LinkedIn and MySpace (2003), and Facebook (2004), along with sites focused more on content-sharing but with limited social network features, such as Flicker (2004) and YouTube (2005).

Social networks cover a wide range of online environments, with many formal definitions broad enough to encompass almost any Web 2.0 collaborative environment (Alexander, 2006). Social networks as facilitated by social network sites are defined by Ellison and Boyd, (2007: 2), 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.

Social networks are a social structure of nodes that represent individuals (or organisations) and the relationships between them within a certain domain. Arguably, using the definition of Ellison & Boyd (2007), Social networks comprises the individuals and webs of connections between and among individuals who are

associated – based upon one or more interdependencies, such as shared interests, values, friendship, family, and professions.

Owen *et al.* (2006) suggest that the evolution of social networks is converging with the goals of education both in terms of personalising educational experiences and in terms of encouraging collaboration. Learning is increasingly entwined with students' use of social networks, and students strive to understand how changes take place in what they know and do. Acquiring, sharing, and processing knowledge by using social networks are the educational benefits learners can look up to and use them for learning purposes (Salaway & Caruso, 2008)?

This is an important feature, as it suggests that the ways in which students are using social networks might have implications for their social and academic experiences. For example, Facebook is a site understood by students as "real" with a complex web of rules that guide the usage. Thus, student affairs and educational professionals should view Facebook as a space in which and through which students communicate a generational and institution-specific culture that is mediated by anything and everything that affects learning- race or ethnicity, gender, sexuality, years in university, etc.Due to the ubiquity of these available online sites, the current generation of students tend to regard them as part of their way of life rather than as a new set of tools (Salaway & Caruso, 2007).

Gross and Acquisti (2005: 71) state that:

> *online networking sites share a core of features: through the site an individual offers a "profile" – a representation of themselves and their social networks – to others to peruse, with the intention of contacting or being contacted by others, to meet new friends or dates (Friendster), find new jobs (LinkedIn), receive or provide recommendations and much more.*

In particular, rather than online communities organised by topic, social networks are "structured as personal (or 'egocentric') networks, with the individual at the

centre of their own community" (Boyd & Ellison, 2007:3). Online communities are not new. So what is new about the interaction of people within online social networks? According to Mayfield (2005), what may be different is the importance of understanding the role played by social networks in forming online communities.

Based on the above discussion, this study proposes the following definition of social networks:

> *Social networks is a term that currently refers to the use of online sites that facilitate the creation and maintenance of online communities through the internet via the provision of a variety of means of interactivity and online collaboration to provide learning potentials.*

2.3 Learning theories

Social networking is a form of informal learning. Informal learning can happen anytime and anywhere. This study explores the learning theories of constructivism, social constructivism and communities of practice which could be applied to social network learning theory. To establish a social network learning theory, an organisation such as a university needs to embrace the considerable learning that occurs outside classrooms, as people initiate and structure their activities to enable educational processes and outcomes to occur.

Constructivism

Constructive learning is based on the idea that people learn by constructing new ideas based on their current and past knowledge. The constructivist theory of learning acknowledges that individuals are active agents, and that they engage in their own knowledge construction by integrating new information into their schema, and by associating and representing it in a meaningful way. This was corroborated by White's research (1999) into students' expressed need for integration of social and academic spheres via collaboration with new and senior students as well as academic staff. Knowledge is an ambiguous, unspecific and dynamic

phenomenon, essentially related to meaning, understanding and process (Alvesson & Kerreman, 2001).

Students learn best by being involved in the learning process, and discovering new concepts. Constructivism means that students have to modify their current knowledge schemes to integrate new information and acquire new knowledge. Piaget (1973: 107) states that "A student who achieves a certain knowledge through free investigation and spontaneous effort will later be able retain it; he will have acquired a methodology that can serve him for the rest of his life." Social networks support constructivist education activities through collaborative groups (Dede and Sprague, 1999), promoting interactive learning, increasing innovation, developing cognitive skills (ordering, evaluating, synthesizing), and facilitating the control of the learning process (Valdez *et al.,* 2000).

Burmeister and O'Dwyer (1996), call for an approach that "allows first year students to draw the two worlds of academic and social together." Pascarella *et al.* (1996: 104) found that first year students who were most engaged in collaboration with their student peers had significantly higher levels of openness to diversity and challenges. Vygotsky (1978) similarly argued that learning is a collaborative process.

Collaborative learning

Collaborative learning can take a variety of forms. Stewart (1988: 59) notes that, in practice collaborative learning will result in such techniques as *"*reader response, peer critiques, small writing groups, joint writing projects, and peer tutoring in writing centre and classrooms*."* Many of these forms are used both in and out of the classroom.

Dalsgaard (2008) provides a useful contribution to the debate about using social networks as a collaborative practice in educational contexts. There are many learning theories in the literature, but this study will briefly review only some of the

popular ones that are most relevant to social networks. Dalsgaard (2008) presents a case for needing to understand students' existing use of social networks as tools in light of their learning experiences, as opposed to trying to use social network sites for educational purposes.

Social networks support both synchronous and asynchronous communication with chosen individual experts. Using internet technology they can interact with online communities. Their software supports the maintenance of contact information for both individual and group. Sharples (2005) describes the potential of mobile devices for enabling conversations in context. The context of mobile technology can enable young people to learn by exploring their world, in continual communication with and through technology.

Connectivism

As stated earlier, George Siemens (2004) considers the challenges faced by many organisations in knowledge management activities and proposes a new learning theory relevant to technology learning in a networked world. He presents a view of learning through connectivism:

> *Connectivism is driven by the understanding that decisions are based on rapidly altering foundations. New information is continually being acquired. The ability to draw distinctions between important and unimportant information is vital. The ability to recognize when new information alters the landscape based on decisions made yesterday is also critical (Siemens, 2004: 5)*

Social networks are key mechanisms of connectivism, and within such networks there are key people who are well connected and who can foster and maintain the knowledge flow. This has much in common both with aspects of informal learning already identified and with the skills developed within the university. Students need to know from where or from whom information can be obtained, to be able to evaluate and apply the information, and also to be able to do this within a collaborative framework. Siemens (2004) therefore proposes connectivism as a

learning theory for the digital age as a successor to behaviourism, cognitivism and constructivism.

Social Constructivism

Social constructivism forms the underlying basis for learning theories such as communities of practice. As in social constructivism (Vygotsky, 1978), each learner in such communities of practice acquires new knowledge based on the pieces of information that each group member is able to contribute to that community.

> *Social constructivism is an alternative approach to the content approach and is based on communication. Learning is seen as the result of active participation in a 'community' where new meanings are co-constructed by the learner and his/her 'community'. This communication approach favours learning technologies which support communication between communities of learners (Evans, 2005).*

Basically, social constructivism holds the view that knowledge is not 'about' the world, but rather 'constitutive' of the world (Sherman, 1995). A constructivist approach to learning emphasises authentic, challenging projects that include students, lecturers and experts in the learning community. According to Vygotsky (1978), social constructivism is defined by its social context which is very important in constructing knowledge.

Communities of Practice

Also known as communities of knowledge, communities of practice are informal groups of people that develop a shared way of working together to accomplish some activity. The most prominent group type among knowledge-sharing communities is the Communities of Practice (CoP). According to Wenger (1998) CoPs are groups of people who have a common interest in a subject, and who collaborate to share ideas or find solutions.

Dalsgaard (2008) suggests that social networks support student learning in subtle and new ways. Thus, looking at students' existing use of social networks may yield useful insights into how these networks are facilitating informal ways of learning. In theory, CoPs provide a framework to approach studying and learning from a social standpoint (informal). In an educational context, social networks can be construed as CoPs since they fulfil the criteria outlined by Wenger (1998): Social networks have a common goal, members contribute to the community, and members of the community have shared practices. The three main characteristics of CoPs are:

- The domain – the shared interest;
- The community – some form of regular group relationship; and
- The practice – the development of a shared repertoire of resources, involving time and sustained interaction

The research of Marton *et al.* (1993) highlights the following six distinct concepts of learning:

1. Increasing knowledge
2. Memorising and reproducing
3. Applying
4. Understanding
5. Seeing something in a different way
6. Changing as a person

A social network that consists of many students may include some or all of the above concepts of learning. This research aims to recognise the student as situated within a contact university setting, and for this reason an understanding of the learning experience must be couched in terms of the functions and contradictions of the social network itself.

This suggests that learning is not necessarily associated with physical movement, and conversely that there may be opportunities to design new technologies that

supports learning to happen anywhere anytime.

Central concerns of this research are the influences that host contact universities exert on the creation and development of social networks for learning purposes. Typical instances of networks in this context include those that have been directly sponsored by the university/department as part of the curriculum and those that occur spontaneously, having been established by students to complement their university work.

The ways in which students meet and form social networks has caught the attention of many researchers. The fact that we relate to and depend on our social network for such things as friendship, support, knowledge sharing and special interest has inspired algorithm developers to analyse these facets in a more abstract way.

Students are spending hours on their mobile phones, laptops and portable computing devices to chat, coordinate and discuss with peers.

> *If students come to us with PDAs and cell phones... and spend hours using Facebook or MySpace, we should use what they know as the starting place for their educational experience. (Smith, 2002)*

In addition, the complexity of human information processing, which draws from social and cultural issues in the environment has prompted researchers in this area to seek additional guidance from other fields (Bannon & Bedker, 1991; Kuutti, 1996). This together with the realisation of the importance of context (Beyer and Holtzblatt, 1998), into which technology is to be put to use (Suchman, 1987), has led to an increased interest in using Activity Theory within technology research and practice (Nardi, 1996).

Dewey's (1938) "learning by doing" theory emphasizes the value of action while

learning. Much of the learning that takes place in an informal setting, outside the structured learning programs, involves: searching the network and the Internet; asking classmates for help on social networks; and through trial and error posting of academic material. Because this kind of learning can happen anywhere and anytime, much of social network learning takes place in an informal environment.

The integration of social networks in educational system is viewed as important in the 21st century for various reasons. Valdes (2007: 6) explains that both MySpace and Facebook enable students to:

- Create profile pages that define a user's public persona.
- Manage lists of friends, use a search engine to find them and invite them from the user's already-established email accounts
- Send messages of various types (mostly asynchronous such as email, but also instant messages).

This has prompted educationists to consider how they can capitalise on the popularity of these new technologies and harness them for learning purposes. Prensky (2001: 4) proposes that today's teachers need to learn the language of the natives, so to speak, to speed up instruction, and to provide "random access". He argues for a new way of looking at educational content as well. A category that he calls "legacy content" consists of traditional subjects such as reading, writing, and logical thinking; "future content" is "digital and technological," including such subjects as "software, hardware, robotics, nanotechnology and genomics" as well as the "ethics, politics, sociology, languages, and other things that go with them" (Prensky, 2001: 5).

Using alternative models to explain learning, many researchers have turned their attention to Vygotsky's notion of mediation, where a more competent peer or adult is viewed as assisting performance, bridging the gap between what the students knows and can do and what the student needs to know. Vygotsky (1978) conceptualised this gap between unassisted and assisted performance as the zone

of proximal development (ZPD), i.e. that 'space' where learning leads to development. A study conducted by Wang (2008) reported that social networking sites (Facebook, wikis, Mxit, MySpace) are such a ZPD, which supports effective teaching and learning outcomes.

2.4 The need for social as well as academic integration for first year students

Diversity among first year undergraduate students is certain. Differences in ethnicity, class, language, gender, nationality, disability and religion amongst students will furthermore influence their communication within a particular network (McPherson *et al.,* 2001). It is generally suggested that the first year of undergraduate studies is the most critical in shaping students' attitudes and approaches to learning (ECAR, 2009; Lenhardt *et al.,* 2005; Tinto, 1988).

Research suggests that becoming a student involves constructing a new identity and a sense of belonging as well as acquiring new academic skills (The Horizon Report, 2007). Delpoort (2003) states that students associate a diverse and challenging learning environment with feedback from the lecturer or course instructor and with the lecturer's encouragement to engage in frequent social interactions with other students through the medium of social networking.

First year undergraduate students are likely to experience problems of transition, separation and incorporation (Tinto, 1988). These students often underestimate the impact of factors like living away from home, 'accommodation' and social integration when considering their expectations of a contact university. If these aspects of their experience do not meet their expectations, it can generate feelings of loss of control, disenchantment with university education and isolation, which may result in withdrawal from university (Fisher and Hood, 1987).

Thomas (2002) notes that, as students become increasingly diverse it is important that universities provide them with diverse kinds of social space. For example, a

common feature of the computing curriculum is the lab culture. It is here where undergraduates experience a significant portion of their face-to-face interactions. The advantage of this type of environment, from a student's perspective, is the free access to a wide range of students in other year groups and other courses. This exposure can broaden a student's network to receiving support or gaining knowledge.

Some universities offer transition programmes for students coming from different schools to university; these courses are sometimes held during the summer months prior to the first year and they aim to promote awareness and a form of induction, helping students to integrate socially and academically in order to improve university affiliation. In this regard, the Centre for Educational Technology at UCT and various groups at University of the Western Cape have been active promoters of Web 2.0 research and have begun speaking about work in progress, organising conferences (see for example e/merge 2008), and publishing first papers (see, for example, Keats and Schmidt, 2007; Ng'ambi, 2006b; 2008). This is done to enlighten the potentials of integrating social networks at a contact university to facilitate easier induction to the university life and what is expected of a student academic performance.

Decades of research on undergraduates learning has distilled several principles which improve student learning. Research emphasises that carefully designed teaching methods, curricula, learning activities and modes of assessment can play a central role in promoting social and academic integration (Lahteenoja and Pirtilla-Backman, 2005; Lowe and Cook, 2003; Parmar and Trotter, 2005; Wilcox *et al.,* 2005).

The ongoing debate concerning potentials of different forms of social interaction; (namely, groups, communities, collectives, connections, and networks) has the potential to reduce social exclusion, thus increasing a student's self-efficacy. (Anderson, 2008; Dron & Anderson, 2007; Downes, 2007; Jones, 2004; Jones *at*

al., 2006; Jones *et al.,* 2006; Ryberg and Larsen, 2008; Siemens, 2005; Wenger *et al.,* 2005). Making and maintaining social support with peers and academic staff is central to the process of "finding your place" (Wilcox *et al.,* 2005: 712).Thus social integration is as important as academic integration (Thomas, 2002; Wilcox *et al.,* 2005). There are three important interconnected social processes that are fundamental determinants of an individual's personal experience during the transition from high school to university which are: ***separation, involvement, and validation*** (Austin, 1999; Jalomo and Rendon, 2004; Tinto, 1993).

A social network provides the idea platform for all three of these processes, allowing students to create connections and a sense of belonging in a new university environment. For example, Hiltz, *et al.* (2002) conducted a three-year longitudinal field study that evaluated the process and outcomes of learning the on-line anywhere/anytime environment and comparing this with students who taught in the traditional classroom. The results show that, when students are actively involved in collaborative (group) learning on-line, the outcomes can be as good as or even better than those obtained in traditional classes.

McNeil *et al.* (2000) notes that, there are certain key indicators of change in university education from traditional models to those associated with on-line collaboration. Among such indicators are the following:

- The widespread use of social network sites as communication tools, giving a new freedom and flexibility to both lecturers and students with regard to the way in which they organise and pursue their studies; this has created a climate in which learning takes place as and when it is convenient.
- Students are changing from passive recipients of information in lecture halls to being active participants in their learning environment.

Harasim in Mason and Kaye (1999), describes on-line and internet delivery of course material as being either "an adjunct in traditional courses, or mixed with

face-to-face teaching, or alternatively course material that is completely delivered on-line." This student-centred guided learning environment is considered, however, more appropriate for ill-structured domains or higher-level learning. One would expect the relationships that student's forms with fellow students and academic staff, especially personal lectures, are an important part of their integration into academic life (McGivney, 1996; Tinto, 2002; Wilcox *et al.,* 2005).

A recent meta-analysis by the U.S. Department of Education consolidates research findings on the relative effectiveness of on-line versus face-to-face learning environments. It reports that, while a lack of sufficient work has been done on on-line learning, the available studies (in higher education, medical training, corporate and military education, among others) suggest that students in the online or social networks create learning communities that demonstrates higher learning rates than those in traditional classroom environments (Means *et al.,* 2009). Tu (2002) supports the assertion by Harasim *et al.* (1999) when he states that a thorough understanding of strengths and weaknesses of the academic social network support used, for example, in the WebCT (Web Course Tool), is a necessary condition for integrating social networks into the traditional classroom.

Paula Wilcox and her colleagues (Wilcox *et al.,* 2005) found that friends on the course provided students with instrumental support for course work, while teachers and personal tutors most often provided information and appraisive support (Wilcox et al., 2005: 718). One way of implementing high levels of interactive support among students, and thereby increasing both the quality of their learning experiences and the efficiency of delivery, is to implement a social infrastructure support of learning. From their study, Paula Wilcox (2005) and her colleagues concluded that:

> *Making compatible friends is essential to retention, and...students' living arrangements are central to this process. Such friends provide direct emotional support, equivalent to family relationships, as well as buffering support in stressful situations. Course friendships and relationships with personal tutors are important but less significant, providing primarily instrumental, informational*

and appraisive support (Wilcox et al., 2005: 713).

Friends made through students' living arrangements are often highly significant (Wilcox et al, 2005: 714). Therefore, students not living in student accommodation are reported to be "more likely to feel marginalised from their peers and that they occupy a lower position" (Thomas, 2002: 436; cited in and corroborated by Wilcox et al, 2005). Some groups of students are reported to feel more isolated than their peers:

- first year students (Pascarella *et al.,* 2004)
- students not living in student accommodation (Wilcox *et al.,* 2005; Thomas, 2002)

As with many online social software technologies available, it has been argued that social networks would provide students with a good social infrastructure or platform for learning (Selwyn *et al.,* 2008). Although this study focuses how social networks might prove useful to first year undergraduate students to support learning outside classroom, it is useful to consider how students use social networks outside of the classroom.

In particular, the researcher combines ***activity theory and social constructivism, connectivism and community of practice learning theory*** applicable to social networks, by examining students' engagement with social network sites, as well as the locations and collaborations that occurs in a social space. The concept of social networks has challenged these theories of tightly knitted social constructs. Social networks represent a dynamic growing activity among students who appreciate on-line networks for their mix of informal commentary, links to recourses and personal touch. However, the question is what opportunities are presented by social networks to support collaborative learning.

Mathews (2006: 1) states that Facebook is extremely flexible to use, as members can search for other students in their discipline, as well as their student residence, keep up with old friends and make new ones, flirt and gossip, complain about

classes, and post an unlimited number of photos. Humans engage in this mediated activity in social networks, which can themselves be reconfigured through expansive transformation. “Activity theory is a philosophical and cross-disciplinary framework for studying different forms of human practices as developmental processes, with both individual and social levels interlinked at the same time” (Kuutti cited in Nardi, 1996).

2.5 The concepts of activity theory

This section begins by presenting a brief overview of the situation in social networks, which has led to the consideration of using activity theory ideas in technology research and practice in this study. The rapid expansion in information technology and subsequently in human-computer interaction has led to a greater focus on the student use of technology for learning. Given that the main objective of this study is to understand how social networks might prove useful to first year undergraduate students to support learning outside classroom, there are several possible areas in which activity theory can enhance and contribute to the understanding of the learning practice provided by social networks.

Activity theory takes a collective object-oriented system as its prime unit of analysis. It can best be explained in terms of its key terms: internalization, subject, mediation, tools, object, transformation (process), community, rules, division of labour, and outcome (Engestrom, 1987). Mwanza and Engestrom (2005: 458) states that: “This perspective on teaching and learning highlights the potential impact of new tools as vehicles for transforming activity and also of those engaged in activity.” The explanation is based on the relationship between technology and the learning through an adapted version of Engestrom’s expansive activity model.

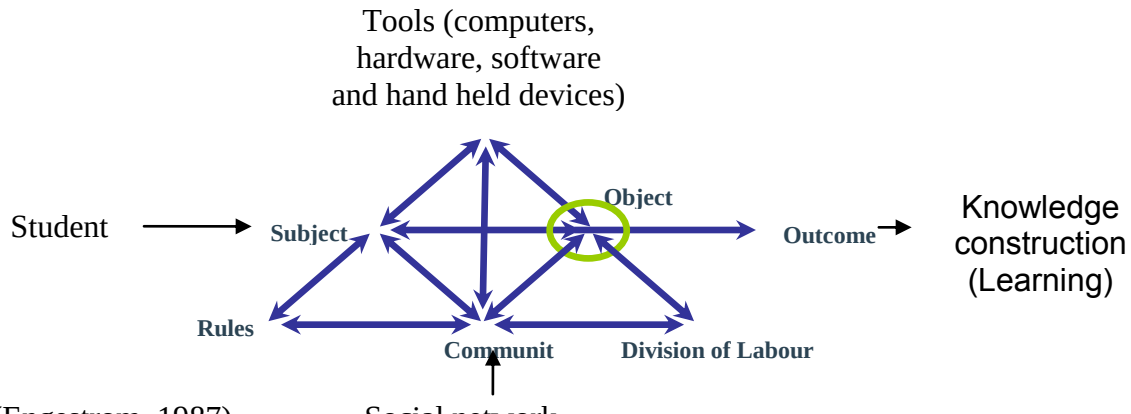

Figure 1 (Engestrom, 1987)

Activity theory as developed by Engestrom (1987) takes object-oriented, tool mediated collective activity system as its unit of analysis, thereby bridging the divide between the subject and the societal structure (Daniels, 2001). Activity theory widens the concept of learning from an individual-centred concept to a community level. The social network is conceived as an activity system (see Figure 1) that constitutes subject (student) and object (knowledge construction). The subject's interaction with the object is further mediated by tools (computer, hardware, software and hand held devices) and by a community that shares the same object (the social network itself). To be able to interact with the community, the relationship between the subject and community is mediated by rules. Division of labour, in turn, mediates the relationship between the community and the object.

To model this influence on education specific social networking eight key factors could be considered:

1. The *activity* of interest, in this case social networking
2. The *object* or objective of activity: knowledge construction
3. The *subject* engaged in the activity: student
4. The *tools* mediating the activity: hardware, interface, learning platform, social software and delivery mechanisms
5. The *rules and regulations* mediating that activity: policies and pedagogic strategies
6. The *division of labour* mediating the activity: allocation of groups roles
7. The *community* in which activity is conducted: student group
8. The desired *outcome* towards which the activity is directed: collaborative learning (Daniels, 2001).

The assumption underlying in this study is that the integration of social networks to mediate out of class interaction by students at a contact university has potential to change the activity of systems that revolve around a lecture hall, challenging stabilised ways of acting on the object of each system and consequently, requiring

new ways of learning.

2.6 Benefits of social networks to support the extension of learning beyond the classroom

This literature survey section intends to answer the first research sub-question: "What are the benefits of integrating social networks to enable extending learning beyond the classroom?" Furthermore, the pertinent literature will be consulted regarding the social network learning potential that already exists at university level, such as participation, communication, transparency, interactivity and collaboration.

Learning at university takes place in different learning locations and is mostly mediated through problem-oriented activities, in which students are directed to solve a problem or achieve a goal. In this respect, the community of practice and connectivism approach emphasizes the importance of student activities (Dalsgaard, 2008). However, the approach also stresses that individual activities are always situated in a collective practice (Brown *et al.,* 1989; Vygotsky, 1978). This means that student activities will always be related to and gain meaning in relation to activities of other individuals, In other words, activities are collective (Engestrom, 1978; Leont' ev, 1978). From the community of practice perspective, an individual's awareness of the activities of other individuals becomes a focal point of attention within a social network.

Social networks are thus seen as having the capacity to provide an attractive interactive and participatory knowledge sharing environment where students can collaborate with friends, peers, like-minded individuals and communities in a location outside the formal or immediate setting of the classroom environment.

Research carried out by the University of California in Los Angeles (HERI, 2007) found that over 94% of first year students spent at least some time on social network site in a typical week. Owen *et al.* 2006) suggest that the evolution of

social networks is converging with goals of education in terms of personalising educational experiences as well as collaborative learning.

In the traditional classroom, effective collaboration with peers has proven itself a successful and uniquely powerful learning method (Brown and Palincsar, 1989; Doise, *et al.,* 1975). Students learning effectively in groups encourage each other to ask questions, explain and justify their opinions, articulate their reasoning, and elaborate and reflect upon their knowledge, thereby motivating and improving learning. These benefits, however, are only achieved by active and well-functioning learning teams (Brown and Palincsar, 1989). Placing students in a group and assigning them a task does not guarantee that the students will engage in effective collaborative learning.

Collaborative learning is built on the beliefs that learning is an active process involving knowledge use and construction, and that learning is fundamentally a social process. It involves social processes by which small group of students work together to complete an academic problem-solving task designed to promote learning. Kenneth Bruffee (1993) asserts that knowledge and authority are socially constructed "artefacts." This is also asserted by scholars such as Lave and Wenger (1991), who state that the line of inquiry is critical because learning is fundamentally a socially situated process.

Collaborative learning concept is based on the three premises of effective learning: (i) active learning and construction of knowledge; (ii) cooperative and teamwork in learning; and (iii) learning via problem solving (Maryam, 1994). These premises are also reflected in Dillenbourg's (1999) view, when he states that:

> *One should not look about the effects of collaborative learning in general, but more especially about the effects of collaborative learning in general, but more specifically about the effects of particular categories of interactions." (Dillenbourg, 1999: 16)*

This new technological capability of social networks demands software that can support structured, on-line interaction activities. For instance, online social network sites offer certain advantages over other forms of collaborations with students. Social network sites provide academics with the tools to interact with students in a more flexible way to support a more student-centred approach (Bennet and Lockyer, 2004; Collis and Moonen, 2001; Taylor, 1998). Since students are already accustomed to interacting and collaborating online by using social networking tools such as Facebook and MySpace, it can be argued that these social network sites might provide a potential location to support and expand discussion beyond the classroom and to provide students with new ways of communicating, interacting and collaborating with one another in a learning community (Bryant, 2006).

Studies show that collaborative learning increases student involvement in courses (Collier, 1980; Cooper *et al.,* 1990) and that increased student involvement in the learning process promotes problem solving and critical thinking skills (Bligh, 1972; Kulik and Kulik, 1979; McKeackie, 1980). In other words, collaborative learning using social networks marks a change from the traditional classroom structure that allocates the authority to the teacher. Instead students have to take responsibility for their own learning.

Vygotsky (1978) conceptualises the prior existence of complex cognitive structures as existing in the student's culture, rather than in the individual student. That is, for Vygotsky the student never approaches the world 'cleanly'; rather, every experience the student has is mediated through cultural tools. Social networks are generally considered well aligned with the pedagogies of social-cultural theories of learning, student-to-student relations and interactions. Various results show, for example, that an individual's centrality (the degree to which an individual of the network is connected to other actors of the social network) influences the learning performance, outcomes and satisfaction, and that it gives superior access to information, knowledge and social support (Baldwin *et al.,* 1997).

2.7 The impact of social networks on learning

There is currently mounting evidence that appropriately designed computer software coupled with suitable pedagogical strategies can develop students' higher order thinking skills (Fontana *et al*., 1993; Jonassen and Carr, 2000; Kearney and Treagust, 2001; Lim and Chai, 2004). Consequently, the researcher turned to social networks as a potential environment in which to build tools (online environments) that could essentially mediate students' engagement with collaborative learning.

These online environments manifest "collaborative learning, providing a social context in which students are able to experience and practice the kinds of conversation valued by university lecturers" (Bruffee, 1993: 642). JISC-Ipsos MORI's (2008) research in this area has also revealed a number of student concerns over the prospect of universities capitalising on social network sites and appropriating them for educational purposes. The established popularity of Facebook with students has led some universities to try engaging with these sites in a variety of ways.

An example, of this can be seen in Szwelnik's (2008) research at Oxford Brookes University in the United Kingdom where a subject related Facebook group was set up as a supplementary social learning space to facilitate teaching for a module in the Business School. It was argued that the use Facebook in the classrooms would motivate students to engage in collaborative learning and that its use would support learning. Students are, after all, often multi-tasking while connected to friends and peers on either Facebook or MySpace and frequently engage in multiple simultaneous conversations.

In a similar move, West Chester University of Pennsylvania integrated the use of social networks into the classroom as a means to teach students about the concepts of social networking (for a review, see Mason and Rennie, 2008). The course required students to design their own profile pages, investigate the

technology and reflect on the process (Mason and Rennie, 2008). With respect to the course design, the course atmosphere is an important precondition to get in touch with each other and start building a network (Figl, *et al.,* 2006). Another teaching and learning method that may promote social networks is research-oriented learning (Bonsch, 1995). In this context, students are guided to a situation in which they have to conduct research in order to find answers, and the course convener acts as facilitator by offering an environment in which students feel free to ask questions concerning the research object.

As Brown (2005) says "our learning environment should give students opportunities to collaborate across the curriculum, both within the university and beyond. The student should always be in control of the intellectual connections he or she wants to make to shape his or her learning." For example, Stanford University in the United States of America became one of the first institutions to offer students taught classes on building applications on social network sites (Baldwin, 2007).

Table 1: Summary of the reviewed literature with regard to this study's research question

<table>
<tr><td colspan="2"><u>Research question:</u>
What are the pedagogical potentials of social networks at a contact university?</td></tr>
<tr><td>Research sub-question</td><td>Literature review input</td></tr>
<tr><td rowspan="2">What are the most important benefits of integrating social networks in order to extend learning beyond the classroom?</td><td>Social networking for learning
Collaborative benefit
Facilitate collaboration
Provide options of communication
Build connections technologies
Learning benefit,
Provide systems for resources, knowledge can be shared
Allow access to content and communication.
Personalised learning
Transparency benefit
Sense of community
Social and academic integration
Students keep in touch.</td></tr>
<tr><td>Social networking among students
Net Generation, today's students are part of a net (or internet) generation.
Cultural and society origination (student proximity effect)
Facilitative and interactive role.</td></tr>
<tr><td>How do social networks affect the learning experiences of first year undergraduate students at a contact university?</td><td>Optimising social network sites to support learning
University to provide a transitional environment (Pascarella and Terenzini, 2005)
Instructor influence in creating on-line learning communities</td></tr>
</table>

2.8 Conclusion

In this chapter, the researcher explored the research questions by providing a theoretical basis for a pedagogical application for integrating social networking in in-class interaction to leverage out-of-class interaction with the ultimate aim of supporting learning. The literature view examined the benefits of first year undergraduate students using social networks to support collaborative learning. The aim of this review was to highlight the complexity of social networks as an academic social learning platform and to highlight some central aspects that need more investigations. The main contribution of the literature review was to analyse current learning practices and theories to find the connection between the learning practices and social networks.

CHAPTER: 3 THE DESIGN AND PROCESS OF THE ENQUIRY

3.1 Introduction to the chapter

This chapter discusses the research design and the process of empirical investigation that was guided by the research question. After describing the selection of research methodology, the choices made in respect of data collection, the relevant data processing techniques and the methods of analysis used to interpret the collected data are documented.

3.2 The research design

The research design stems from the research problem stated in section 1.2. As cited by De Vos (1998: 123), a research design is "a blue-print or a detailed plan for how a research study is to be conducted. Similarly, Merriam (1991:6) notes that:

> *A research design is similar to an architecture blueprint. It is a plan for assembling, organizing and integrating information (data), and it results in a specific end product (research findings). The selection of a design is determined by how the problem is shaped, the questions it raises, and by the type of the end product desired.*

Yin (1994) believes that the selection of research methodology depends on the following: the types of research questions asked, the extent of control that a researcher has over actual behavioral events and the degree of focus on contemporary as opposed to historical events. It is vital for the researcher to have a thorough knowledge of the methodological and analytical tools available, as well as an awareness of their uses and their shortcomings.

This study sought to uncover the reality of student's use of social network sites in three learning locations at UCT, highlighting their views and experiences with regard to fostering academic peer interactions and collaboration, which are useful for learning and which fosters positive academic outcomes. It is thus important that the design is able to generate detailed descriptions of this process.

The research design applied in this study can be described as qualitative (because it will provide description of stakeholders' views and experiences), and exploratory (because it will explore the use of social networks in academic learning, a topic that has not been sufficiently documented so far). This chapter furthermore examines how activity theory, as an alternative framework for informing social networking learning design and handles the design, is able to handle the design issues raised (Kuutti in Nardi, 1996).

Yin (2003) also presents relevant situations for the study based on the different research strategies. The table below illustrates the different research strategies and the relevant situation for each strategy.

Table 2: Different research strategies (Yin, 2003)

Strategy	Form of Research Questions	Requires Control of Behavioural Events	Focuses on Contemporary Events
Experiment	how, why?	Yes	Yes
Survey	who, what, where, how many, how much?	No	Yes
Archival analysis	who, what, where, how many, how much?	No	Yes / No
History	how, why?	No	No
Case study	how, why?	No	Yes

The focus on a process type question coupled with a limited sample led the researcher to select a case study as the preferred design. The case reported

in this study looks specifically at undergraduate first year Information Systems students at UCT. The reason for conducting the study at UCT is mainly because that university plays an important role in the academic sector in Africa. The focus will be on the effect of implementing ICT at a contact university in transforming teaching and learning.

3.2.1 Qualitative research methodology

The research design applied in this study is qualitative, because it provided description of stakeholders' views and experiences, and because the investigation looks at a contemporary set of events, over which the researcher has no control (Yin, 1994). Qualitative research "involves broadly stated questions about human experiences and realties, studied through sustained contact with people in their natural environments, generating rich, descriptive data that helps us to understand their experiences and attitudes" (Rees, 1996: 375; see also Dingwall *et al.,* 1998).

While Leedy (1997: 156) regarded qualitative research as "grown out of diverse disciplines (sociology, anthropology, psychology) that are marked by distinctive interests, theories, and research methods." It can thus be said that qualitative research tries to capture data on the perceptions of local actors 'from the inside', through a process of deep attentiveness, emphatic understanding and suspension of preconceptions about the topics under discussion (Miles and Huberman, 1994: 6).

3.2.2 Interpretive research methodology

Because of the highly personal and individual nature of this topic, the researcher believes that an interpretivist approach should also be applied as a theoretical framework for this study. The basic assumption of the interpretivist framework is that there are multiple truths. In contrast to the positivist framework, interpretivism seeks to understand and explain human and social reality as something that is different for every individual person. According to Crotty (2005), "truth, or meaning, comes into existence in and out of our engagement with the realities in our world.

In this understanding of knowledge, it is clear that different people may construct meaning in different ways, even in relation to the same phenomenon." When the researcher talks with the participants about what they experience with regard to a social networking experience that is socially isolated, the researcher expects that they will view their experiences through their own personal lenses, which will reveal truths that are unique to that individual.

The interpretative approach to explaining social cultural reality has its roots in the sociology of Max Weber (1864-1920) who placed the study of society in the context of human beings acting and interacting (Crotty, 2005). Interpretivism, in contrast to the more scientific approach of positivism, is more about understanding than ascertaining causality, and therefore lends itself more readily to the human sciences. Another interpretivist scholar, Wilhelm Dilthey (1833-1911), proposed that natural reality and social reality are different kinds of reality and their investigation therefore requires different methods (Dilthey, 1976).

Interpretivist studies generally fall within three theoretical perspectives: symbolic interactions, phenomenology, and hermeneutics (Crotty, 2005). This study intends to make explicit what is implicit in the experiences that will be revealed, namely, the social world of students at a contact university, by looking specifically at social network sites, such as Facebook. To achieve this, the qualitative researcher uses a range of sources of data collection to gather data on a number of aspects related to the unit of analysis in order to assemble a complete picture of the social dynamics and the other information of a particular situation, programme, phenomenon or activity.

The aim of this particular qualitative research is not to collect numbers but to assess the state of social network sites usage among first year university students at UCT It is hypothesised that a student-focused approach that fosters academic peer interactions and collaboration using social network sites is as applicable and useful for undergraduate learning as conventional teaching approaches, as well as

fostering positive academic outcomes. It also suggests that educationists can benefit from precisely the same kind of interactions within a CoP.

Collection of research data will focus primarily on developing a rich narrative of how students use social networking sites as a learning tool, while arriving at a deeper understanding of a pedagogical application for integrating social network sites into in-class interaction in order to increase out-of-class interaction to support learning. The only way to achieve this is to interview students' with regard to their background, in accordance with the qualitative method, by using semi- structured interviews (Bluff, 1997).

Four types of problems, which can occur as a result of poor procedures in qualitative research, are pointed out by Erickson (1986: 14); they are inadequate amounts of evidence, inadequate varieties of kinds of evidence, inadequate attention to disconfirming evidence and a lack of attention to discretion. Bearing this in mind, the study seeks to be unambiguously interpretive and pragmatic, with no claim to generalise or externalise the findings but rather to build upon limited research and to form a unique interpretation of events (Creswell, 1994).

3.2.3 Descriptive research methodology

As indicated elsewhere, the aim of this study is to present an accurate, carefully and systematic description of the views, expressions, activities and characteristics of how current ways of social network sites alters the student's relationship to the familiar physical educational setting.

The aim of descriptive research is to examine an event and characterize it as it is in a specific context (Le Compte and Preissle, 1993:39). Merriam (1991:11) states that descriptive research implies that the end product is a rich 'thick description' of the phenomenon understudy. In this way, the researcher attempts to capture the meaning in an interactional experience. Apart from these experiences, certain phenomena will be described, measured and later analysed. There is no

manipulation of treatments or subjects; the researcher takes things as they are.

The research will also be interpretive, as it seeks to provide insights in the behaviors expressed and the meanings of interpretations that subjects give to their world. The analysis looks at how the evolution of social network sites social prove useful to first year undergraduate students at UCT to support learning.

3.2.4 Exploratory research methodology

This study is also exploratory in nature as the purpose of the research is to investigate and gain new insights and better understanding of the research phenomenon (in other words, the informal learning methods adopted by students at a contact university). The exploratory nature of this research is to be emphasized by the fact that one of the aims of this inquiry is to identify and discover important variables and propositions for further study. Although it does not allow for the formulation of hypothesis prior to investigation, it does adopt a flexible approach, and a hypothesis develops as a result of the research.

Qualitative research concentrates on a small sample (Miles and Huberman, 1994: 24). Although the context of the participants and the saturation of collected data matters most, it is often possible to identify all the subjects of the participants of interest. The term sampling, according to Vockell and Asher (1995:170) “refers to strategies that enable us to pick a subgroup from a larger group and then use this subgroup as a basis for making inferences about the larger group – the researcher’s goal is always to generalise about the population based on observation of the sample.”

Kerlinger in De Vos (1998:190) also state that “sampling means taking any portion of the population or universe as representative of that population or universe”. De Vos (1998: 190) quotes Seaberg who defines sampling “as the total set from which the individuals or units of study are chosen”. Powers, Meenaghan and Toomey (cited by De Vos, 1998:190) also define population “as a set of entities for which all

the measurements of interest to the practitioner or researcher are represented". A population could therefore be a totality of people or organisations gathering as units, case records or other unit samples with which the research problem is concerned.

According to Vockel and Asher (1995: 172), "random sampling is generally the best and simplest way to draw a sample from a population. With regard to random sampling in a population every member of the population has the equal opportunity to be incorporated into the sample, and pure chance is the only factor that determines who actually goes into sample".

For the purposes of this study, the researcher used purposive sampling. Merriam (1991:48) defined purposive sampling as a method that is based on the assumption that "one wants to discover, understand, and gain insight, therefore one needs to select a sample from which one can learn most". Patton (cited in Leedy, 1997: 162) also stated that:

> *Purposeful sampling is done to increase the utility of information obtained from small samples. Participants are chosen because they are likely to be knowledgeable and informative about the phenomenon the researcher is studying.*

The researcher felt that the aim of the study was not to generalise but rather to find trends in the population, thus a statistically significant amount should be purposefully sampled. The researcher began this process by contacting the head of the information systems department at UCT who was more likely to be more knowledgeable about the usage of social network sites by students.

3.3 Case study selection

Case study research is a preferred strategy when 'how', 'what' and 'why' questions are being posed, when the researcher has little control over events, and when the

focus is on a contemporary phenomenon within a real-life context (Yin, 2003: 5). A primary distinction in designing case studies is between single and multiple case studies (Yin, 2003). Case study research can be based on a single-case or on multiple-cases. Although the evidence from the latter would improve the external validity of this research, the researcher performed a single case study due to time limitations.

Whether it looks at single or multiple cases, the case study can be descriptive, interpretive, exploratory or explanatory. A descriptive study presents a complete description of the study. An interpretive study seeks to understand and explain human and social reality, an understanding that is different for every individual person. An exploratory case study seeks to define the questions and hypotheses of the study or to determine the achievability of the research method. An explanatory case study presents data on the relevant which effects (Yin, 1994).

Regardless of the type of method that was chosen for the case study, Yin (2003) recommends the following phases when performing case study research.

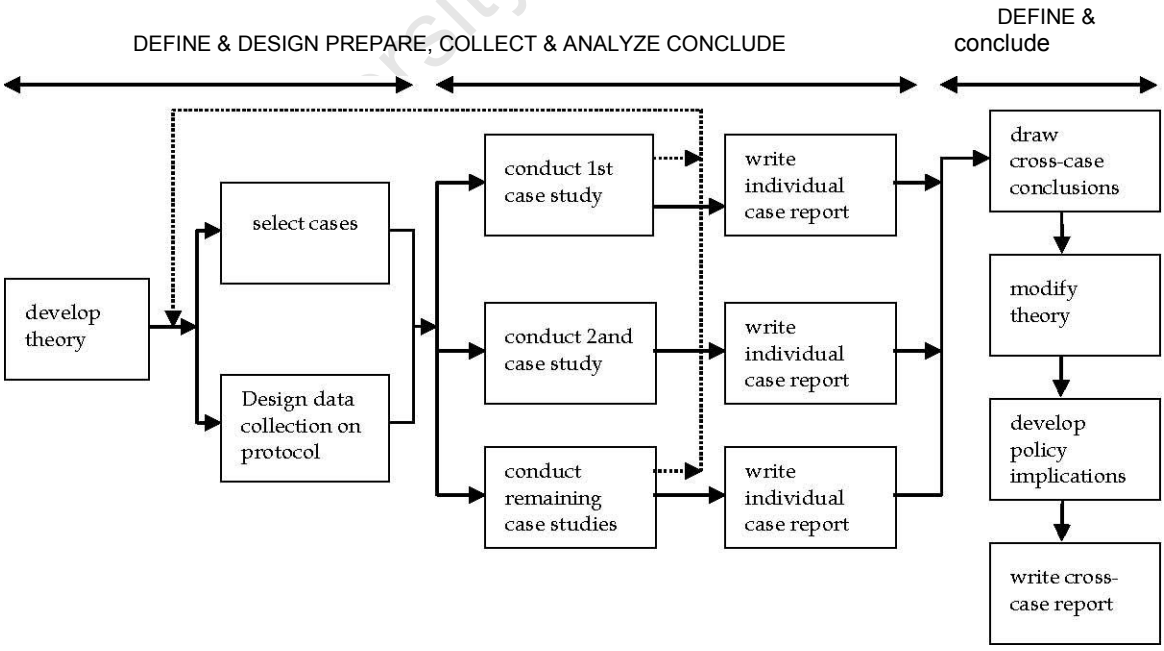

Figure 2 Case Study Method, (Yin, 2003)

Searching for a suitable case to investigate, according to the principles of theoretical research, the researcher started within the university at which he was studying for his Masters Degree in the Department of Education. The explorations of the dynamic state of social networking usage by first year students in this environment required a longitudinal case study and, according to Yin (2003), it is best to do this by means of a single case study.

At UCT students, perform tasks in three learning locations: formal locations such as scheduled lectures and laboratory sessions (where a student's behaviour is modelled according to the university class timetable), semi-formal locations, such as libraries, walk-in laboratories and mingling areas and informal locations (the characteristics of informal learning location are not explicit; however, these locations include working after-hours, weekends in private homes and university residences) (Kekwaletswe, 2007; Ng'ambi, 2006c).

3.4 Data collection process

There are several methods for collecting data for a case study. The format and pattern of the study determine the nature of the data collection methods and their execution. Qualitative data collection requires rich and diverse data to answer questions about variability and complexity of human life. Patton (cited in Merriam 1991: 67-68) describes qualitative data as consisting of:

> *Detailed descriptions of situations, events, people, interactions, and observed behaviours, direct quotations from people about their experiences, attitudes, beliefs and thoughts, and excerpts or entire passages from documents, correspondence, records and case history.*

For most case studies, semi-structured interviews are the most important source of evidence. The researcher therefore used interviews as a source of evidence for this research.

3.4.1 Interviews

In qualitative research, face-to-face interviews are considered as a major source of data for understanding any phenomenon. Because an interview is a two-person interactive method of data gathering, the interviewer can establish rapport and a trust relationship with the respondent. Furthermore, the interviewer can explain and clarify both the purpose of the study as well as the individual questions (Gay, 1996).

Face-to-face interviews were conducted, because certain information was needed, such as the student's key reasons in determining the potentials of social networks to facilitate learning, and the possibility of improved openness in face-to-face interviews (Gillham, 2000: 62). When conducting the interviews, the researcher used a semi-structured interview method, with open-ended questions (Johannessen *et al.,* 2003). This facilitated an in-depth exploration of the most important benefits of integrating social networking in order to extend learning beyond the classroom.

3.4.2 Interview procedure

Participants who had been selected by their lecturers based on who was interested for interviews were contacted by the head of Information Systems in the Faculty of Commerce to request their permission to participate in the academic research. The head of department requested an outline of the interview questions to be forwarded to the selected participants at least two weeks before the appointment date. However, as the researcher wanted to conduct semi-structured interviews, he did not send a list of all the questions. In order to allow the participants to prepare partially for their interviews, the researcher sent them an interview guide with the areas the researcher wanted to cover, which included a short introduction to the study, and its main aims. The researcher believed this was the best way for the respondents to answer as freely as possible during the interviews (see Appendix 1 – Interview questions).

During the interviews the researcher did not follow a fixed set of questions, although some topics had been identified as a guideline. . A request to allow audio tape-recording was included. All interviews were conducted as discussions and lasted from one to two hours each, on a one-on-one private basis at the student's area of study. While the interviews were conducted using a plan, other issues originating from the interviewees were followed up, using probing statements, such as "please explain that to me" or "how does that link to…"? (Gillham, 2000: 69) The aim was to maintain a balance between consistency and discovery (Strauss and Corbin, 1990: 82).

The researcher signed a non-disclosure agreement with UCT before conducting the interviews and received access to their lecture halls. At the beginning of the interview, the respondents were informed that, they would remain anonymous in the final report of the research. The intention was to reassure the respondents and to encourage them to talk openly and honestly to the researcher.

After finishing the interviews the researcher used the tape recordings to transcribe the interviews and prepared a typed version as the foundation for the empirical work. When summarising the interviews the researcher identified gaps in the data and missing information that needed to be added or clarified before starting the analysis. The gaps identified, the researcher requested for the clarification from the participants by contacting them and seek clarity.

3.5 Data analysis process

Mouton (1998: 161) describes the term analysis as the means of breaking down a complex whole into parts. Looking for an appropriate way to analyse the responses that had been collected through the interviews, the researcher used the activity theory analysis. This seeks to understand both the individual and the collective aspects of human practices from a cultural and historical perspective. Activity

theory (Engestrom, 1987) approaches phenomena from the holistic point of view. It aims to understand the student learning process as a part of a larger context.

3.5.1 Activity theory analysis

Activity theory is an analytical tool which has been successfully used to analyse successes, failures, and contradictions in complex situations without reductionist simplifications. Activity theory takes a collective object-oriented system as its prime unit of analysis. It can best be explained in terms of its key terms: internalization, subject, mediation, tools, object, transformation (process), community, rules, division of labour, and outcome (Engestrom, 1987).

For many years, activity theory has been used in studies of human-computer interaction, such as computer supported cooperative studies (Nardi, 1996). Sandars, (2005) explained activity theory as both a concept and a theoretical approach that has been used and translated by many theorists and researchers across disciplines. It is used in most cases to analyse the actual conditions of human activity from a means-ends, user-needs perspective (Miettinen, 1997; Rajkumar, 2005).

In activity theory, 'activity system' is defined as the environment where all the meaningful actions, such as learning, can occur. It involves looking at the elements of such an activity system, using Engestrom's (1978) concepts, and noting the possible relations between them. Activity theory may assist the researcher to understand or link the processes of using social networks for learning at a contact university. Kaptelinin and Nardi (2006), stress that the activity theory system is a useful theoretical framework for negotiating the complicated structure of users and their needs on the one hand, and the technology and its possibilities on the other, thus incorporating the dual nature of implementing social networks for learning purposes.

3.6 Data analysis and consolidation

In this section, the results of the data collected were analysed, consolidated and discussed. Sixteen students were interviewed (face-to-face) and the responses were transcribed. Thereafter, the transcribed text was analysed using some of the categories drawn from activity theory system, namely, subject position, tools, object, rules, community and division of labour. Section 4.2 describes the data analysis process and consolidation in detail.

3.7 Conclusion

In this chapter, the principles of the research were discussed. The researcher explained the format of the study, the methods of data collection, analysis and processing. Understanding the variety of components of research and their interrelated nature is very important to conducting valid research. Thus integrated within this theoretical framework, this chapter has sought to explain the systematic process of data collection and processing followed, from its initial collection, through its analysis, to the consolidation of the final empirical findings. These findings will be discussed in the next chapter.

CHAPTER: 4 FINDINGS AND DISCUSSION

The intent of this chapter is to present the findings from the case study in the form of description, data analysis, and interpretive commentary. The research consisted of interviews with sixteen students. All sixteen were first year undergraduate students in the department of Information Systems at UCT. The group was made up of seven females and nine males. Racially the group was fairly well mixed based on the demographics of South Africa. There were eight black participants, five white, two coloured and one Indian. Participants were solicited through the methods explained in Chapter Three. A copy of the interview guide can be found in Appendix 1.

4.1 Considerations in reporting of these findings

A key belief of activity theory is that "activity is a historically developed phenomenon" (Jonnassen, 2000: 108); therefore, it is not enough simply to describe a phenomenon, but one must also understand its history or how that phenomenon has emerged and developed over time (Cole & Engestrom, 1993; Lantolf and Appel, 1994).

Acknowledging the importance of historicity, the reader is referred to descriptions of the case study contexts provided in the literature review and methodology chapters (Chapter Two and Chapter Three respectively). These descriptions outline the history preceding the learning activity and assist the reader in forming a richer understanding of the learning context. In this chapter, only brief summaries will preface the findings from the case study.

In terms of the content of this chapter, drawing from the work of Erickson (1986: 151-152), these findings will include data such as direct quotes from participants,

general descriptions that explain whether the data are typical or unsual of the data as whole, and interpretative remarks. It is pertinent to make explicit the manner in which the researcher has shaped these findings. These findings have been constructed and the process has often been a cognitive experience of interpreting the data as the researchers understandings have grown, and in particular, the researchers understanding of the activity theory. In order to answer the main question in this study, i.e. 'what are the pedagogical potentials of social networks at a contact university?'

In order to answer the above question, two sub-questions are formulated as follows:

I. What are the benefits of integrating social networks into teaching in order to extend learning beyond the classroom?
II. How do social networks affect the learning experiences of first year undergraduate students at a contact university?

The interviews with students provided a glimpse into their world during university and, in particular, their confidence in their ability to connect to the outside world, coping with the volume of academic work and uncertainties about life at university. Two activity-based categories were used to structure the discussion: ***social networks to enable extending learning beyond the classroom*** and ***social networks occupying the role of knowledge creation*** in an activity theory system.

The first category has emerged from the concept of object orientedness and examines the ways in which students related to the learning object and attributed meaning to it as they engaged in the activity of online social networks. The second category has emerged from the concept of the division of labour and considers how the work involved in transforming the learning object into knowledge creation outcome was organised by students' belonging to online social networks.

4.2 Analyse the context

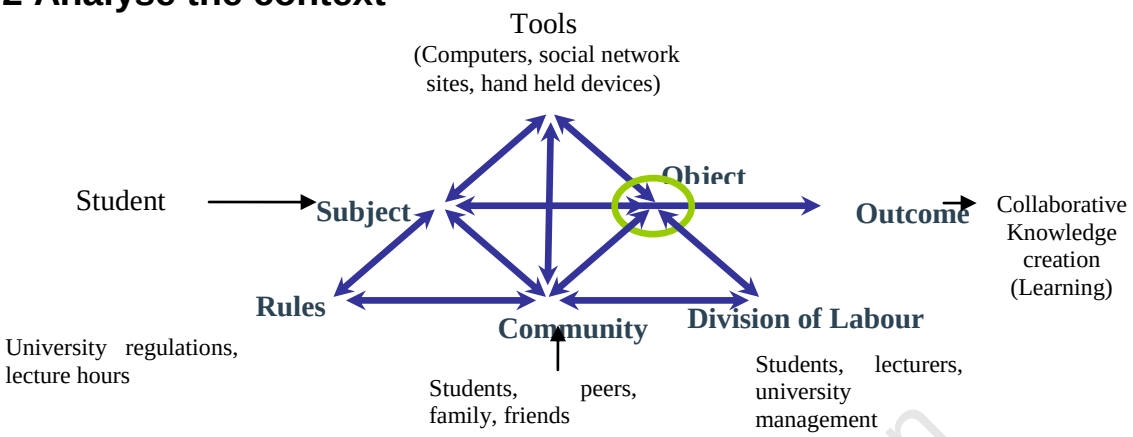

Figure 3: The activity system of students using social networks

The above analytical tool enables the researcher to interpret the data gathered from the sample and be able to make meaning of the area of study. This is necessary for the purposes of mapping Engestrom's model (1987) onto the situation in order to produce an activity system of that situation. The traditional approach to analysis ignores real life contexts within which activities take place. Activity theory argues that activity itself is both defined by and defines context. Context is both internal to people (involving particular goals or objects), and external (involving artefacts, other people and settings).

4.2.1 Integrating social networks to enable extended learning beyond the classroom

The primary focus of this study has been upon determining the nature of technologies and capabilities within these social network learning contexts. The study found that all the respondents had different views and experiences regarding the integration of social networks to enable extended learning outside classroom interaction but. It was nonetheless found that they had all obtained the same result: students use online social networks in-class and out-of-class for interaction and collaboration. It was noted that there was a university contradiction between the traditional methods of teaching and the new methods of teaching that incorporate

collaborative social networks because of the students would have to learn the new ways of interacting with both systems in different learning locations. For example, some lecturers are still being conducted in traditional way (Blackboard) interaction with students, while other courses have fully integrated social networks where students are encourage becoming friends on social network sites and sharing one another the academic and social experiences while studying at UCT.

The respondents strongly suggested that significant numbers of students were already using a wide variety of social network technologies in complex ways. 75% of the respondents reported that, they belong to more than one social network site. Facebook is the most popular used social network site by students, with 82% of the respondents using Facebook, 10% using twitter, and 8% were with either Mixit or MySpace. Students indicated that Facebook was furthermore easily accessible and ease to use on their mobile phones. Student 1: reported that

> *"I am able to chat and also I am able to give feedback to my friends on Facebook wall using my mobile phone at a very minimum cost."*

The respondents indicated that they regarded these social networks as valuable resource in making their lives convenient and giving them control over broad territories of their social lives, and their learning experiences. 14 of the respondents had bewteen101-200 friends on Facebook, with the average total number of friends being 101-150 friends. These friends where a mix of fellow students from UCT and high school, family members and other people who ask for friendship whom there have never met before. When asked about the level of student interaction with friends and fellow students using social networks while in class, Student 12 reported that:

> *"While I'm in class, I regularly use my mobile phone to check who is on-line and respond to what has been posted on the wall on Facebook, If the subject interest me and I am able to contribute, I do contribute while in class."*

When asked how the student could concentrate in class while checking the mobile phone?

"Sometimes topics in class are boring, so I keep myself busy on Facebook"

Social networking provides a means of cooperation with other students to support individual learning, a means of collaborating to build group understandings. When asked how they used their mobile phones while on campus, respondents said they made calls and sent SMSs, although phones were mostly used for internet access, and checking information such as class assignments and results on the Learning Management System (LMS) used at UCT called VULA. VULA is used by students to access course contents and also for social activities such as Chatting through UCT website.

The researcher also found that 13 of the respondents said they connected to their Facebook website using mobile phones, with 9 respondents using their phones for calls, SMS and Mxit. 4 of the respondent did not have an internet enable phone. Other activities identified by respondents were getting directions and finding places using the maps applications on their mobile phones (4 of respondents). 8 of the students mentioned that they had technical issues with using their mobile phones connect to the internet or that they had problems with the network coverage. Student 3, for instance, said:

> *"The network coverage at UCT is so poor that it takes long time to connect or even when it is connected, you are not able to download for example an attachment or a picture."*

When asked if mobile phones are allowed to be used while in class, respondents reported that it was a standard rule at UCT that mobile phones be switch off or put on silent while the lecture is going on, but students do not follow that rule. When asked if they use their mobile phones should be allowed to be used in classroom during lecture times. Student 7 reported that:

> *"The biggest obstacle to my use of the mobile phone while in class at UCT is*

the network coverage (poor or nonexistent signal in some areas). The Internet connection on mobile phone is so slow that it's faster to just walk to the library and make the search or respond to friends who are online."

14 of the respondents where for the idea that mobile phones should actually be allowed in classroom and also be part of the course requirement. The findings suggest that academic interaction on Facebook was meaningful to the participants in a number of ways. It could be a means to complete an academic task, a means to collaborate with others to support individual learning or a means to collaborate to build a learning community. Through constant collaboration learning is possible. Social networks are thus seen as having the capacity to provide an attractive interactive and participatory knowledge sharing environment where students can collaborate with friends, peers, like-minded individuals and communities in a location outside the formal or immediate setting of the classroom environment. Student 4 reported:

"The feature of real-time on-line chat using Facebook or MySpace on social networks is a great way to simulate a class discussion. It works very well and allows students who are shy in class interaction to participate and become familiar with others in the course."

The study found that – all the responded had different views and experiences regarding the undertaking of social networks integration in classroom, according to this research, they all have obtained the same result: social networks provided them with a social space which could be utilised for learning purposes. The mediation of social network sites is certainly important, but so too are core issues around how teachers and students understand learning activities and how their relationships with each other can build the capacity to construct knowledge.

Student 5 reported that:

"I use my phone in classroom and it helps me to respond to a question posed by the lecturer or fellow student in seconds with by searching for the answer on Google (Internet)."

Regarding the use of mobile phone usage in classroom, it was found that proper guidelines need to be implemented in a classroom setting for achieving the proper academic outcome. There is a fundamental contradiction between social networks and lectures at a traditional classroom level. In relation to the mediation of social network sites in the academic setting, one of the more interesting findings showed how latent affordances in the internet search can be awakened by the surrounding context.

The outcome of learning might not be achieved as students will not be able to work hard and find solutions which they learn from because of internet search engine. Studies conducted by ECAR (2009: 7) show that "students own a variety of ICTs and use them as tools to regularly communicate, find and exchange information on the internet, do class work, and recreate." Undeniably, ICTs have shaped the nature of participation but the agency of the subject and curriculum values embedded in the traditional educational setting were shown to constrain the potential of social networks to leverage social theories of learning. Student 2 reported that:

> *"Due to lack of time as a first year student would need to do more than five courses, if assignments and other academic work was done through social networks, it would save me enough time to revise and also share my learning experience with other students."*

Social networks can potentially provide the basis for enhancing teaching and learning in virtually any discipline, providing an environment that stimulates reflection, critique, collaboration, and user generated content. This finding contributes to the discussion around the need for social as well as academic interaction, providing empirical evidence against deterministic conceptions of social network use and reminding the researcher that although social networks may have the potential to shape activities, human agency and the perception of affordance can affect this potential through unique or unpredicted ways of use.

Although, the respondents did indicate that most of them had belonged to a social network before coming to UCT. The number of friends have grown since coming to UCT and their now have different types of friends some are social friends while others are academic friends whom their share different interests

This study has illuminated how students made sense of the learning object in these social networks by exploring the intersection of previous beliefs and understandings with emergent practice. The interviewees showed that belonging to a social network helps in many ways, the notable ones are: Firstly it helps raise the students' awareness of the surrounding within and outside university. Social networks to provide access to information about social as well as academic life which is considered as helping to facilitate the dissemination of knowledge amongst the participants to help bridge the gap between university culture and a person's culture.

Students understood better about course assignments, issues facing other students, learning how to organise studies from friends and senior students who belong to the same network, and community. Secondly, students received encouragement to research widely on academic courses for them to succeed, to receive advice on course work. Finally, the students demonstrated that social networks helped them to become effective and confident learners. Students developed confidence to engage more in face-to-face discussions and contributed more to discussion on online social networks.

Regarding the balance of attending lectures and online social networking with friends, Student 6 contributed by saying:

> *"with a mobile phone I am able to exploit idle time, when sitting waiting for a shuttle to take me to upper campus from residence or vice versa or sitting in a train, I am able to read the news, organize and check what is on my calendar and contact colleagues."*

Drawing upon activity theory, the learning object has been conceptualized as a personal image that is subjective, and shaped by numerous historical factors. This study revealed that the influence of social networks on student's adoption for learning purposes is still not very clear. Students are recognized as social historical agents, that is, they build on what has come before, not reinventing meaning but negotiating it within new settings.

The data suggest that students relates to learning object in varied ways. Their brought their previous experiences and understanding to bear on the learning object these historical factors shaped the manner in which they transformed it into an outcome. 7 of the respondents expressed little interest in understanding the learning object and their own understanding by their peers and felt a lack of commitment. Respondents reported that belonging to a social network comes with advantages and disadvantages. The advantages are that, if you have good friends on a social network who are prepared to share learning experiences, the learning happens. While the disadvantage is that you might have friends who are only interested in social activities and being in first year it is the academic disadvantage as you are still finding your space.

Lesson learned

In concluding our discussion on findings regarding integrating social networks to extend learning beyond the classroom, it can be said that students will use Facebook to explore new forms of self-expression as evidenced in the study, this is also mentioned by Selwyn *et al.,* (2008) students will managed their own access and have control over how and by whom one is viewed, collaborate with other students (instead of using email, or audio-phone), organize events locally and beyond, maintain friendships outside of their universities, interact with friends and family at home, and increasingly, engage in academic or course-related work.

Students appear to be using social networks and other information and

communication technologies not only to facilitate their lecturer-mediated experiences but also in some cases to replace face-to-face mediation of instruction with other students and lecturers. Students are finding that social networks and other web based, course management systems are valuable resources in making their lives convenient, and giving them control over their social lives and being able to access contact and contact lecturers or senior students which facilitates their learning experiences.

This research has reported that students are very likely to use Facebook to keep in touch with fellow students and friends within the formal learning location (traditional setting) and with old school friends (informal); they are likely to use Facebook to check on someone they met socially and to learn about people in whom they are interested within the university. In order to integrate social networks in the education setting, the pertinent literature suggests that learning can be conceptualised as a constant process associated with various communities through engagement in a community of practice (Wenger, 1998).

Owen et al. (2006) suggest that the evolution of social networks is converging with the goals of education both in terms of personalising educational experiences as well as in terms of increasing collaboration. Students who used the internet from their mobile phones on a daily basis were more likely to be early adopters of technology than those who used such technology less frequently. Most of the respondents fall into what is frequently described as the Digital Generation or Net Generation. They are comfortable with many of the newer technologies such as e-mail, social networks and Google internet searches.

Social networks have provided many features that can serve the learning sector in different ways. Students already have the technology, it is cost effective and it is available all the time. Due to this technology students are able to continue learning outside formal learning locations although it still needs to be formalized. Dalsgaard (2008) suggests that social networks support student learning in subtle and new

ways. Thus, looking at students' existing use of social networks may yield useful insights into how these networks are facilitating informal ways of learning.

However, as learning has evolved from a practice taking place in a formal location (traditional classroom) to an informal location where it is supported by technology that mediate through interaction with the learning material. For these students the friends from academic background on Facebook become their learning communities as there interact and share their social as well as academic mandate while studying at the university.

These findings correspond with the findings in the pertinent literature which suggest that online social networks might provide a potential location to support and expand discussion beyond classroom and provide students with ways to communicate interact and collaborate with one another in a learning community (Bryant, 2006).

In conclusion, it can be said that the solution for integrating social networks to extend learning outside of classroom, is for educational professionals first to recognize that these networks are part of a larger generational development in the ICT sector that characterizes most students on university campuses today. The 2008 ECAR study reported that nearly half of the student users in their sample (7) had incorporated social networks into their academic program as a mechanism for communicating with classmates.

As students become increasingly diverse it is important that universities provide them with diverse kinds of social space. Universities should allocate the academic work in informal location where students could be accessed on. This social space is as important as academic integration (Thomas, 2002; Wilcox *et al.,* 2005). The more cognitive the learning is, the higher the lever of interactivity and the longer the engagement during the interaction. Interactive in learning is "a necessary and fundamental mechanism for knowledge acquisition and the development of both

cognitive and physical skills" (Barker, 1994:1). The social interaction by student in a social network community shows how a communication medium facilitates awareness of other students (Kekwaletswe, 2007). It is a measure of the feeling of community the student experiences (Tu and Mclsaac, 2002).

Based on the explanation above, these aspects of social as well as academic interaction influence one another because they are integrated. The social interaction of face-to-face discussion should be supplemented by online social networks to be able to extend learning beyond formal learning locations. Furthermore, if students at a larger contact university can meet in all three learning locations either face-to-face or online, it tends to result in students becoming more socially and academically connected, thereby enhancing their informal social learning environment and student experience.

4.2.2 Social networks occupying the role of knowledge creation

The second activity-based category that can be used to structure the discussion is how online social networks occupy the role of knowledge creation. This study found that all the respondents had similar views and experiences regarding this role. The interviewees agreed that the traditional set-up of teaching did not change significantly after student's use of online social networks during classroom learning. 14 of the respondents commented on how much they like and value searching the internet. In addition, literature also suggests that some of the lecturers hoped that the students would share information and build learning communities in order to advance collaborative learning by means of such networks. Backman (2005) urge educators to adopt measures intended to "build learning communities", which they explain as follows:

> *"... allows the students to participate in shared learning experiences. This is also what Braxton et al. (2000) found in their study: teaching methods encouraging active learning had an impact on integration, commitment and persistence. These methods of teaching do require more planning on the teacher's part than traditional seminars."*

The facilitative role of the course lecturer and the students' experience of being a researcher who finds answers to particular research questions promote a positive atmosphere where students' networks may evolve. The teacher supports students with his/her professional competence in the process of finding answers to their questions, and encourages students to reflect their learning and research progress.

Student 11 stated that:

> *"At any given time and day I know where my friends are, what their are doing and we share all our experiences, I learn from them and their also learn from me, the learning is real time as we are constantly in touch."*

The findings have indicated that awareness of other students' needs is an important aspect of collaborative learning. Seen from an activity perspective, the students appear to be more occupied with what the community there belong to is engaged with in a learning activity. Student 14 stated:

> *"Just attending lectures in a classroom (traditional), doing the reading, and belonging to an online social network community and doing internet searches for external research are the best way to learn."*

Regarding the balance between in-class and out-of-class knowledge construction among the students, there was no significant finding showing that the use of social networks affects this balance. What was found was that some students had created more friends and groups online widening their source of knowledge sharing. But since these students could still meet in a traditional classroom, the knowledge created on these online social networks could still be shared among the students in a face-to-face traditional classroom. The respondents stressed the importance of group work in a formal learning setting which members of the group had to share their experiences with friends on social networks.

Furthermore, respondents reported that internet searches provided academic contents, which they used in class as well as in collaborating with students from their own and other universities, for example by using Facebook. The internet thus gave them access to wide spectrum of academic material. 10 of the respondents like to learn by running internet searches and being on social networks looking at what has been posted by other students. Most students commented on how much they liked and valued searching the internet while engaged in a learning activity.

Using the activity perspective (Engestrom, 2001), tensions can be seen between learning activities based on social epistemologies, which are embedded within a university curriculum that is focused on individual performance. These tensions result from an essential contradiction: at an individual activity level, the university system values individual performance, while local learning community activities values social interactions between students in order to share and both individual and community knowledge resource. With the integration of social networks the above mention contradiction can co-exist between students being assessed for individual performance, and students collaborating with each other to learn.

8 of the respondents said that they liked to learn through programs they could control, such as group work, simulations and video games. Less than half of the respondents 7 liked to learn through text-based conversations using the blackboard or whiteboard. Just over a third of the respondents said they liked to learn by reading the texts of fellow students posted on Facebook walls and on blogs, wikis and other websites.

Through online social interaction and the process of giving and receiving feedback, students presented their writing to each other, making comparisons between others' work and their own, encountering a range of experiences around the texts, becoming sensitized to characteristics of the text, and enhance their understanding through reflection and critical evaluation.

Tinto (1993) and Yorke (1999 developed models of student satisfaction and retention that identify a link between compatibility of student background factors, their values, understanding and attitudes towards university, and institutional cultures, and likelihood of student retention. This study has demonstrated how support, built through social networks, can help first year undergraduate students to prepare for their success with studies at the university. The social network generated within the university environment enables students to tap into mature senior students' knowledge and experience.

Studying Brown (2005) on this subject would be beneficial to educational professionals as he has convincingly stated that “our learning environment should provide students opportunities to collaborate across the curriculum, both within the university and beyond.” In order to set up an online social network community which could integrate in-class interaction with out-of-class interaction that is both effective and retains motivation and interest of its members, the educationalist need to be prepared to invest a certain amount of time/effort in the early stages of online social network creation to support the community of students.

The empirical findings of this study suggest that educationists should take into account existing social networks which exist; the changing classroom atmosphere is an important precondition for building a learning network. When a learning community is born outside of the classroom, moreover, it enables students to engage in instant real-time communication with each other. Wenger (1998) defines learning as a constant process of developing identities associated with various communities through meaningful engagement.

By participation in the activity, certain learning outcomes would be realised. The social presence of students in a social network learning community gives a sense of extent to which a communication medium facilitates awareness of other students to engage in collaborative learning. The social networks can be considered as helping to facilitate the dissemination of knowledge amongst the learning

community to help bridge the gap between institutional culture and a person's culture.

Lessons Learned

To concluding the discussion of the findings regarding social networks and their role in group online collaboration to creation of knowledge construction, it can be said that an emphasis on creating learning communities is the preferred option for first year undergraduate students interactions with their peers, because they are task-oriented and an efficient means of utilising time effectively between classes. Moreover, the assistance, guidance, encouragement and emotional support offered by group members to one another online and in real time establish friendships; these online social networks further assist students in engaging more effectively with the university environment.

The empirical findings of this study reveal that the most important aspects of knowledge creation are the creation of learning communities, which the literature interprets as communities of practice (Wenger, 1998), consisting of people mutually engaged in ongoing participation, oriented towards a common domain that is addressed through a shared domain. Wenger *el al.* (2002) defines a learning community as 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."

From these findings, the following answer can be given to the main research question: *'what are the pedagogical potentials of social networks at a contact university?'* The influence of social networks on the academic experience is undeniable. Social networks amongst students, friends and lecturers as well as the creation of knowledge generated by means of this social network community can facilitate learning.

McNeil *et al.* (2000) notes that there are certain key indicators of change in

university education from traditional modes to those associated with the on-line collaboration. Among such indicators are the following:

> *"the widespread use of social network sites as a communication tool has given a new freedom and flexibility to both lecturers and students with regard to the way in which they organise and purse their studies, and has created a climate in which learning takes place as and when it is convenient." (McNeil, 2000)*

Educause (2008) reported on Facebook stated that:

> *Any technology that is able to captivate so many students for so much time not only carries implications for how those students view the world but also offers an opportunity for educators to understand the elements of social networking that students find so compelling and to incorporate those elements into teaching and learning*.

In the same vein Delpoort (2003) states that students associate a diverse and challenging learning environment with feedback from lecturer and with lecturer's encouragement to engage in frequent on-line interactions with other students through social networks in order to facilitate learning. Brown (2005) supports the notion by stating that "our learning environment should give students opportunities to collaborate across the curriculum, both with the university and beyond. The student should always be in control of the intellectual connections he or she wants to make to shape his or her learning."

4.3 Conclusion

The integration of social networks to support collaborative learning at a contact university is a socio-cultural activity. Data revealed the existence of interaction and collaboration using social networks among first year undergraduate students in all the three learning locations **(formal, *semi-formal* and *informal learning locations).*** This study reports that there is much potential for social networks to be used to support both in-classroom and out-of-classroom interaction and other

activities and to design a learning curriculum that supports collaborative learning and knowledge creation through social networks. To support effective collaborative learning at a contact university, it is necessary to understand the technology with which students are already familiar. Lecturers are drawn to using such technologies for many reasons, among them being their pedagogical possibilities (for example, identity information that might humanise a large lecture class).

The aspects that influenced the use of social networks during class and outside class were influenced by different emotional aspects such as exciting, enjoyable understandable and challenging which respondents reported. The data also revealed that students are integrating social networks into their educational experiences and that social networking is influencing what happens in classroom in a variety of direct and indirect ways. For students to be able to know fellow students on social networks which provide them the transparency of information, they are able to use this information during their learning experiences.

More than three quarters of the respondents reported being a member of Facebook. Most of the respondents had used Facebook to contact another student informally with a question related to school work. Regardless of whether lecturers were explicitly incorporating social networks in the academic curriculum, it is clear that students are already integrating these social networks into their educational experience informally. These informal, student-to-student discussions are important because such on-demand, supportive interaction is now accepted as a valuable component of the learning process.

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction to the chapter

This chapter concludes the dissertation by presenting the answers to the main research question posed in Section 1.4 Chapter One. The purpose of the study was to examine first year undergraduate students' general use and perceptions of online social networking sites, specifically by looking at how these sites assist them to engage better with the university and how they support learning outcomes.

5.1.1 What are the benefits of integrating social networks in order to extend learning beyond the classroom?

The reviewed literature has raised a number of benefits of integrating social networks at a contact university to support learning among first year undergraduate students. The most common benefits of social networks to support learning are (adapted from Silverman, 2007):

- ***Collaboration benefits, which include:***
    - Facilitating collaboration in gathering, understanding, organising, connecting, combining, and creating knowledge
    - Providing many avenues of communication among members of groups or student communities
    - Building connections

The study demonstrates the social dimensions of a collaborative learning network, its formation, its presence and its influence on different social networks in education.

- ***Learning benefits, which include:***

- Providing systems where the resources, knowledge, perspectives, and practices of an online learning community can be shared among students and experts alike.
- Allowing access to content and communication in ways appropriate to the creator, recipient and context
- Prompting critical formative feedback for academic work in progress that is shared with others by the author
-

- ***Transparency benefit, which include:***
  - Students keeping in touch with friends and meeting new people
  - Students reducing their inhibitions and enhancing their socialisation
  - Fostering sense of community, entertainment and involvement.

Collaboration benefits

Learning using social networks is regarded as a collaborative tool that is being used by students in order to achieve above average academic results. There is sufficient evidence that universities need to introduce appropriate levels of collaborative learning using social networks in the context of educational strategy to compete effectively in a dynamic environments. The literature has revealed that students learn effectively in groups, and that they encourage each other to ask questions, explain and justify their opinions, articulate their reasoning, and elaborate and reflect upon their knowledge, thereby motivating and improving learning. These benefits, however, are only achieved by active and well-functioning learning teams within a community of practice (Brown and Palincsar, 1989; Brufee, 1999; Jarboe, 1996).

Learning benefits

Learning is always embedded in a community (Lave and Wenger, 1991). Social networks support constructivist education activities through collaborative groups (Dede and Sprague, 1999), promoting interactive learning, increasing innovation, developing cognitive skills (ordering, evaluating, synthesizing), and facilitating the

control of the learning process (Valdez *et al.* 2000). The rapid advance of social networks has enabled universities to reach out and educate students who, because of schedule or location constraints, would not otherwise be able to take advantage of many educational opportunities. For example, UCT students are encouraged to make use of the ICT tools their come with to sustain their academic and also for communication purposes. Other university have incorporated Facebook in the school website to allow first year students ease integration socially and academically.

It was found that students use Facebook to explore new forms of self-expression, for moral support when collaborating with family and friends, maintain friendship on campus and outside campus and increasingly, engage in academic or course related work. Also Facebook would facilitate the organisation and management of events locally and beyond.

Transparency benefits

Based on the theories behind the introduction of social networks in educational settings, there are also transparency benefits, such as creating new friendship, family connections, and shared interests among the student community, in addition to academic ties. According to the proximity effect, students are more likely to form friendships with those whom they encounter frequently (Festinger*, et al.,* 1950). As Vygotsky, (1978) stated, each learner acquires new knowledge based on the pieces that each group member contributes to the community. According to Vygotsky (1978), Social Constructivism is attributed to the social context, which is very important in constructing knowledge.

Social networks offer students a useful way to visualise their social connections (Donath and Boyd, 2004), to acquire social capital (Ellison *et al.,* 2007), to develop social networking skills (Selwyn et al, 2007), to keep a written record of discussions and dialogues, and to maintain flexible and mobile contact with their peers (Mason and Rennie, 2008).

5.1.2 How do social networks affect the learning experiences of first year undergraduate students at a contact university?

Numerous studies indicate that stable social networks among students are key factor for students' success in their studies and in the prevention of drop outs (Brass, 1984; Cho, Gay, *et al.,* 2007). Research emphasises that carefully designed teaching methods, curricula, learning activities and modes of assessment can play a central role in promoting social and academic integration for first year undergraduate students (Lahteenoja and Pirtilla-Backman, 2005; Lowe and Cook, 2003; Parmar and Trotter, 2005; Wilcox *et al.,* 2005).

Thomas (2002) notes that, as students become increasingly diverse in terms of their background, culture, history, etc., it is important that universities provide them with diverse kinds of social space in a formalised way. The established popularity of social networks with students has led to some universities engaging with these sites in a variety of ways such as facilitating collaborative learning. Wenger (2000), points to the importance of collaborative learning, and mediated learning between students and lecturers and / or more capable peers. Social network sites (Facebook, MySpace) provide excellent possibilities for connecting and working together with others by breaking the boundaries of space and time in ways that can be of great assistance for achieving pedagogic objectives.

Numerous research reports emphasise the importance of encouraging students to set up online social network communities to support each other in their academic work (Lahteenoja and Pirtilla-Backman, 2005; Parmar and Trotter, 2005; Wilcox *et al.,* 2005; Lower and Cook, 2003; Yorke and Thomas, 2003). Educational professionals should first recognize that online social network communities are part of a larger generational development with most students on university campuses today. McNeil *et al.,* (2000) note that, there are certain key indicators of change in university education from traditional models to those associated with the on-line collaboration. Among such indicators are the following:

- The widespread use of social network sites as communication tools give a new freedom and flexibility to both lecturers and students with regard to the way in which they organise and pursue their studies, and this has created a climate in which learning takes place as and when it is convenient.
- Students are changing from passive recipients of information in lecture halls to being active participants in their learning environment.

The overall objective of this study was to understand the pedagogical application of integrating online social networks to support learning at a contact university. Based on the use and perceptions of student's engagement with social networks at a contact university, the study explored how social networks might prove useful to first year undergraduate students at a contact university to support collaborative learning. In particular, the aim of this study was to:

1. Understand current ways in which social networks alter the student's relationship to the familiar physical educational setting.
2. Investigate how educationists can capitalise on the popularity of these social networks and harness them for learning purposes.

The attainment of these objectives is discussed in the next section.

5.2 Current ways in which social networks alter the student's relationship to the familiar physical educational setting.

This objective has been achieved by understanding the current ways in which social networks alters the student's relationship to the familiar physical educational setting. The pedagogical approach emphasises the importance of utilising these social networks for knowledge construction, production and collaboration. Therefore, social networks utilise these collaborative tools, which create links between students both in-class and out-of-class. Social networks allow students to construct a public or semi-public profile within a bounded system, to articulate a list

of other students with whom they share a connection and view and to traverse their list of connections and those made by others within the educational system.

Social networks can support students in the indirect sharing of resources, ideas, thoughts, writings, notes and knowledge production. This kind of sharing can provide students with insights into the workings of other students, thus give them an increased consciousness and awareness of the activities of other students. Furthermore, in order to understand the underlying principles of social networks' influence on the traditional classroom setup, it is necessary to understand the need of first year students for social as well as academic interaction.

This research has shown that most respondents enjoy being connected or belonging to an online social network creates an interactive and participatory environment, which they share with peers, friends and communities in a location outside the formal or immediate setting of the classroom environment. Owen *et al*. (2006) suggest that the evolution of online social networks is converging with the goals of education both in terms of personalising educational experiences as well as in increasing collaboration.

The study found that particular attention should be paid to collaboration and interaction facilitated by online social networks that takes place in open spaces by students having Internet access at all times through their mobile phones. It allows lecturers to observe their students levels of understanding and the quality of their contributions to collaborative work. The real opportunities will be realised by educationists who infuse social network practices into learning activities using sound pedagogical practices.

In that regard it was evident that the actual interaction and collaboration by students came in focus as the authentic activity when social networking; students bring their own framework and perspectives to the learning community.

5.3 Suggestions on how educationists can capitalise on the popularity of these social networks and harness them for learning purposes

The second objective has been achieved by identifying possible ways in which educationists can capitalise on the popularity of online social networks that are already being used by the students. The classroom has changed norms concerning student-lecturer interactions and campus rules of behaviour, and a instruction styles have evolved in unexpected ways. As reported by a recent meta-analysis by the U.S. Department of Education which consolidated the research findings on the relative effectiveness of on-line versus face-to-face learning environments. It suggests that students in the online or social networks create learning communities that demonstrates higher learning rates than those in traditional classroom environments (Means *et al.,* 2009).

In order to understand the underlying principles regarding the changing norms of the classroom in the educational setting, it is necessary to understand that these online social networks offer possibilities for collaborative pedagogy, as an alternative for traditional classroom-based teaching and learning. A well developed curriculum that accommodates online social networks in the university environment and that provides academic and social support to students, as well as due care in carefully drafted terms of reference governing the usage of online social networks and good monitoring of students performance informally and formally, will help universities to benefit integrating online social networks.

The respondents in this study did not believe that the educationist have benefited from the popularity of social networks, thus, it was found that these social networks are not integrated in the formal learning locations. In fact, the respondents believed that social networking should be supported, as collaboration with the online community encourages knowledge formation. Social networks create learning communities, which demonstrates higher learning rates than those in the traditional

classroom environments (Means *et al.,* 2009).

In order to maintain a good balance between in-class interaction and out-of-class interaction, this study adopted activity theory system approach, which applied a holistic point of view phenomenon. It sought to understand the students' learning processes as part of a larger context. Activity theory interprets a tool as an artefact that students use to perform activities. By extension, tools may also be understood in terms of the use to which they are put.

The researcher used a social-cultural learning theory to explain the integration of online social networks into classroom, and the figure below shows the application of the social-cultural historical activity theory in analysing the activity system of integrating social networks in a traditional classroom setting. The explanation is based on the relationship between online social networks and the learning achieved, by adapting Engestrom's expansive activity model.

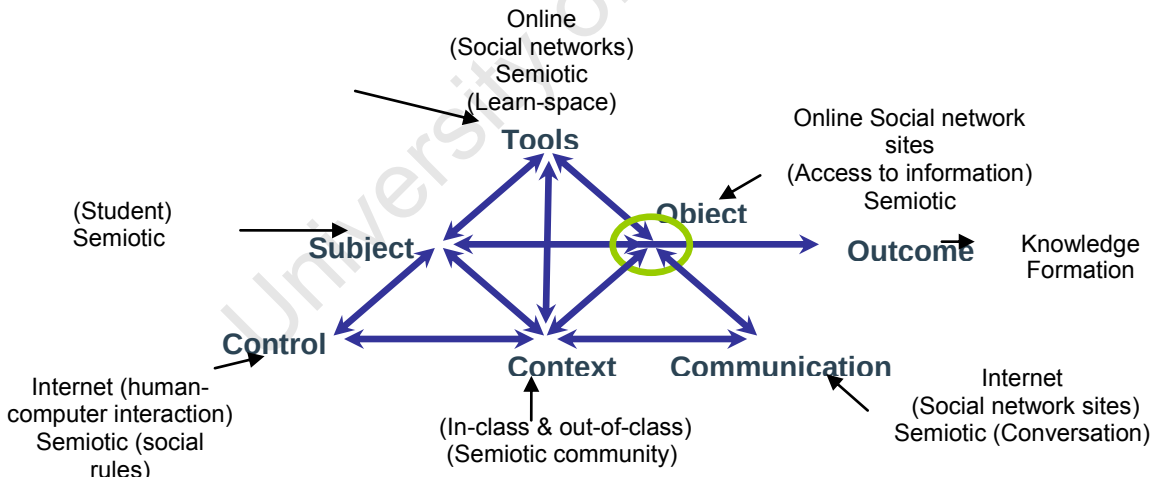

Figure 4 (Engestrom, 1987)

With the use of activity theory, it has helped by separating two layers of mediating tools activity. The semiotic layer describes learning as a semiotic system in which

the student's object-oriented actions is to promote an objective and is mediated by cultural tools and signs. The student internalizes public language, instantiated in writing and conversation, as private thought which then provides the resource for control and development of activity.

Online social network layer represents learning as an engagement with social network sites, in which tools such the mobile phones function as interactive agents in the process of coming to know, creating a human-technology system to communicate, to mediate agreements between students (as with tables, spreadsheets, and concept maps) and to aid and reflections (as with blogs, Facebook, and online discussion).

Engestrom (1987) analyses the collective activity through an expanded framework that shows the interactions between tool-mediated activity and the culture rules, community and the division of Labour. Sharples, *et al.,* (2005), adapted Engestrom's framework to the dialectical relationship between technology and semiotics. They renamed the cultural factors by using terms such as Control, Communication Context, and Communication which could be adopted by education technology designers in the integration of social networks in three learning locations at a contact university.

Control

The control of learning may rest primarily with the individual, usually the teacher, or it may be distributed among the students. Control may also pass between students and social networks created in a community of practice. The benefits of the online social network derive from the ways in which student access the materials (content), friends and peers at any time, i.e. when it is convenient, and whether they can control the pace and style of interaction.

Social rules and conventions govern what is acceptable (e.g. use of SMS, MMS, use of e-mail and language use, who is allowed to send whom, and what kinds of

document format should be used. An individual's attitudes to social networks can be influenced by what others around them think about.

Communication

The dialectical relationship between the semiotic and online social network layers is perhaps the easiest to see in relation to communication. If an online social network enables certain forms of communication (such as SMS, email, chatting or Mxit), Students begin to adapt their communication and learning activities accordingly. The new ways of online social network communication lead to new ways of learning and working. The current literature suggests that these online social networks offer students a useful way to visualise their social connections (Donath and Boyd, 2004), acquire social capital (Ellison *et al.,* 2007), develop social networking skills (Selwyn *et al.,* 2007), keep a written record of discussions and dialogues, and maintain flexible and mobile contact with peers (Mason and Ronnie, 2008).

Context

The context of learning is an important concept, but the term has many connotations for different theorists. From a technological point of view, there has been discussion about whether it is an emergent and integral property of interaction. Context also embraces the multiple communities of actors (both interactive technology and people) who interact around a shared objective. The theory of communities of practice (Wenger, 1998; Wenger *et al.,* 2002) provides further conceptual tools for understanding how collective knowledge of a community is sustained and adapted to new situations.

It is important to bear in mind that the results are based on a small sample size, from a non-random selection of first year undergraduate students at UCT. The personal values of the respondents may have influenced the answers and therefore the researcher has to be careful to generalise from such a sample.

5.4 Recommendations for future research

Recommendations for further research are based on the limitations of this current study. Firstly, this study is based on the data collected from a self-selected sample, with all the respondents drawn from students at UCT in the Western Cape Province, which limits the generalisation of the findings. Enlarging the sample by including students from a number of universities and interviewing a wider range of students across faculties and departments will make it easier to generalise the findings. This will also improve our understanding of the most important benefits of integrating online social networks into learning environment.

Secondly, this study looked only at first year undergraduate students. Further studies should look at senior students at the university. Future work could thus explore second year, third year, fourth year and postgraduate students.

Thirdly, further research should also include input from educationists, lecturers, parents and educational policy makers, none of which are present in this study. Including their input will give a more realistic picture regarding the integration of online social networks into the formal academic setting.

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Appendix 1:

Interview guide

Social networks: Encouraging collaboration among first year undergraduate students at UCT.

1. What kind of interactions happens in-class and out-of-class at UCT?
2. What kind of communication tools do you use at UCT?
3. When you are in attending a lecture, how do you communicate? And out- of-class do you still communicate?
4. Do you belong to a particular social network site? Please tell me which network site(s) do you belong to?
5. How do you access social network sites? Through your mobile phone, computer lab or the computer at your residence or at home?
6. How has belonging to a particular social network site assisted you at UCT?
7. What impact has social network sites has had on your academic work?
8. What time do you social network with friends or any other reasons and how long does it take you in a day to be on a particular
9. There are so many social network sites students are using, do you think there support the learning process? Why and how?
10. Can you explain to me how learning in a lecture hall (face to face) and social networking contribute to your academic work?

11. Do you still communicate through social networking with your friends from high school or you have made new friends at UCT ?
12. What kind of rules are applied in class and out of class at UCT?
13. Do you find discussed topics on social network sites interesting or frustrating?
14. Is social networking supported at UCT by the lecturers or the administration? If yes in what way do you engage with these network sites
15. Do you learn through social networking at UCT? If so please explian your learning expirences?
16. Who initiates these social networks? Is it the lecturer or yourself or your fellow students
17. Are you encouranged to social network while on campus and off campus? If yes what kind of academic work do you engage with?
18. Using social networking for teaching and learning at a contact university such as UCT that enrols full-time students. Do you think it makes any difference if students were:
    - Non-resident student? How?
    - Resident student? How?
19. Where do you think you have benefited most using social networking for academic purposes?

Any additional comments in the context of using social network sites to facilitate learning process you would like to add