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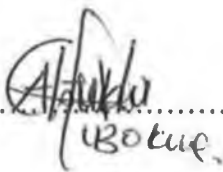
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Social Networking Sites: Does the use Ning as a collaboration and learning tool in second level education improve student's academic performance?

Dissertation

National
College of
Ireland

I hereby certify that this material, which I now submit for assessment of the programme

of study leading to the award of Master of Science in Learning Technologies is entirely

my own work and has not been taken from the work of others save and to the extent

that such work has been citied and acknowledged within the text of my work.

Signed: ………………………………

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This thesis would not have been completed without God's guidance and grace. To the lecturers and staffs of the National College of Ireland that have made my study and experience a memorable and interesting one, I say a big thank you, especially Dr. Stephan Weibelzahl and Dr Eugene O'loughlin for your criticism and open door policy I say thank you.

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Abstract

Academic and academic researchers are beginning to understand and appreciate the importance of social networking sites in the life of students and the effective roles they would play in bringing education and knowledge closer and quicker to this generation of students than the all traditional based classroom teaching method. Researchers are faced with the dilemma of knowing which of these social networking sites would support learning and educational activities without exposing the students and schools to danger. Researchers are also faced with the problem of finding an effective and efficient way of requisition and repurposing of the technologies of social networking sites in ways to support learning. It is these gaps that this research work intends to fill.

This research examines the role and effectiveness of using Ning as the preferred social network for collaboration and learning tool in second level education. It is hoped that the use of Ning would increase understanding and knowledge and also increase academic performance of students through knowledge sharing. The research also examines the use of web 2.0 tools such as chat, blog, instant messaging, media sharing and the creative organizational and analytical tools as a vehicle for fostering learning in an online environment.

The research for the study was carried out in two secondary schools in Ireland using a pretest and post test in two subjects, English Literature and Geography. The result for group 1 pretest shows a mean of 54.43% and standard deviation of 11.340 and the mean

for the posttest was 82.13% and a standard deviation of 10.65. it also statistically shows (p=.993). The Group 2 pretest mean score was 51% and a standard deviation of 8.288 and a posttest mean score of 88.04% and a standard deviation of 6.920. It also was statistically significantly different at 0.64. The results show an improvement on academic performance of students. Qualitative data gathered through an evaluation sheet suggest that there is an overwhelming acceptance for the use of Ning Social Networking Site in secondary education in Ireland.

1. Introduction

1.1. Introduction

The 21st century has continued to usher in technological advances that have continued to revolutionise the way we communicate, socialize and obtain public and private information.

The greatest of these changes has been the emergence of Web 2.0. Web 2.0 is a slogan that was proposed by Tim O'Reilly following a brainstorm conference session between himself and the managements of Medialive International (O'Reilly, 2005). He described Web 2.0 as using the internet and the web as platforms for web to web application for technological solutions where interactive content is the main factor (O'Reilly, 2005).

Examples of Web 2.0 includes Wikis, Blogs, Hosted web services, Web based applications, Social Networking Sites and Video sharing sites.

For the purpose of this research study, this study would be focused on the use of Social Networking Sites and its effective use as a collaborative and interactive learning tool in second level education in Ireland.

Social Networking Sites was defined by Boyd and Ellison (2007.p.2) as *"web based services that allows individuals to construct a public or semi public profile within a bounded system, articulate a list of other users with whom they share a connection, common interest or views and transverse their list of connections and those made by others within the system"*.

This chapter would seek to examine Social Networking Sites in general and its place in the advancement of learning through collaboration. Some of the frequently used Social Networking Sites used would be examined and explained. The use of Social Networking Sites has evolved beyond its original structure. The trends of social network would also be discussed in this section. Since the thesis is on social networking in education, some of the uses of Social Networking sites in education would also be discussed. The thesis would be narrowed down to the use of one social networking site, Ning and the reason for its choice as the preferred network.

A brief introduction into social learning and its meaning would be discussed. A brief introduction of collaboration would also be discussed in this section. The section would conclude with a look at the aim of the research and what is intended to be achieved.

1.2. Types of Social Networking Sites

The last decade, has seen the emergence of Social Networking Sites in their thousands (Boyd & Ellison, 2007). Some have stood the taste of time while others due to growing competition and other factors simply could not cope and have closed down. While some are increasingly becoming more and more popular than others, some have diverted into different kinds of services outside of Social Networking. This section, reviews what I consider the five most popular Social Networking Sites.

A) FaceBook

FaceBook was recently described as the greatest phenomenon of the 21st century (Walsh 2009). It is the most popular Social Networking Site ever with over 400 million registered users. It facilitates people to connect with one another through a social networking platform. Users create profiles to exchange information with friends, family, school mates and work colleagues. Users are also allowed to make comments on their profiles and their friend's profiles. They are allowed to share pictures and comments on their pictures and those posted by friends. They are also allowed to view pictures or links of their friend's friend if their friend makes a comment or is tagged in any of the picture. This is a great and unique feature as it allows users view things, comments or information that might be of interest to you. Users are also allowed to chat with other users in the real time chatting application and friends can set up multiple

chatting where three or more friends can chat with each other at the same time. Message sending and receiving is also available and at a real time (FaceBook, 2010).

B) Twitter

Twitter is an online social application. It is partly blogging, partly social networking sites. And one of its unique feature is that it is mobile accessible. It is designed to support micro-interaction and micro-thinking. Twitter was designed to answer question "what are you doing?" it is limited its users to 140 characters and can be viewed synchronously or asynchronously. The act of writing these messages is called tweeting. It allows users to create friendship which is then collectively used to establish so many and inter connected networks of users.

The most important aspect of Twitter is that it is compactable and can be accessed through mobile phones and hand held devices and many other SMS clients, making it very easy for mobile phone users to stay in touch virtually anywhere. Despite being launched in March 2006, it was not until late 2007 that it became very popular especially among celebrities and the entertainment industry. Users are allowed to create a profile which they can personalize and then appear in a public timeline in reverse chronological order unless it is protected. Users can then communicate with friends.

It is a very powerful tool for making peoples opinions and views known. It is also a quick way of expressing thoughts and meaningful opinion which can then be used as a

"twitpedia". Twitpedia is a collection of information in Twitter. It helps in staying in touch with a niche of particular group of friends, colleagues, classmates and friends in the same platform (Twitter, 2010).

C) Flickr

Flickr is an image sharing site that allows users to create an account freely and to upload pictures and images of memories, experiences and field trips. It also supports activities and engages community where people share and explore each other's photos. Flickr was developed by Ludicorp, a Vancouver Canada based company founded in 2002. It has since been bought by Yahoo Group.

Flickr features include the ability to upload pictures from your desktop or mobile phone. It also allows you to organise, set and tag pictures. It allows you to also say what geographical location the picture was taken (Flickr, 2010).

D) MySpace

MySpace is an interactive Social Networking Site that allows users to construct a profile and articulate friends that they know in real world. It also allows you to find and hook up online with people you do not prior to that but have something in common. Its main function is connecting with musicians, both independent and co-operate. It allows users to find out and keep up to date with what is happening in the music world and the latest musicians and bands available. It allows users to keep up with what their

MySpace friends are doing, this is done in a bulletin formation. There is also a forum where the latest trends and topics especially in music and the entertainment industry are discussed (MySpace, 2010).

E) Bebo

Bebo is a social networking site founded in 2005. Bebo stands for "Blog Early, Blog Often". Like many other social sites, Bebo has two main sections, a comment section where other users and your friends leave messages for you and also your list of friends. It also articulates a list of users' friends. The user can also add other features that they feel they need.

Bebo profiles can also include quizzes which can offer multiple choice questions. At default, this makes it a very good learning and collaboration tool. It allows you to carry out a poll for your friends to vote in and or maybe comment on. It also has a photo album file which allows users to upload an unlimited number of albums but limited to forty-eight pictures per album. It also has a blog which the user can either write on, post or comment on the other peoples' blog.

Bebo also has a list of band or musicians' features where users can articulate on their favourite musicians and bands. Users are also allowed to belong to a number of groups. They can also set up their own groups. Another good feature of Bebo as a social

networking site is that it allows users to add video box to their profile. This allows users to either upload a video file directly or post online to their profile.

Users can also view the changes made by their friends on their profile. An update in peoples profile or other social networking sites like FaceBook, twitter, Flickr etc can automatically be updated. An update is made from your Bebo account. A change made in other peoples' profiles which may include photo uploads updated flash boxes, newly added videos, friends and members are reflected in user's profile.

Bebo is also accessible via mobile and hand held devices. In March 2008, Bebo was acquired by American online AOL (Bebo, 2010).

The advent of FaceBook and Twitter however in recent days has seen a huge falling in the number of active registered profile on Bebo. In June 2010, due to huge competition and heavy losses, AOL the parent company of Bebo sold it for $10m to a private equity group Criterion Capital Partners for 2% ($850m) less than what it paid for it in March 2008 (MacMillan, 2010).

F) Google Buzz

Google Buzz is the latest and newest in the long line succession of Social Networking Site. It is designed and owned by Google. It went live on the 9th of February 2010. The Google Buzz is automatically integrated into the accounts of Google Mail account customers. It also automatically connects users that are already on your mailing list

with Google account. This is made available in the inbox of the user's profile. Users can share link and videos. Users can send instant messages to each other and can also comment on other users posts. It also connects your Flickr, Twitter and Google Reader accounts together so that they can all be updated from a single location (Google, 2010).

G) Ning

Ning is an online social platform that allows users to create their own social Networks. It was launched in 2005. The main advantage of Ning as a social Network and its distinct feature is that it allows users to create their own social Networks around their particular interest thereby tailoring what features and services they want in the social Network using specific designs or creating their own network visual design, choice of added features and choice of membership data. Ning caters for anyone who wishes to create a website or social networking site without joining other networks. This most importantly limits information overload. It also caters for different specific membership base or topic of internet (Ning, 2010).

The Ning board headed by its executive director Gina Bianchini announced a number of changes to Ning's structure and services. It introduced a new price plan which took effect from the 20th of July 2010 this raised a lot of concern on the future of millions of free users of Ning especially the educational users who are not one of the major customers of Ning but also the most used. After consultations and discussion of the

issue between Ning and its educational subscribers, they teamed up with Pearson Ning

is providing free services to educational institutions (Morantes, 2010).

1.3. Emerging Trends in Social Networking

The rise in use of Social Networking Sites has drawn a wide spectrum of users. These users are taking full advantage of it and using them in many different ways that was never imagined. Some of these trends have continued to rise in popularity and more and more people are not only venturing into its use but also are researching on ways to make it better and discovering of new ways to make its use easier. This section would describe some of these trends.

1.3.1. Social Networking and Business

"The human connection that is enabled by Social Networks is the glue that put humanity back into business to solve the problem of trust. In order words, the organizations that will win are the ones that most easily enable individuals to build relationships and communities with people they trust" (Haysack, 2003. p.2).

The above quotation summarizes the importance of business and organizational adverting and serious marketing campaign on Social Networking Sites in today's difficult and financial times. Jody Numetz, author of Marketing Jive, identified five major uses of Social Networking Sites in business.

They include,

1) Business Advertising

What better way for companies to build trust and increase production and brand image trust with aim of maximizing company profit but to increase the company publicity and advertising campaign?

It was reported that social media have for some time continued to play a major role in marketing for a lot of companies, especially in the retail industry where retailers' uses Social Networking Sites ass an advertising platform to target teenagers and young adults (Market Watch, 2008).

Over twenty five million people view a Social Networking Site of their choice every hour it has been reported. To market products or services in any of the most popular Social Networking Sites, is to get your products and services to over half a billion audience every week (Albanesius, 2009).

There is not just huge business potential for business owners advertising and using social networking sites, but also for the Social Networking Site owners themselves. FaceBook in the year 2007, earned over $150 million in revenue and $30 million in profit. For the year 2007 an advertising deal with Microsoft during that year accounted for half of that revenue (Vara, 2007).

It was found that there is a positive stance for the possibility of integrating e-commerce onto social networking sites as reported in a survey commissioned by the American Marketing Association, in the same survey it was found that 47% of consumers said

they would visit Social Networking Sites to search for and discuss holiday gift ideas, of this 47%, 29% said they would buy products there (Horovitz, 2006).

Other uses of Social Networking Sites in business include

2. As a recruitment avenue.

3. To learn about new competitors and technology.

4. Business character management tools.

5. As a leading generation tool to intercept potential prospects.

1.3.2. Politics and the power of Social Networking

In early 2007, Barak Obama an unknown senator was running for the President of United States of America against Democratic nominee and household name Hilary Clinton. On November 4th 2008, he was elected as the first African American president after beating Republican candidate, John McCain, to become the 44th President of the world strongest and richest country United States of America (Aaker & Chang, 2009).

A major success factor was how Obama's campaign was organised using Social Networking Sites, Media and Technology as an integral part of his political campaign strategy to raise money, and more importantly, to raise hundreds of thousands of volunteers.

During his year long campaign, Obama accumulated more than 5 million friends on more than 15 Social Networking Sites and 3 million of these were on Facebook alone (Aaker & Chang, 2009).

He and his campaign team headed by 25 year old Joe Rospars used Social Networking as never though before in political history to raise millions of dollars in donations, raised millions of volunteers and campaigners and most importantly raise awareness of his goals and aspiration for the American people and to get his political message across to millions of Americans in a way, manner and environment that they spend almost half of their day in (i.e. the computer).

His online Social Networking campaign was highly orchestrated with video messages, email and text messaging service. It was observed that during the campaign, Obama sent over one billion emails, including 10,000 unique messages targeted at specific segment of their 13 million lists (Aaker & Chang, 2009).

Apart from using established Social Networking Sites, the campaign had a dedicated Social Networking Site www.mybarakobama.com (mybo), which allowed individuals to connect with one another, and activate themselves on behalf of the campaign.

During the campaign, over two million profiles were created. Registered users and volunteers were able to plan over 200,000 online and offline events. Over half a million blogs were written including podcasts that were uploaded to the network. Over 650

million dollars was raised during the campaign by over three million online donors (Aaker & Chang, 2009).

The Obama campaign did not only use Social Networking Sites and its tools were effectively and efficiently than any other candidate in any election in the world to organise, communicate and raise fund but they also used it to leverage them to support its grassroots strategy that tapped into the hearts of the voter. This resulted in massive victory.

The legacy is one of the most effective internet marketing plans in history, where Social Networking Sites, Media and Technology enabled individuals to activate and participate in a massive journey. Ever since this election victory, many countries and political parties the world over have turned to Social Networking Sites hoping to repeat the same success story (Aaker & Chang, 2009).

1.3.3. Social Networking and the Science and Research

Another important area where Social Networking Sites are being used and exploration and research is still on is the area of knowledge and research in the Science Communities. In a Paper titled "Social Networks, Learning, and Flexibility: Sourcing Scientific Knowledge in New Biotechnology Firms" published by Liebeskind, Oliver ,Zucker & Brewer (1995), they explored how New Biotechnology Firms (NBF) used Social Networking Sites to share and exchange scientific knowledge and information with each other. They said that by collaborating on information, they were able to "increase

both their learning and their flexibility in ways that would not be possible within a self-contained hierarchical organization." It allows science groups now to communicate and exchange ideas faster than ever before.

It was also noted that science and research organizations also use Social Networking Sites to drive traffic to their website thereby increasing their market and customer base. The use of Social Networking Sites for science and research has also benefited from getting volunteers that are willing to try company's products or services. It also helps in attracting new investors if they are researching on some unique or novel ideas or products (Liebeskind et. al, 1995).

1.3.4. Social Networking Sites in Education

There has been an increase of use Social Networking Sites in education. With almost every student having access and using variety of Social Networking Sites, teachers and researchers are trying to familiarize themselves with these application and trends in view of using it to advance and encourage learning. Students are adopting these new technologies, using them all the time and are now expecting the school to move with time to provide them with these new technology or infrastructure to support the technology.

The educational sectors and the academic world are still researching on ways to integrate the Social Networking Sites tools to the already existing learning management systems if any exists or creating a vital and strong platform to provide these services to

their students. This is aimed at further enhancing learning experience and also improves academic excellence in a flexible, relaxed yet comfortable environment for their students.

Furthermore, the demand for good quality education globally has lead to the creation of distance learning education which is immensely supported by internet technology and facilitated through the use of Social Networking Sites and other facilities. The evolution of education from one-to-one (teacher to student) to collaborative learning is now being preached in schools all over. This is because it is believed students can learn more without being stressed or bullied into learning by having a more hands on deck participation and being partly in control of their learning and not depending on their teacher for all information.

The use of Social Networking Sites has also led to better and greater communication between parents and teachers. It is now easier and very convenient for parents to track their children's progress in school and to voice their opinion, concern and ask questions if and when necessary without having to go physically to the school or waiting on messages from school which is normally hand delivered by the student which may never arrive.

The use of Social Networking Site would be the focus point of this research work.

1.4. Uses of Social Networking Sites in Education

Social Networking Sites have started to radically revolutionise the way we communicate. The advent of Social Networking Sites have to a great extent changed the way we perceive information outside the four walls of educational institution. It is believed that Social Networking Sites would in no distant future change the ways student understand and approach learning on one hand, and how educators and teachers approach teaching and interaction with their students on the other.

In a study by Christine Greenhow of the University of Minnesota in 2008, she explained the educational benefits of social networking sites like Facebook, MySpace, and Bebo which is summarized below.

1) Social Networking Sites can be used as a powerful platform for recognising and appreciating issues that affects students. This is done by using it to organise school activities and events or can be used by study groups to view their opinions on issues concerning them.

2) It is used as a debate or discussion forum for students and their teachers on issues relating to their field of study. This goes a long way in developing interpersonal skills and presentation skills of students. It also helps in providing students opportunities to learn how to function successfully in wider educational communities outside of the classroom. They sometimes use the Social Networking Sites to discuss issues ranging from cyber bulling to stalking

by paedophiles and ideas on ways to detecting and preventing them are shared online too.

3) The main purpose of Social Networking Sites is active participation in activities such as creation of contents, uploading of pictures, commenting on friends profile update and pictures, discussion and chatting with friends among other activities. This is aimed at making users active creators, managers and distributors of their materials and information and that of friends associated to them.

4) Social Networking Sites are an advocator of collaboration and team playing. They are designed to support users to share information, work together, think together and act together. The idea of Social Networking Sites is for students to ask their classmates or friends advice and opinion on educational issues and matters.

5) Social Networking Sites is seen as one of the greatest discovery agents today. Students explore the entire web and Social Networking Sites for information such as books, YouTube links, and other links that feel would benefit friends educationally.

6) Social Networking Sites also helps in making students to be independent and build flexibility towards education and learning, they learn to develop the

skills needed to recognise and manage risk and it also teaches them on how to evaluate and judge situation independently without the influence of their school teachers (Greenhow, 2008).

It is generally being recognised now that Social Networking Sites is helping students to transfer skills acquired online to their school work and activity.

1.5. Why Ning?

Ning is a Social Networking Site dedicated for users to create and manage their own social network. The two most important reasons why Ning was chosen as a preferred collaborative and learning social networking tool are;

1)Privacy and Security

The massive growth of Social Networking Sites in the last decade has seen a surge in number of young people having profiles in different four Social Networking Sites.

This in turn has lead to social Networking Sites being a popular destination for paedophiles, rapists, cyber crime, criminals and bullies.

The security and privacy policies of some of the Social Networking Sites have remained a bone of contention for years between the owners and management of these sites and respective government and agencies where they are base, especially regarding the safety of young users (George, 2006; Kornblums & Marklein ,2006; Stutzman ,2006).

The original idea of this thesis was the analysis of FaceBook, Twitter and Flickr as a collaborative and learning tool in second level education in Ireland. This idea was however shelved primarily because of security issues and protection of the children in their school was raised by head of the school contacted for permission to use their school for training and demonstration purposes.

It was observed by Stutzman (2006) in his survey of young people especially of secondary school age that they do not understand and fail to read the privacy statement of any social networking sites before committing themselves to its membership and usage. He went further to state that a request to join their network or make friends with strangers is easily accepted. He posited that in most of the teenagers, that the more friends you have the more popular you are among your classmates and friends.

The use of Social Networking Sites mentioned earlier as learning and collaboration tool would be putting students in great danger and exposing the school in general. Just recently on the 8th of March 2010 a chronic sex offender 33 year old Peter Chapman was sentenced to life imprisonment for kidnapping, raping and killing of Ashleigh Hall a 17 year old childcare student who he trapped using a fake FaceBook profile of an 18 years old male student (Hines, 2010).

Using Ning as Social Network for collaboration and learning in school would eliminate such issues and avoid such incidence from occurring because users would be known to each other. Any name or pictures in profiles not recognised by students or management of the school or the network would be identified. Also a verification name and authentic log in details would be issued to students and parents would also play an active role in monitoring the activities and inputs of their children.

The Ning network is also very easy and simple to use, the user's ability to control and manage their profile is very important as noted by Boyd (2007) that most social

networks do not make their privacy settings and button visible, users are expected to fish them out accordingly which the majority of young users do not do. Ning makes its privacy setting visible and available before completion of registration.

2) Information Overload

The use of Social Networking Sites means we are constantly in contact with tons of information on a daily basis. An average teenager it was noted from the survey spends an average of six hours daily on Social Networks alone (Lenhart, Purcell, Smith & Zickuhr, 2010).

They spend time reading messages, responding to messages, uploading information, chatting with friends, reading updates, updating their own profiles and playing games. To get them to do any other activity outside that which they are used to would not only be tiring but have a greater chance of being neglected or forgotten.

The information received and shared sometimes could be overwhelming. This loads of information and its consumption is known as information overload. Information Overload is defined as *"a state in which the volume and the speed of incoming stimuli an individual needs to cope with are beyond his or her processing capability"* (Hiltz & Turoff, 1985. p.23).

From the above definition and from activities and usage of Social Networking Sites from young people, I observed that information overload has it own downfall. From my

experience of the use of FaceBook and Twitter and other Social Networking Sites that I have a profile in, it takes a lot of time, energy and dedication to sieve through all the information you receive on your network.

In FaceBook for example, I have an average of 650 updates from friends on a daily basis excluding messages and email sent. It would take a lot of time and effort to go through the updates and to either reply or make a remark where necessary.

It is also generally acknowledged that too much information results to diminishing capability to react to certain changes in the environment at any given time. Given that at some point, the important updates that genuinely require your attention is often overlooked (Klapp, 1986).

Therefore if any of the commercial Social Networking Sites mentioned earlier were to be used as learning and collaborative tool in schools, students would spend a large amount of time browsing their information, pictures, and other activities. They would pay little or no attention to any school activity or work given to them. Not enough time and attention would be put in it.

The use of Ning however would eliminate issues of information overload. The users in as much as they can personalise their home page and add what they wish, the class teacher or administrator of the network have access to the entire network and would

remove any material, comment or information that does not conform to the regulations of the school.

1.6. What is Social Learning?

Gagne describes learning as *"a change in human disposition or capability, which can be retained, and which is not simply ascribable to the process of growth"* (Gagne, 1977.p.144).

The above definition is important as regards to traditional learning. But there needs to be an encouragement of interaction between people if learning is to be acquired in a learning environment. Social Learning have therefore been described as An individual activity, though often within a social context, of making sense of our experiences (Jarche, 2009). Bandura (1997) in his social learning theory stated that learning would be extremely difficult and dangerous if people have to depend entirely on their own action and thinking process to learn. He went further to state that human behaviours are learnt from observing others and later transformed into their own thoughts after coding and interpretation of information.

There is a growing demand for us to connect and learn from each other. It has also been noted that it is through communication with each other that we make sense of ourselves and this is social as explained by George Siemens in his white paper on Social Learning (Siemens, 2009).

Social learning makes use of social media tools with a shift in the institutional traditions, it is this shift that encourages online knowledge acquisition and transfer and connect people in ways that makes learning fulfilling and rewarding in a relax environment. This is what is aimed to be achieved in this study.

With changes in learning styles and the growing popularity of Social Networking, I believe it would be useful to harness this with teaching and learning principles in secondary schools. It is the environment and most important thing that young people know, and since they are comfortable in it, then it would be useful to use it to promote and enhance learning.

1.7. *What is Collaboration?*

The advent of the internet technology has increased the use of online collaboration. Siemens (2005) in his new modern theory of Learning called Connectivism recognises the contribution technology have made in society and our ways of acquiring knowledge.

Siemens's viewpoint on collaborative learning in an online environment was that learning in the digital age does not depend on individual acquiring, storing and retrieving knowledge on their own when they need them, rather it does depend on the connection from learning that occurs through interaction with diverse avenues of knowledge which include among others, the internet and Learning Management System and participation in communities of interest and social networks (Siemens, 2005).

It is hoped that using Ning Social Networking Sites, as a collaboration tool for learning in second level education in Ireland, it would primarily help in increasing and enhancing learning. It would improve and increase performance and pass mark at the end of the session. It is also hope that it will improve student's communication and inter personnel skills. The learning would be done in a safe and secured environment with friends, classmates and teachers. There is therefore an element of trust and eliminating all the negative factors affecting social networking for school children as

described earlier. Because it would be done   with classmates, it would build an element

of competitiveness among students as they strive to be the best in the class.

1.8. Aim of the study

The use of Social Networking Sites like FaceBook, Twitter, Bebo and Flickr by students has more than doubled over the last five years. It is now seen as a must have for every student. Its usage as a learning and collaboration tool in educational sectors has been argued by educational researchers and educational institution. A lot have advocated its integration into the educational structure of school as performance of students have gone down more than 17% which is attributed to distractions caused by these networks (Bryant, 2006).

I was curious therefore on how this negativity of Social Networking Sites be turned into a positive and useful educational resources, and how it would be used as a learning and collaborative tool for there coursework aimed at improving the falling grades.

2. Literature Review

2.1. Introduction

In order to present the research question for this thesis, it is first necessary to establish the theoretical underpinnings. Very little research has been done on social networking as collaboration and learning tool and the use of Ning in education. The theoretical findings would narrow down on similarities where no known literature exists.

The aim of this section is to review and provide background information on the research topic. Book, articles, journals and other paper publications and online materials relating to the topic will be reviewed and analysed. The literature review will first of all review literatures on learning theory, Social Networking would be defined and analysed as a vehicle for social learning.

The benefits of Social Networking in education will also be reviewed. Collaboration as a learning tool in Social Networking and evaluation of its effectiveness in learning and education will be analysed. Literature on learning style would also be reviewed, this will be integrated with Social Networking tools that are applicable and used in education.

The review of literature will further explore case studies of Social Networking Sites like Facebook not working in education case studies of Ning working in education will also be reviewed. Literature on research method pertaining to Social Networking Sites in education will also be reviewed.

2.2. Learning Theory

Before examining the roles and importance of social networking in education, it is important to introduce some of the main theories of learning. This is very important because it helps us define which educational practices that is best suited for students and learners in general. A review of the learning theories would help us understand how people learn and the inherent complex processes it involves. Understanding these learning theories would help us understand the context of learning in an online environment. This section describes the theory behind learning and its genealogy. Before we describe these theories, we would first of all define learning as seen in the literature.

Learning is defined as a *"process that brings together cognitive, emotional, and environmental influences and experiences for acquiring, enhancing, or making changes in one's knowledge, skills, values, and world views"* (Illeris, 2007.p.45).

Furthermore, Learning was defined as *"Learning is acquiring new knowledge, behaviours, skills, values, preferences or understanding, and may involve synthesizing different types of information. The ability to learn is possessed by humans, animals and some machines"* (Holt, 1983.p.19).

The proverb *"Tell me, and I will forget, show me, and I may remember, involve me, and I will understand"* (Confucius, 450BC), made by Confucius a Chinese thinker and Social Philosopher, explains the value of understanding the pedagogical processes that takes place when learning occurs. This is the main point and basis of researching on social Network collaboration and learning.

The most important factor to understanding learning and its process is the comprehension of the learning theories. This has evolved from psychological studies and has continued to evolve and integrate environmental changes and the way we learn (Ertmer & Newby, 1993).

In discussing learning theories that are associated to social and online collaboration and learning, we will discuss the following theories of learning: Behaviourism Learning Theory, Cognitive Learning Theory, Constructivism Learning Theory, Social Constructivism Learning Theory and Connectivism Learning Theory.

2.2.1. Behavioural Theory of Learning

The theory of Behaviourism was greatly influenced by researchers like Thorndike, Pavlov, Watson and Skinner. They defined learning as "*a change in observable behaviour caused by external stimuli in the environment*" (Skinner, 1974.p.43).

These Theorists sees the brain as a "black box, observing only the response from a stimulus and neglecting the impact of the thinking process as it occurs in the brain" (Atkins, 1993).

There are two main schools of thought contributing to the Behaviourism theory. They are Pavlov's Classical Conditioning and Skinners Operant Conditioning.

The Classical Conditioning Theory links learning to the relation between stimulus and response. The Classical Conditioning represents spontaneous behaviours. It is a

spontaneous form of learning whereby a stimulus acquires the competence to inducing a response that was originally induced by another stimulus (Pavlov, 1927).

Pavlov went further to state that several learning types exists but the most important was what he described as associative learning. This he described as finding a new relationship between activities in the environment (Pavlov, 1927).

The Operant Conditioning on the other hand stated that behaviour is created and maintained by its own action (Skinner, 1971). The Operant Condition Behaviourism theory believes that the body works upon a response and that behaviour works on the environment to create response. Skinner (1971) insists that the environment plays vital role in determining behaviour.

He also stated that the Operant Conditioning has a greater impact on human learning and behaviour. The consequences is that the continuous availability of computer and internet facility. The growth of Social Networking would continue to change the way we perceive and access information and knowledge. The environment is changing and so should the teaching and learning culture.

Behaviourism impacted education in various way but this impact was not noticed until the 1960s (Saetter, 1990). Saetter (1990) identified six areas of technological impact in education to include behavioural objectives, teaching machine, programmed

instruction, individual instructional approaches, computer assisted learning and systems approach.

2.2.2. *Cognitive Theory of Learning*

Jean Piaget's Cognitive development theory states that cognitive development occurs in four distinct stages in children. The four stages are Sensormotor, Preoperational, Concrete Operational and Formal Operation. These stages occur from birth to mid teenage years (Kearsley, 2008).

Kearsley (2008) stated that learning takes place through assimilation (i.e. organising new information and including it in existing knowledge or schema), and accommodation (i.e. altering existing schemas as a result of new information or experiences). He went further to state that it is essential for students to adapt to new ways of knowledge acquisition through social learning.

According to Ally (2004), Cognitive theorist considers learning as an internal practice that involves reminiscence, motivation, and idea. Ally went further to state that the uniqueness of the cognitive school of thought is that it appreciates and accommodates individual differences in learning hence different learning styles. Myers (1978) in supporting this in his research, describes how a learner receives, interprets and responds to learning materials on their own or with support of others. This theory was reinforced by Piaget's theory which says that learning process should include social cultural engagement (Deubel, 2003).

Cognitive theory emphasis is on learners receiving and interpreting information and then store in a long term memory. Social Networking Sites would aim at adapting and assisting learning in smaller parts supported by different learning style through motivation and collaboration.

2.2.3. *Constructivism Learning Theory*

Constructivism as a learning theory was made known and defined by Piaget (1972); Dewey (1916); Vygotsky (1978) and Brunner (1990) as "an active construction of new knowledge based on a learner's experience."

Woolfolk (1993) stated that the main idea of this theory is for the learner to actively construct knowledge, think upon this knowledge from outside his zone to determine the solution to a given problem. Hence the idea of collaboration in gaining knowledge and information is highly advocated.

Murphy (1997) in his article "Constructivism from philosophy to practice" brilliantly summarised the qualities of constructivist learning theory. They include,

1) It has various ways and means of representing idea, contents or concepts are presented and encouraged.

2) The goals and objectives are discovered by the learners and sometimes with help from friends, classmates, teachers and system (i.e. computer).

3) Activities, opportunities, tools and environment are provided to encourage Meta Cognition, self analysis, reflection and awareness.

4) Learning situation, environment, skills, contents are realistic and represents the real world.

5) Collaborative and cooperative learning are favoured in order to expose learner to substitute perspective.

Koohang (2005) reinforces on collaboration, cooperation and multiple perspectives and real world examples as the basis of constructivism theory in an online learning environment.

2.2.4. *Social Constructivism Learning Theory*

The social constructivists believes in the theory which states that knowledge is the outcome of collaborative building in a social environment context, bridged by communication, they also agreed that learning is enhanced through interactive processes of information sharing, argument, negotiation, discussion and possible agreement (Richardson, 2003).

Piaget (1955), in his theory of constructivism posited that children's understanding develops as they accumulate errors in their quest for knowledge.

Berger & Luckman (1966), in their book "The Social Construction of Reality: A Treatise in the Sociology of Knowledge" said that all knowledge is gotten from and enhanced by

social interaction. They went further to say that it is difficult to learn by oneself and that collaboration enhances construction.

Computer lead learning first came to light in the 1980s. This innovation came to light after criticism of outdated software that hindered individual learning Stahl, Koschmann & Suthers, (2006). They stated that technology in the beginning only allowed learners access to static learning materials rather than using technology to construct learning.

They went further to say that though shared discussion, knowledge and information, the society becomes the vehicle of learning. The idea of computer-supported collaborative learning according to Stahli, Koschmemn and Suttere, (2006) was to build activities and environment that encourages group activities as did the theory of social construction. Social Network today is the newest form of computer supported collaborated learning environment.

2.2.5. Connectivism Learning Theory

Connectivism is a theory that seeks to describe learning in the digital age. It was originally proposed by George Siemens an Associate Director of Research and Development at the technology centre to University of Manitoba in December 2004. He defined Connectivism as *"the integration of principles explored by chaos network and complexity and self organisation theory"* (Siemens, 2004.p.2). He went further subsequently to describe learning in another publication as messy, chaotic, social collaborative and connected with other activities and interests (Siemens, 2006).

The theory of Connectivism as a learning theory was developed to bridge the gap created by the limitations of Behaviourism, Cognitivism and Constructivism in explaining in detail the impact of technology on how we live, how we communicate and how we teach (Perrin, 2005). Siemens (2004) argued that these theories due to time and advances in technology do not reflect the type of learning that occur today neither do they meet the needs of today's learners.

In his paper "Connectivism: A learning theory for the Digital Age" published in 2004 identified the principles of Connectivism which is summarized below.

1) Learning and knowledge is as a result of diverse opinions

2) Learning is a way of connecting vital information and information sources

3) Learning may be within non human facilities

4) The zeal to acquire more knowledge is more important than what is known already

5) Finding and maintaining connection is vital for fostering progressive learning

6) The ability to see the relationship between facts and concepts are a most.

7) The currency and up to date information is the basis of Connectivism learning theory

8) He also said that decision making in itself is a learning process (Siemens, 2004).

Siemens (2008) in his research identified five stages of development that reinforces digital network learning. They include:

1) The development of infrastructure

2) The merging of these infrastructure with existing and established structure

3) Individuals being able to access and interact with these structures and thus resulting in theoretical and transformative means of learning, knowledge and cognition

4) The fourth state is the emergence and rapid growth of personal and Social Networking Sites

5) This when educators started to explore these networked models and investigating their potentials in enhancing education.

Prensky (2005) in his article "Engage me or enrage me", supported the idea and stated that technology and Connectivism have had a positive impact on education. He explained that today's learners are not willing to learn in environments that does not reflect real world experiences.

Prensky went further in the article to explain that today's students come to school equipped with devices such as mobile phone and laptops which have instant access to

the internet. He coined the team "Digital Natives" a team he used in defining today's learners in the digital world Prensky (2001).

Students enter the educational system today with different attitude. There mindset and opinion towards learning and education have changed and continued to change over time. Video games, instant messaging, mobile phones online social networking are now a must and constant necessity for many teenagers. Oblinger & Oblinger (2005), in a publication Educating The Net Generation offered a detailed review of today's learners as digitally literate, constantly connected, socially- driven, engaged, and visually – driven.

Today's learners are different and would be taught differently. It is therefore a known fact that some of the learning theories would simply not support today's learners due to the constant changes in learning style and learning environment. For this purpose and the purpose of this study, the Social Constructivism Theory and Connectivism Theory would be adopted as the preferred learning theory that would guide the pedagogical formation of learners using Ning Social Networking Site for collaboration and learning. This is because they closely match the learning style of my sample in this study.

2.3. History of Social Networking Sites

Having seen from the learning theory review that this generation of learners are the net generation and favours social learning and collaboration, Social Networking has been chosen as the preferred way to getting knowledge across quicker. This section would therefore seek to trace the history and origin of Social Networking. In order to fully understand and comprehend and appreciate social networks as they are today, it is important to know its history, when it started and how it started.

The term Social Networking has existed from the time of man. Humans have always had the tendency to talk, discuss and communicate with each other. This could have occurred around a camp fire at night, in the cave or in the village square. Social Networking has been part of our lives since the beginning of time (Ivan, 2009).

In tracing the history of Social Networking Site, we would first review its definitions.

Social Networking Sites was defined by Newman (2003.p.45) as *"a group of people who establish with each other a form of relationship with each other. Such relationship can be acquaintance or friends."*

Boyd & Ellison (2007.p.2) went further to defining Social Networking Sites as *"web-based service that allows individuals to construct a public or semi-public profile within bounded system, articulate a list of other users with whom they share a connection and view and traverse their list of connections and those made by others within the system. The nature and nomenclature of these connections may vary from site to site."*

The very first form of Social Networking recorded and known to man was the camp fire where individuals or residence of a community gather round a fire to discuss burning issues affecting them (Ivan, 2009)

Ivan (2009) went further to say that it has also been used by men of adult fighting age to discuss and prepare for the most popular game hunting which is also a source for their daily bread. This continued to form the major form of communication between neighbours and migrating communities.

Families started migrating for various reasons including economic, weather and the search for fertile land for agriculture and continued existence. This move meant more difficulties in communication and socialising. The use of animals, such as carrier pigeons was used to send messages. People were also sent with horses to deliver messages and information (Ivan, 2009).

This form of communication and socialization he observed continued to change and evolve together with technology. The invention of motorcars and stage coaches meant messages were sent via this method which was a bit faster and response received quicker than it used to. The invention of telegraph and later the trains with mail carts meant communication, messages and information among different social group was carried and delivered quicker.

This gave rise to the first known major form of modern inter-boundary Social Networking known as penpal where letters, pictures and exchange of gifts between friends were done through mailing. This broke the barrier of Social Networking as it became a way of learning people's culture and way of life without physically seeing them in person (Ivan, 2009).

Social networking today has taken a different dimension with the invention of the greatest infrastructure for socialization that civilization has ever created, the Internet. The first known Internet Social Networking site went life in 1997 called Six Degrees (Boyd & Ellison, 2007).

This SNS allowed users to create their profiles, and list their friends. It was not until late 1998 that profile owners were able to surf list friends. Since then tens and hundreds of Social Networking Sites have emerged.

Six Degrees was marketed and advertised as a tool which was aimed at helping people get connected with each other, send, receive and reply messages. Despite its immediate popularity and initial success, it failed to become a viable and successful business to the public. Its founder attributed this to the network simply being ahead of its time (Boyd & Ellison, 2007).

From 1997 to 2001 more communication tools started to emerge. Some of them include: Asian Avenue, Black Planet and Migente. They all allowed users to create personal, professional and dating profiles (Boyd & Ellison, 2007).

LiveJournal was launched in 1999 which allows them follow theirs journals and also to manage their privacy settings (Chafkin, 2007).

Cyworld went live in 1999. This is a Korean virtual world website and added Social Networking Site Services and futures in 2001, furthermore in 2000, a Swedish web community lunar storm was rebranded as an SNS with additional features including guestbook and diary pages (Boyd & Ellison, 2007).

The second generation of Social Networking sites started with the advent of Ryze which was launched in 2001. Its aim was to help people promote and market their business like tribe.net, LinkedIn, Friendster and Ryze. They were all tied to personal and professional development. There main aim was to help each other without clear showing their competitive side (Festa, 2003).

MySpace was launched in 2003 in response to foundation by eUniverse. This was aimed at helping people network together in a fun, friendly, relaxing manner. This attracted teenagers and early 20's youth which also made it attractive and viable for markets and advertisers (Boyd & Ellison, 2007).

The year 2004, saw the launch of FaceBook by Mark Zuckerberg and his roommates and fellow computer science student Edward Saverin, Dustin Mskovitz and Chris Hughes while they were students of Harvard University. It was initiated and limited to Harvard students then expanded to other third level institution in the Boston area, the Ivy League Universities and Stanford University. FaceBook was an instant success and today has over 400 million users (Ziegler, 2010).

The next recognisable SNS launched was Ning. Its development started in 2004 but did not go live till towards the end of 2005. It was founded by Bianclini, Andreessen and Angel Investors. The uniqueness of Ning allowing its users creates their own Social Networks within the interest, design, choice of feature and member data. These creations can be in any topic, need or interest. It also allows users and developers some form of control of their network (Educase, 2008)

Because of its nature, Ning has not been as successful other social networks like FaceBook and MySpace because of its features and structure. But it has been proven very popular among users wishing to set up their own social networking sites and websites (Boyd & Ellison, 2007).

The latest development so far in the generation of social networking that has captured the world is Twitter. This is a free Social networking and microblogging services that allows its users to send and read short messages known as Tweets. These messages are not more than one hundred and forty characters long.

It was created in 2006 by Jace Dowey and has been very popular among celebrities. Though a lot of arguments have been made on whether Twitter is a social network or an information network. I believe it is the latter because it articulates lists of members. Messages sent on the user's page are delivered to those subscribed to the user.

The Google launched its own Social Networking Site called Google Buzz this allows users integrate connect with friends and share email, pictures and other service all from one location. This was automatically added to user profile of users that already have account with Google. Google Buzz however have not take off and not been as effective as it was anticipated by its creators (Crammond, 2010).

From the above genealogy it can be seen that social networking has come a long way and has evolved and changed since then. The speed of its growth, development and advancement has marvelled its critics and is now being used in ways that was never imagined. This development is largely due to its ease of affordance and ease of reach.

2.4. Benefits of Social Networking Sites in Education

Understanding the origin and history of Social Networking would help us appreciate its benefits. This section will review some of the benefits of Social Networking Sites especially as it relates to educational benefits which are the basis of this study. The benefits of Social Networking Sites in education cannot be over emphasized. The big question is how educational institutions could respond to the world of Web 2.0 and Social Networking Sites in general which has erected itself around us in a very short number of years and of what benefit is it to them in the long run and continued survival of the educational industry. This section explores literature that is in support of huge potential benefits of Social Networking Sites in education.

Rudd (2006) in his publication posited that online learning and technology offers learners the benefit of a more relaxing, flexible and evenly distributed learning which provides learners the chance to continue their learning in diverse learning environment outside the school environment.

It was argued by Attuell (2007), that the present educational system and structure especially secondary school education have in recent times become dysfunctional in view of the demands of the digital age learners in not supporting the skills and competences they need. He went further to say that educational institutions have been bad advocates of Social Networking Systems in most instances banning its access in the school environment.

Attwell (2007) further said that the use of Social Networking Sites in schools should be encouraged by schools as it promotes high networking, creativity, collaboration and most importantly continued learning outside the school environment. He further said that schools should and need to change their idea of individual learning and attainment because knowledge formation, development, acquisition and retention are achieved most through sharing and networking.

Social Networking with their supporting tools and encouragement for collaboration can contribute to raising creativity which is useful not only for any society but the nation in this information age (Fischer & Sugimoto, 2006).

Rudd (2006) supported the argument by saying that the growth of Social Networking Sites and its increasing ability to produce, share, edit and publish educational material will prompt the emergence of online creativity and collaboration. He noted that education and knowledge acquisition is now seeking to understand this new learning process that totally accepts networking, collaboration and connecting communities.

He also said that education and learning communities were beginning to appreciate the role collaboration plays in the learning process and quest for knowledge acquisition. Learning to network enabled by technology he argued would offer the option of recognising changes, encouraging the use of social power and enabling high collaborative and relevant learning experiences (Rudd, 2006).

Coenen (2005) in his publication also supported the argument by saying that Social Networking will induce and increase creativity through knowledge sharing between individuals. He added that this knowledge gathering from different sources would be gathered through networking by communication and collaborating in a social network environment.

Supporting the argument Owen (2006) suggested that since learning to collaborate is at the heart of educational agenda, that Social Networking will support this trend and will provide needed support for these opportunities to respond to current educational and social needs.

Warlick (2006) stated that Social Networking would be very helpful in diversifying and simplifying teaching in secondary school, especially between teachers, learners and parents.

Franklin & Van Harmelen (2007) suggested that the integration of Social Networking applications into schools existing Learning Management System (LMS) would increase interest among education providers in the new pedagogies in supporting new effective and efficient ways of learning and teaching. They claimed that Social Networking applications produce independent and self- structured learners.

2.5. Case studies of Social Networking in Education

The review of benefits of Social Networking in education revealed that it is of great importance for faster and more efficient knowledge formation and retention as collaboration takes place between learners. This section would review some important case studies where Social Networking in education has been proved very vital and successful in fostering learning.

Researcher Robert K. Yin defines the case study research method as *"an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used"* (Yin, 1984.p.23).

Case study research is very important because they help in fostering understanding and interpretation of difficult issues and helps extend experiences adding potency to what is already known through previous research. Case studies underline detailed background analysis for little known events or conditions and their relationships in helping understand the present problem. Case study research method has been employed by researchers for many years across a wide range of subjects and issues. It has been noted that the Social scientists meticulously have used this form of qualitative research method to study current trends and provide the analysis for use in other similar situations (Soy, 1997).

The best strength of Social Networking tools is that it has the potential to bring people with similar interest together and allowing them to exchange knowledge thereby intensifying collaboration (Cachia, 2008).

This section would briefly explore some of the success instances of Social Networking in Education.

2.5.1. *The eTwinning Initiative Project*

This project was aimed at using Social Networking and its supporting tools to foster learning between learners from cultural background and encouraging them to talk and discuss issues relating to differences in cultural values, traditional rites. Examples of their works include a project titled "once upon a Blog eTwinning project." This was a project between a Maltese and Irish Primary school. It was aimed at encouraging students between the ages of 4-11 to exchange national myths, legends and history using podcasting and interacting through blog. This they do every two weeks and have been proved very successful that a permanent podcasting studio has been set up in the Irish school.

The eTwinning podcast project was generally aimed at exploring how podcasts would be used as a learning tool to support intercultural dialogue and teach (Redecker, 2009).

The eTwinning project has so successful that as of July 2006 over 13,000 schools in more than 25 countries registered to its programme. Galvin, Gilleran, Hogenbirk, Hunya,

Selinger, Zeidler (2006). It helped teachers to develop more creative thinking, techniques, activities, games styles for use in classroom, it has also helped in supporting students who are disadvantaged in anyway by linguistic, social or learning difficulties. And these supports are done online through collaboration with other similar people. It has also helped student in multicultural exchange programme and learning.

Figure 2.1: eTwinning initiative project

2.5.2. *The Horizon Project*

This is in a wider and more global scale project. The Horizon Project is a globally collaborative project aimed at middle and senior high school students at schools round the world which include Bangladesh, Georgia, Austria, Australia and China. In this project, students were grouped in two to discuss and talk about agreed topics. They created videos and discussion forum using Twitter, Wiki, MySpace, Facebook, Email and Skype which they used in collaborating and interacting with each other (Redecker, 2009). The project have been successful, it has brought together teachers and students from different culture, ethnic and religion background to collaborate and learn more about their way of life. It has been successful in increasing individual knowledge outside of the traditional learning classroom.
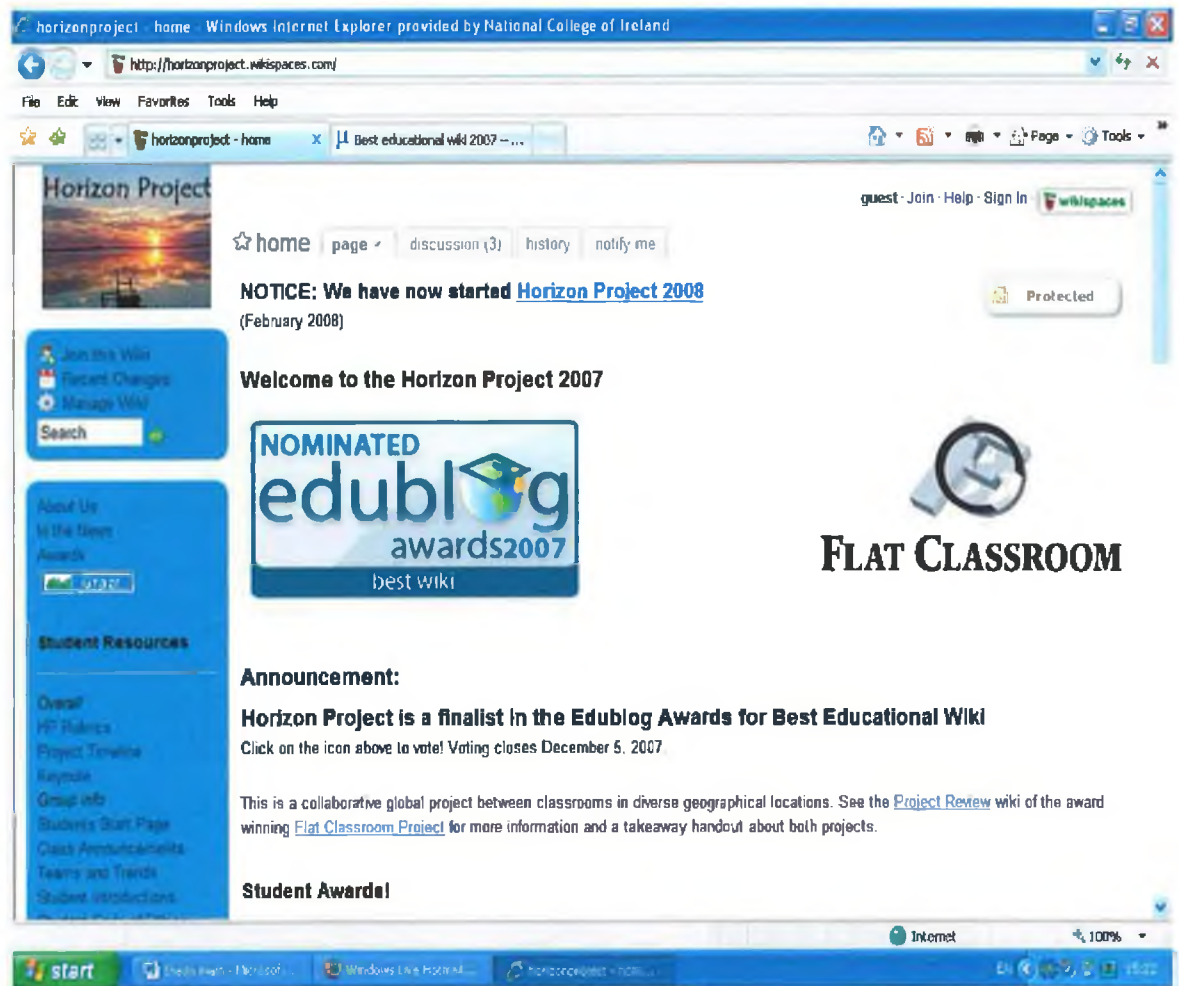
Figure 2.2: The Horizon Project

2.5.3. *The Kemp Project*

This is another example where graduates and post graduate students from four universities in Poland, Estonia, Turkey and Lithuania used social networking as a cross-border collaborative problem based learning project. Students f4rom universities in these country's uses social networking tools like Flickr for sharing pictures and images, Wordpress for individual and/or group blogs, del.icio.us for bookmarking blogs,

2.6. Collaboration

The most important key to success in an online learning environment or Social Networking in education is collaboration. It is important and key to successful online learning. For us to understand this even better, it is important to review the literature on what collaboration is and how it helps in acquiring knowledge. This section seeks to examine collaboration in broad terms. It explores the literature on online collaboration both within and outside of a educational environment. This is important as collaboration is the backbone of this thesis and understanding what researchers have done and said about it is required.

Depending on the research discipline, "collaboration" has been analyzed from different perspectives: between peers, between working departments, companies, through technology (Chinowsky & Rojas, 2003; Touminen & Eriksson, 2005), and on face-to-face interaction (Katzenbach & Smith, 1993).

Collaborative learning has been defined as *"two or more people involved in the joint construction of meaning through interaction with other people that are committed to a shared common goal"* (Hron, 2003.p.19).

Collaborative learning in the educational context is a general term used for different methods that involves combined logical effort by students, or students and teachers together usually work in groups (Smith & Macgregor, 1992).

Advocates of collaborative learning believe that participation in the exchange of information and ideas in a subset group, does not only increases awareness among participants but also increases critical reasoning. According to Johnson & Johnson (1986), there is convincing indication that supportive teams achieve higher levels of thought and retain information longer than students who work quietly as individuals.

Collaborative learning gives students the chance to participate in discussion and take control of their own learning, thereby becoming critical thinkers (Totten, Sills, Digby, & Russ, 1991).

Keegan (2007) posits that collaborative learning helps students learning in a number of ways. He also said that collaborative learning helps students to weigh the advantages and disadvantages of issues with their friends or classmates. He also said that it allows them to discover avenues to overcome obstacles.

Collaborative learning has also been seen to lead to significant improvement in student's behaviour and achievement (Inger, 1993). He went further to posit that successful collaboration also increases teacher's satisfaction and adaptability.

In supporting the need for online learning, it has been noted that the internet has provided and still provides a flexible platform to supporting collaboration to allow fast knowledge distribution that can be assimilated by a large number of students (Hildreth & Kimble, 2004).

The discovery of Web 2.0 and the proliferation of Social Networking Sites have had a massive positive impact to online collaboration and learning. These Social Networking Sites according to the literature, foster interaction, collaboration and involvement. It has also been noted that through collaboration, there is an expansion in knowledge acquisition due to the connections of individuals with people with similar interest (Gnawardena et. al, 2009), (Mason & Rennie, 2008).

Bruns & Humphreys (2007) furthered the argument that for education to adapt to the new learning style and theory users would need certain skills and attributes which he said includes creativity, collaboration, critical thinking capability and good communication.

2.7. *Case study of Ning in Education*

The key to successful online learning as mentioned earlier is successful collaboration. Little written case studies of Ning success in collaborative learning in education are documented. Only one of such few case studies comes to light. The College of education at the North Carolina State University, during the 2008 academic year reviewed many Social Networking Sites and overwhelmingly choose Ning as their preferred Social Networking Site for education. This was because they found it cheaper, offered more educational setting, and the security and privacy setting was a huge determinant factor in its selection (Brady, Holcomb, Smith, 2010).

During that year, Ning was utilized as a discussion and learning tool for two courses that year, the instructional Technology course and the Finance course. In both cases, there was an increase in learning and improvement in academic outcome of students (Brady, Holcomb, Smith, 2010).

(A full transcript of this case study is attached at the appendix)
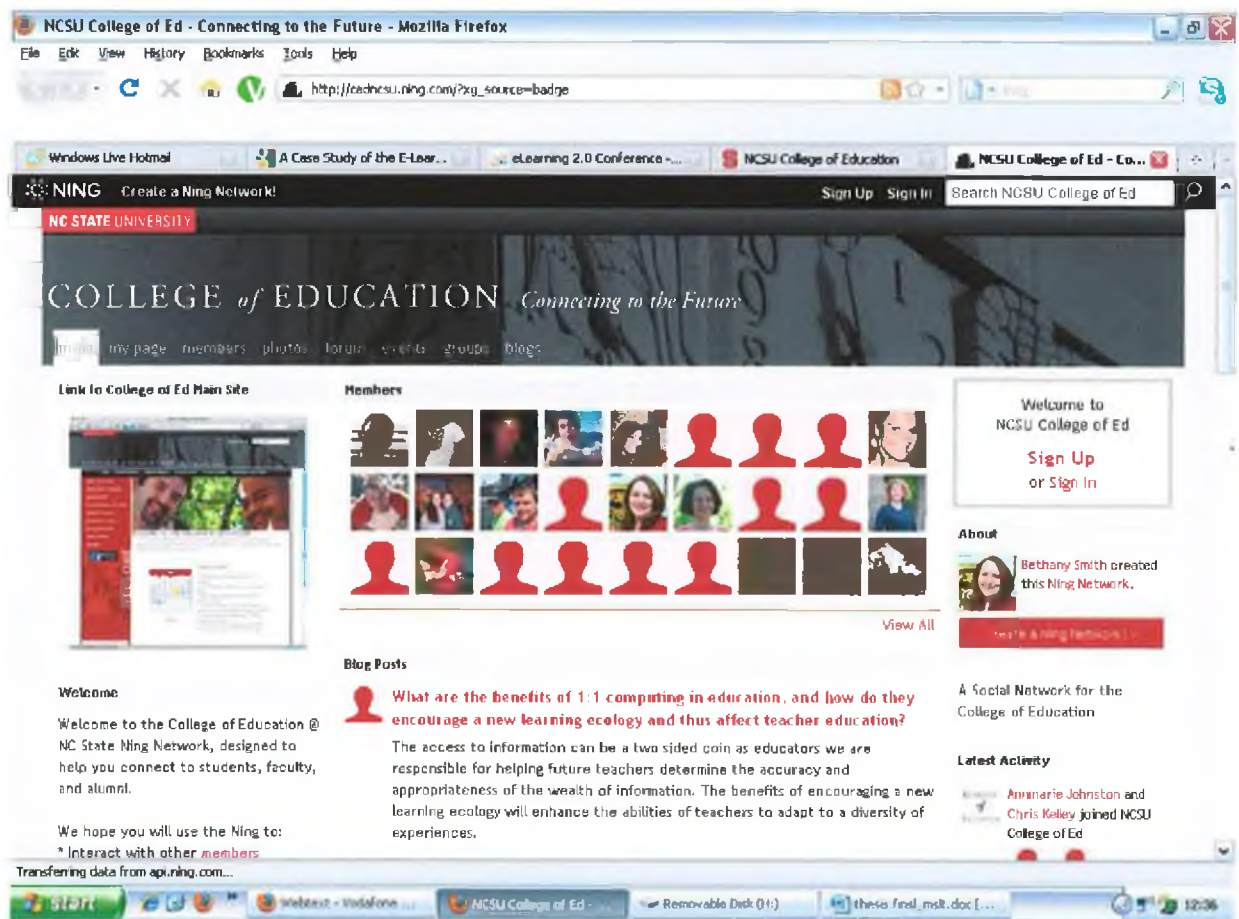
Figure 2.4: Use of Ning at the NCSU College of Education

2.8. Learning Style

The use of Ning as a collaboration and learning tool would take different dimension and would integration the various forms of web 2.0. For effective implementation and integration of Ning Social Networking Site into either the already existing Learning Management System or as a stand alone Learning Management System in secondary schools, a study and profiling of the preferred learning style of users is important. It is the aim of this section, to review literature on learning style while placing emphasis on VARK Learning style as the preferred style for online collaboration and learning. Literature would also explore the different social networking tools that would support and enhance each of the identified learning style.

The logic that people learn differently is definitely esteem and has been thought to have its origin with the ancient Greeks (Wratcher, Morrision, Riley & Scheriton, 1997). It has been observed that students are more comfortable and relaxing, learning in certain methods and ways than others. This is identified as Learning Style. It helps identify a student's best way to learn. It also helps teachers and educational providers in planning for smaller teaching groups of students with the same learning style and providing a tailored and personalized education (Kemp, Morrison & Ross, 1998).

Grasha (1996.p.43) defined learning styles as *"personal attributes that identifies a student's ability to acquire information and knowledge, to interact with fellow students and teachers and to be part of a unique learning experience"*.

Keefe (1979.p.4) went further to define learning style as *"the characteristic behaviors of learners that serve as relatively stable indicators of how they perceive, interact and respond to their learning environment"*.

Blackmore (1996) advised that in order to teach or impact knowledge on students that the first thing for educators is to be aware of the diverse learning style that exists in learners. It was noted that it is important that the learning style of student are determining before embarking on online collaboration learning. Teachers and educators need to know and identify their students' learning styles as to be able to modify their strategy and technique. This is aimed at maximizing way they teach, and available resources to suite the style in which students learn and to create a learning environment that will maximize the learning potential of each student (Zapalska & Brozik, 2006).

There are different theories to support the claim of existence of different learning styles on learners', there is also different measurement for each of these theories, focusing on different levels of learner's personal characteristics. Curry (1983) in describing these characteristics arranged them as a metaphor of onions in which each layer reveals a learner's distinctive characteristics or style. He went further to say that at the centre of the onion is style related or basic personal traits of learners.

Bostrom, Olfman & Sein (1990) stated that though there is no accepted theory of learning, Kolb's (1986) experimental theory of learning Kolb and the VARK concept theories and method Flemings & Mills (1992) is the most used.

The Kolb theory measures students learning style choices in two different angles. Firstly, it states that learners develop a preferred choice over time either from concrete experiences or constant use from conceptual analysis when acquiring skills and knowledge. Secondly, learners learn from transforming theory into practice (Kolb et al., 1979).

The VARK learning style and method seeks to offer a simple and accessible method to understanding and explaining ways in which people learn and develop (Fleming & Mills, 1992). They went on to suggest four categories of VARK learning style. They include Visual, Auditory, Reading and Kinesthetic.

For the purpose of this thesis, I would explore and review the VARK learning style as a preferred learning in an online Social Networking environment. The social network features that would help support and enhance the learning would also be discussed.

2.8.1. Visual Learning Style

Fleming & Mills (1992) described visual learning style as the representation of information in pictures and diagrams in the form mindmaps, spider diagrams, charts, pictures etc. In online or social networking collaborative learning, the use of tagging, social bookmarking and Folksonomy would be useful for a visual learner. Social bookmarking services allow users to record WebPages and tag those that they feel are important to them (Franklin & Van Harmelen, 2007). The process of organizing these tags is what is known as Folksonomy (Owen, 2006) and (Vuorikari, 2007).

Anderson (2007) in his support of tagging and bookmarking as a supportive tool for visual online learning argued that tagging have gone beyond normal websites bookmarking and have now integrated in many social networking application which include music, photos and video. He went on to posits that this has been useful for visual learners as teachers and learners can collect, classify and collaborate on learning resources and materials thereby making learning more enhanced for visual learners (Vuorikari, 2007) and (Porto, 2008).

2.8.2. *Auditory Learning Style*

Auditory are described as those whose learning preference is for information that is heard or spoken (Fleming & Mills, 1992). Some of the tools that would be used to support auditory learners in a social networking collaboration and learning environment include podcast, vodcast and media sharing. Podcast is a way in which learners learn by listening to audio or video materials (Franklin & Van Harmelen, 2007).

Podcast and vodcast was described by (Cruz & Carvalho, 2007) as a powerful tool that enhances distribution, communication and collaboration of educational materials online. Morales & Moses (2006) added that they allow learners to learn at their own pace and most importantly, listen to their materials as many times as possible.

Harris & Park (2007) supported the use of social networking in learning. They said that podcasts and vodcasts are very useful for collaboration on social networking

collaboration because it buffers teaching by providing additional and similar learning materials and resources.

It was also observed that podcast and vodcast, helps students with learning difficulties and impediments. It was also observed that it is also a useful tool for students' collaboration on assignments and coursework preparation and presentation (Harris & Park, 2007); (Cruz & Carvalho, 2007).

Media sharing devices like Facebook, iTunes University, Flickr, YouTube and Vidstar can be linked together to enhance learning (Pascu, 2008).

2.8.3. Reading/Writing Learning Style

This style of learning is for learners that prefer information that are in words (Fleming & Mills, 1992). Tools that would support this learning style on an online environment include weblog and online office application.

"Weblogs" or "blogs" is a term that was derived by Jorn Barger in 1997. Weblog has been described as an online public writing environment, which allows a writer or group of writers to publicly show articles called posts written by them and shown in chronological order (Ellison & Wu, 2008; Anderson, 2007).

Ellison & Wu (2008) went further to add that it allows for critical, analytical and creative thinking and writing by students. Berson & Berson (2006) added that it helps enhance

communication and increase self motivation through writing their views and reading of other peoples views on issues they are interested in.

Farmer et al (2008) & Akbulut (2007), both added that blogging helps to increases students writing skills and givesnthem a sense of responsibility, authorship and ownership of their article.

Another tool that would support online reading and writing learning style is the Office application. This is also known as web office. It is software that replicates desktop applications such as Microsoft office which includes word processor, data sheet, multimedia presentation etc (Bartolome, 2008; Anderson, 2007).

Wagner (2007) described Office Application as a collaborative editing tool that allows users to edit materials from different location at the same time. He went further to say that it would be a vital asset for group members to collaborate in doing assignments and group projects.

2.8.4. Kinaesthetic Learning Style
Fleming & Mills (1992) described kinesthetic as perceptual preferences where learning is done by example and practice. This represents learners that prefer hands on deck form of study.

The use of three dimensional graphics can be used as a learning and collaborative tool in an online environment. Three dimensional graphics would be used to represent to replicate online physical demonstration.

The user in such learning environment is described to be imitated by an avatar. An avatar is the representation of human in a three dimensional interactive graphical environment (DeFreitas, 2007).

Users can build, display and store virtual creations. They can use this for practical experience classes like Biology, Chemistry or Geography. It is aimed at providing practical experiences in which the users can participate on without physically being in a laboratory or real life environment (OECD, 2007).

2.9. *Evaluating the effectiveness of collaborative learning using Ning Social Networking*

Having reviewed the use Of Ning Social Networking Sites as a collaborative and learning tool in education, and reviewing case studies support the study that it would improve academic performance, it is imperative measuring and evaluating its success is important in planning for its place in the education system today. This section reviews the evaluation of the effectiveness of collaborative learning using Ning Social Networking Site on the overall academic performance of the sampled students.

Evaluation of any training or learning have been identified as the most appropriate method for weighing the advantages, impact and how much value that was added to the trained individuals or the institution in general (Preskill, 1997).

A review of literature on evaluation of online learning was conducted to identify methods of measuring of effectiveness of evaluation in learning and training programs. The following definitions of evaluation were identified.

Phillips (1991.p.11) defined evaluation as a *"logical method to determine the value or meaning of a given issue."* Holli and Calabrese (1998.p.268) on the other hand, defined evaluation as a *"standard of measurement of an observed value or quality to a given standard."* They went on to state that evaluation is a way of assessing the quality of a program, products, and goals.

Boulmetis and Dutwin (2000.p.389) defined evaluation as a *"process of collecting and analyzing data in order to determine whether and to what degree the measured objectives were met."* Schalock (2001) defined effectiveness evaluation as *"the determination of the extent to which a program has met its stated performance goals and objectives."*

Phillips (1991) stated that the Kirkpatrick Model of evaluation (1959) was the most known and most used framework for effectively analyzing and evaluating products.

The evaluation model was identified in the literature as a combination of formative and summative approaches using numerous methods which measure reactions, perceptions, learning and behavioral components of the students using the results form the quantitative and qualitative data gathered and analyzed during the research process which is aimed at assessing the usefulness of the presentation and learning process (Rajeev, 2009).

The evaluation would be addressed in more details in chapter four of the thesis using Kirkpatrick model of evaluation.

The four levels identified by Kirkpatrick in the evaluation model are

- **Level One- Reaction**

This seeks to determine how the learner feels about the learning or training. It measures their satisfaction rate. This is usually done using a questionnaire called "smile sheet" (Kirkpatrick, 1996).

- **Level Two- Learning**

This measures the changes by looking at what was learnt and what was not learnt in the collaboration. This seeks to identify what part of the learning that worked and that which did not work (Kirkpatrick, 1996).

- **Level Three- Behavior**

This level of evaluation measures if the skill base underlying the pedagogy of online collaborative learning using social network is actually accessed and used by learners. The evaluation of behavior according to Kirkpatrick defines a connection with learning (the previous measurement level) and the actualization of doing. Kirkpatrick recognized that there is a significant difference between knowing principles and techniques and using those principles and techniques on the job (Kirkpatrick, 1996).

- **Level Four- Results**

This measures the value added and student learning. It helps to ascertain if online collaborative learning using social network was a success. It also values if it has any positive effect on the learners and the school performance in general (Kirkpatrick, 1996).

Field (1995) listed the expected result from online collaborative and interactive training to include improvement on communication, a focus on knowledge

acquisition, the need to accept new changes and value to learning and the need for increased.

The evaluation of this study research and its outcome is very vital in not only justifying student's perception and acceptance of using Ning Social Networking Sites as a collaborative and learning tool, it would also seek to review the impact on academic performance of students of students. Evaluating this would help strengthen the case for the integration of Ning Social Networking Sites and technology in general to the academic and learning process of students to meet and support the constant and dynamic changes in learning environment they find themselves in today.

This section has explored the Literature in support of use of Ning Social Networking Sites for collaboration and learning. From the literature, it could be seen that there is evidence to suggest a positive effect of Social Networking in education.

3. Research Method

3.1. Introduction

The exploration and review of literature into the use of Social Networking Sites as a collaborative and learning tool in education have revealed that there is a positive change in both increased learning and increase academic performance. It is therefore important to verify this claim and see if giving the same condition and environment, if there will be the same effect on second level education students in Ireland. This section presents the research question and the objective for the study. The section also states the problem and case for this study. This section would also identify and justify the various research methods that were chosen in answering the research question and justifying the objective of this study.

The sample group, mode of data and information collection would also be analysed. The analysis, results and interpretation of result findings would also be discussed. Is aimed at presenting the reason behind this research and the problem it wishes to address. It also would look at how these problems would be solved.

3.2. Research Question

Arising from the discussion and review of existing literature on social learning and the need for increased collaborative learning due to change in learning style, understanding and theory guiding it, the research question therefore is,

"Does the use of Ning Social Networking Site as a collaborative and learning tool, improve students academic performance?"

This research work seeks to explore if using Ning Social Networking Site for collaboration within and outside the classroom in second level education would increase students academic performance. The secondary research outlined in chapter two explored the need for social and collaborative learning. It also reviewed some case studies of Ning in education and social networking in education in general.

This work would determine from the sample testing if this form of learning improves academic performance and if it would offer potential benefits to other second level students across the country.

3.3. Research Objective

In order to answer my research question, a number of research objectives need to be met. These objectives are,

- To determine students perception, understanding and use of social networking sites.

- To determine students willingness to use Ning Social Networking Sites for class collaboration and activities.

- To determine if Ning as a Social Networking Site can be integrated into schools' existing learning management system (LMS) or used as a stand alone learning management system if none existed prior to its introduction.

- To determine by experiment and practical testing the effects of its usage on students academic performance.

- To determine students feelings and acceptance ratio of the new learning environment.

3.4. Problem Overview

In order to achieve these objectives and answer my research questions, an insight into the problem to be solved need to be state.

Social networking sites have come a long way and is here to stay. They do play a vital role in the social lives of teenagers and students especially those between the ages of 13 to 25 years. The frequency of use of these social networking sites has adversely affects the academic performance of students both in second and third level educations. More time is spent by students visiting social networking sites than reading and studying.

I was recently in one of the computer laboratory classes and there was a class for 1st year students. I observed that half way through the class that almost more than half the students were logged on to their Social Networking Site. And despite the IT Department blocking the chat facilities like Msn chat and Yahoo chat, students were able to chat through another Social Software called www.meebo.com.

During my Post Graduate Diploma in eLearning in 2009, I observed students that used their FaceBook and Bebo Social Networking account to collaborate in a group project. They were able to share information, links to related topics, upload files and their part of the work in the project. It did work well and they were able to produce a finished project. If this can work very well for students why can't it be enhanced and put to better use for lecturers and students?

Academicians and academic researchers are beginning to understand and appreciate the importance of social networking sites in the life of students and the effective roles they would play in bringing education and knowledge closer and quicker to students than the all traditional based classroom teaching method.

The need to find an environment in this digital age where students can feel comfortable and understand more should be a priority for schools and educational authority if education and learning is to move forward in Ireland in catching up with the best country to study in the world.

The original plan of this research work was to review three of the most popular Social Networking Sites available today namely FaceBook, Twitter and Flickr and explore their potential as a learning and collaborative tool in secondary education.

Teachers are generally faced with the dilemma of knowing which of these social networking sites would support learning and educational activities without exposing the students and schools to danger. Teachers are also faced with the problem of finding an effective and efficient way of requisition and repurposing of the technologies of social networking sites in ways to support learning. It is these gaps that this research work tends to fill.

After a rigorous research, data collection and findings which included the review of security and privacy issues which is of vital importance giving the age range of the

study group. It was then that the networking site www.ning.com which is fast becoming one of the fastest growing and most popular social networking sites in America and Canada especially in the educational sector came to my notice. Ning was chosen for the following reasons.

- There is a uniqueness and freedom of choice in choosing from over fifty distinct unique themes or are able to create their own trends and visual design to match there specific purpose. They also have the freedom to add tab buttons and sub-tab buttons to specific pages and for external links.

- Members have the choice to design and define their own profile and define their own questions for incoming members. They also have the choice of choosing their own profile application a d choice of widgets.

- There is a choice of making your Ning Network either public or private for just registered members.

- There is availability of an RSS Feed INS and feed outs that helps aggregate feeds from blogs, websites or news from various sources.

- There is the availability of photo and video sharing between members. Users or members of your network are allowed to upload videos and photos appropriate for other users viewing.

3.5. Research Sample

In order to achieve the stated research objective and answer the research question on use of Ning Social Networking Site as a collaboration and learning tool in improving learning outcome in second level education, a number of samples were gathered and analysed. These research groups are,

- 50 students selected at random from schools around the Dublin city centre. These included secondary school students and University undergraduate students. The students are between the ages of 13 and 18 years. This suited the profile required for the research.

- Students of a private secondary school in Dublin. They were all male fifth year students. Two classes of thirty students each was selected for the research work. The experiment was conducted in their English class.

- Students of a state owned co-educational school in County Dublin. The testing class was selected from the sixth year class. The experimental subject was on Geography, and the topic was "bird migration in Ireland".

- Principals, Teachers and IT staffs of the two schools involved in the research experiment.

3.6. Approaches to Primary Research

There has been very little or no documented research on improved academic performance on the use of Ning social networking site as a collaboration and learning tool. However in a research conducted at Hartpool College on the effects of web 2.0 in students, it was concluded that using web2.0 technology did improve learners' engagement, learning and communication outside the classroom (Hayton, 2010).

The few existing research in the field however have been carried out using both inductive and deductive approaches in order to build new theories and test them appropriately. This research tends to test whether or not using social networking as a collaborative and learning tool improves academic performance. Given the extreme limited research on the research topic, I would approach the research in a deductive rather than inductive way.

If there is not much research an inductive approach would be more appropriate

3.7. Research Method

Four separate but interwoven study designs were used to help test the hypothesis and answer the research question. They include,

- A five page questionnaire covering student's knowledge, understanding and ability to use social networking sites and tools and what activities they engage in.

- Focus Group meeting with teachers, IT departmental staffs and Principals of the schools involved with the research to discuss the profitability of using social networking for collaboration and learning and the best way to integrate the technology into the schools existing Learning Management System.

- A series of class assessments that would be based on traditional classroom teaching and assessment after collaborating using Ning Social Network which would test the impact of the new teaching method on students.

- A three page evaluation sheet which is aimed at evaluating student's perception, feels and opinion on using Ning Social Networking Site for collaboration and learning.

The information required to be gathered from the research group and from the exercise described above to answer my research question is encapsulated within my stated objectives.

In other to achieve this, two major research methods would be employed. The qualitative and quantitative methods of data collection and analysis would be required. There is however a division between the qualitative and quantitative method. The qualitative method would be used in analysing the questionnaires and interview employed while the quantitative method would be used in analysing the class assessments and testing the significance of the research hypothesis.

The data collection methods required to achieve my research objectives and help answer my research question is described in the following sections.

3.7.1 Qualitative Data

Qualitative Research is defined as *"multi-method in focus, involving an interpretive, naturalistic approach to its subject matter. This means that qualitative researchers study things in their natural settings, attempting to make sense of or interpret phenomena in terms of the meanings people bring to them. Qualitative research involves the studied use and collection of a variety of empirical materials case study, personal experience, introspective, life story interview, observational, historical, interactional, and visual texts-that describe routine and problematic moments and meaning in individuals' lives"*(Denzin & Lincoln, 1994.p.105-117).

The qualitative research types that would be employed in this thesis are Questionnaire and Focus Group.

Some of the characteristics and purpose of using Qualitative method of research in this research work includes to,

- Gather specific respondent's information such as gender and age.

- Gather what level of secondary education they are in.

- Gather knowledge and efficiency of social networking usage.

- Determine what social networking sites are they familiar with.

- Measure the frequency of use of social networking sites.

- Determine knowledge of what Ning is.

- Analysing information gathered from the interview and stakeholders forum.

- Evaluation of the effectiveness of Ning in learning

- Evaluation of student's reaction and opinion of the use of Ning for collaboration and learning.

3.7.2. *Quantitative Data*

Quantitative research data is defined as *"data which can be sorted, classified, measured in a strictly 'objective' way – they are capable of being accurately described by a set of rules or formulae or strict procedures which then make their definition (if not always their interpretation) unambiguous and independent of individual judgments."* . (Harvey, 2002.p.2)

The main characteristics of a quantitative research data is that it

- Analysis of data collected from the class assessment to measure and test the research hypothesis

The rationale for the choice of data collection and analysis method is explained in the following section.

3.8. Rational for survey strategy

My strategy for gathering primary research data was to employ the use of a questionnaire survey, an interview and class assessment. This sufficed as a reliable and efficient method for capturing the required primary research data.

There were a number of major factors for choosing the above mentioned strategy as described in the following sections.

3.8.1. Survey Questionnaire

- The number of respondents was expected to be high.

- A sizeable amount of data was expected to be gathered in order to achieve the expected research objective.

- It allowed us to easily compare other data collected in an easy and flexible manner.

- It allowed for easier analysis and coding of questionnaire results and allows for easier accessibility.

- A manual questionnaire was favoured rather than an electronic or emailed questionnaire because of the nature of respondents. They were unknown prior to this survey and were chosen at random. No prior knowledge or information about them was known.

- The questions were easily understood and structured to accommodate respondents reading and writing capability.

- It is relatively cheap to conduct this type of experiment.

- Survey questionnaires are widely accepted and well received as a data gathering tool by the research community.

The general downside of using this method includes;

- Low response rate

- Time consuming to design, distribute and gather the answered questionnaire

- Cost of printing the questionnaires could be higher than expected depending on the number of target participants.

3.8.2. Focus Group

- It gives the researcher the opportunity to ask more detailed questions that cannot be asked in a questionnaire

- The researcher can ask a follow up questions if answer given is not clear

- They are easier for respondents especially if information sought is opinion or impression based.

- It is a faster way of getting vital information from stakeholders.

- The research is certain about who answered what.

The general downside of focus group as a research method include,

- It is intrusive and reactive

- It costs a lot of time and money

- It is difficult to agree on time and venue for the interview

- Due to ethical and legal issues sometimes it is difficult to get an unbiased answer and information.

3.8.3 Quantitative Method

- It offers accurate measurement and investigation.

- It helps count, catalogue and build statistical models in order to explain what has been observed.

- It quantifies research outcome in numbers and statistics for easy analysis

- It helps test the research hypothesis that was stated before the data have been constructed and collected.

- The research results are reasonably independent of the researcher.

- It is useful for studying a large population.

- It helps the researcher in eliminating influences of different variables.

The disadvantages of using this form of research method include;

- Findings can be biased by researchers' perspective if the desired result was not obtained.

- It provides constricted, impractical information using measures that analyses a tiny percentage of the entire population.

- Uses an inactive and inflexible approach and so employs a firm process.

3.9. Data Analysis: Student's Attitudes towards Social Networking Sites (Study I)

3.9.1. Study Sample

The sample for this study were selected at random from secondary schools in Dublin, first year undergraduate students at the National College of Ireland Dublin and first year students at Trinity College. The main target group were secondary school students as the thesis explores the use of Ning in second level education, but the first year students were chosen because they just left secondary school environment and their opinion so far on the teaching method in university environment was valuable in drawing conclusions for this study. The students ranged between the ages of 13 to 18 years of ago.

Time and effort was taken in designing and structuring the questionnaire for this study. The essence of this questionnaire is to capture the views of students on the use of Social Networking Sites, what activities they engage in, frequency of use and what more they would like to do on it. It is important both from a researcher point of view and that of an instructional designer to get the attitude and perception of students towards the use of new method and approach to learning.

65 questionnaires were distributed at random. There was an initial reluctance from students to answer the questionnaire, a pack of chocolate was offered as a reward for answering the questionnaire. 60 of the questionnaires were returned in total. 50 of these

were used, 10 where discarded because six was partially incomplete and 4 was not completed at all.

3.9.2. Study Findings

The following section presents the results and analysis of the questionnaire on the general use of social networking sites. This was aimed at finding student's familiarity and frequency of use of the various social networking sites they are familiar with and what activities they engage in. The questionnaire being analysed was answered by 50 students chosen at random from three schools as explained in previous section. The results were collected and entered into Microsoft excel for analysis. This is presented as follows.

Section 1: Sample Characteristics

From the results of the questionnaire, it was found that 56% of the study sample where female and 44% where male. This could be due to the fact that the sample had more female than male respondents. It was also found that a greater percentage of those survey where above the age of 15 years. 28% of the respondents were 18years of ago or above, 26% where 17 years and 26% where 16 years. This is represented in Figure 3.1

Figure 3.1: Age of Respondent

I also found that the 6th year class topped the class of response by 60%. The 6th year class is the final class before entrance to third level. This is represented in Figure 3.2

Figure 3.2: Level of education of respondents

Section 2: Students knowledge of Social Networking Sites

This section explores the familiarity of the study sample to different social networking sites. It was found that 96% of respondents know what social networking sites are. Only 4% of the students claim not to know what Social Networking Sites are. It was also found that some social networking sites are more popular among students than others. For example, it was discovered that 47 out of 50 respondents have a FaceBook account, 45 out of 50 also have a profile on Bebo while social networking sites like LiveJournal and Ning have not been heard of while others are less popular like Twitter and Google Buzz. It was also found that most students have more than one active profile in different social networking sites. See figure 3.3
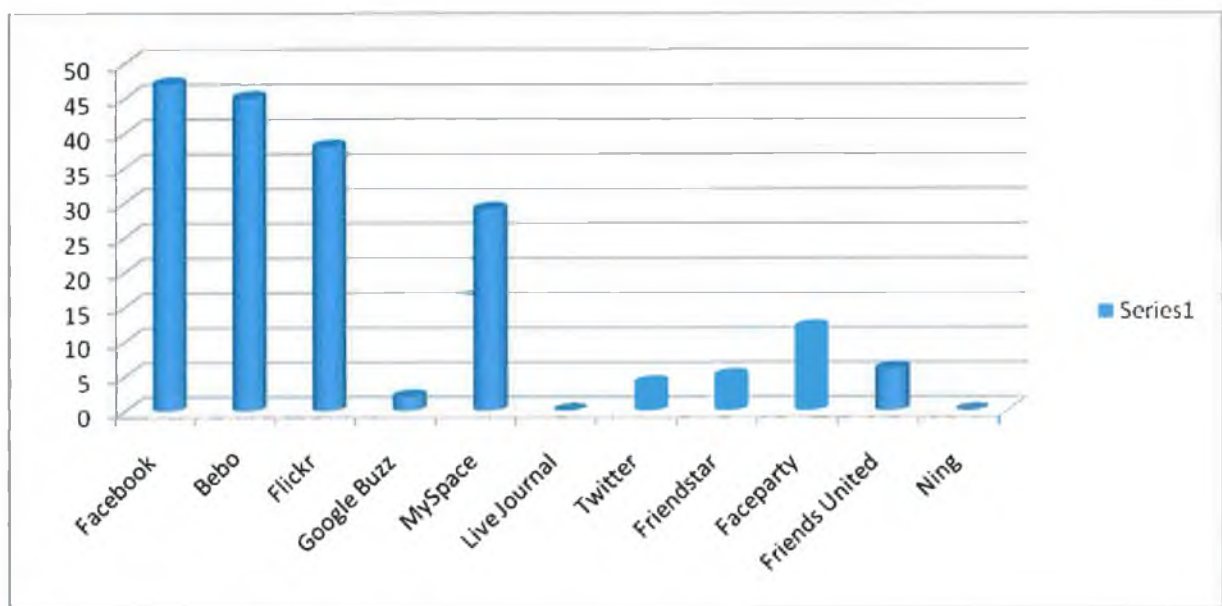
Figure 3.3: Social Networking Sites used by respondents

Section 3: Frequency of use of Social Netwoking Sites

This section explores how often users use Social Networking Sites on a daily basis. We found that students spend a lot of time in Social Networking Sites. 76% claimed they log onto their favourite site more than 5 times a day. From the results it was also observed that more than 45 students access their Social Networking Sites from their home computer. It is also noted that 35 out of 50 of the students access their Social Networking Sites from their phone or mobile devices. See Figure 3.4.
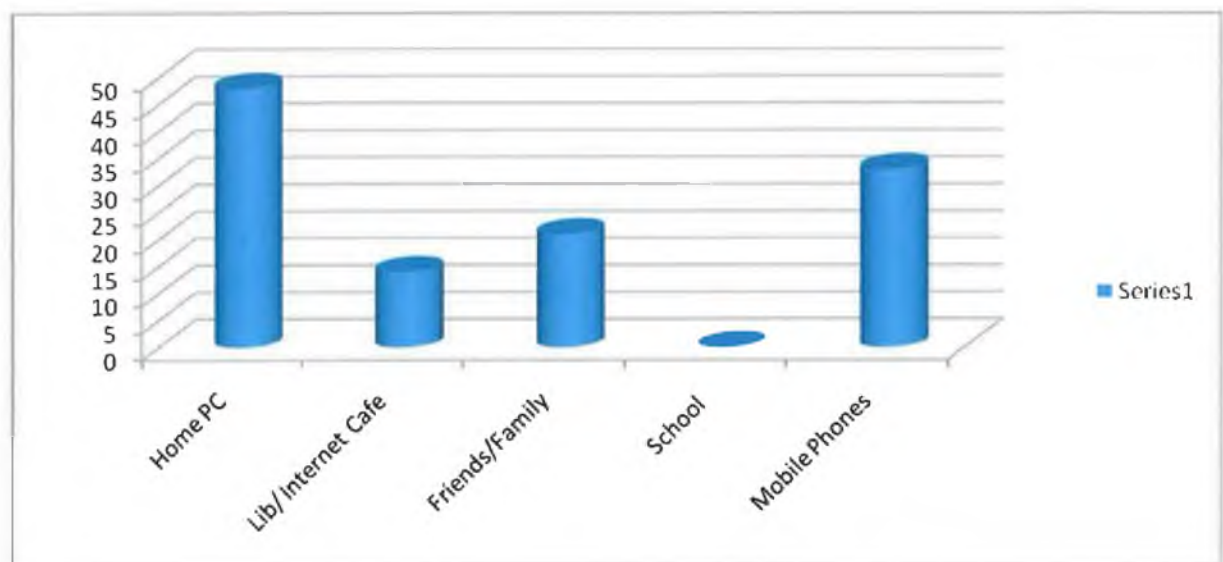
Figure 3.4: Mode of access of Social Networking Sites by students

It was found out that none of the student's access their Social Networking Sites from the school computer but 76% of them access their profile more than 5 times a day. It is interesting to establish if students their profile through their mobile phones while in school.

Section 4: Social Networking Sites activities

It was found from the survey that students spend more time on their Social Networking Sites performing certain activities than other activities. From figure 3.5 below it could be seen that students spends more than editing their profile and browsing for friends than spend in writing blogs and joining groups and networks.
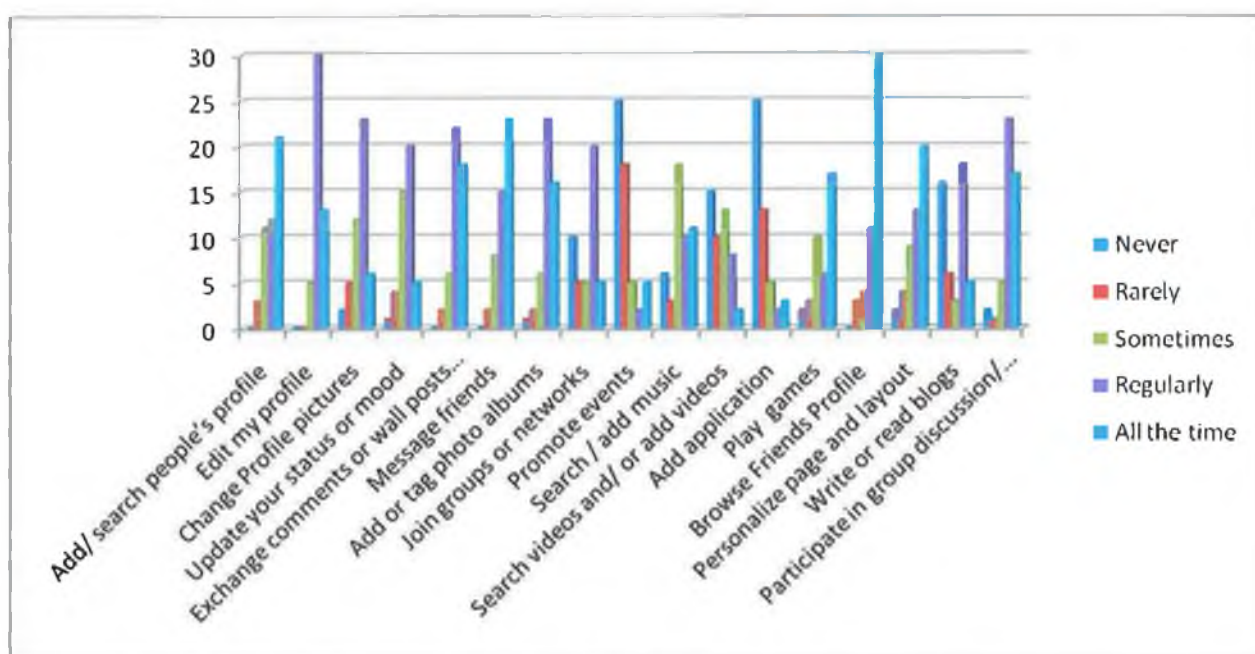
Figure 3.5: Activities engaged on social networking by students

Section 5: Analysis of information received on Social Networking Sites

This section seeks to analyse the student's attitude towards the information they receive on their Social Networking Sites. It was found that 58% of the students feel that they receive too much information. Despite receiving too much information, 79% of the students said that it does not help them in their academic work in any way, while 21% claim that the information they receive help them in their academic work.

Section 6: Friend Request

This section seeks to find out if students would accept friend request from their teachers and the school in general. It was found that 88% of the students would not accept friend request from their teachers, while 12% said they would accept friendship request from their teachers. In a similar question it was quick to note also that 79% would not accept friend request from the school even if it is for updates and information on schools activities like sports, recreation and club and society meetings. This shows that students are reluctant in letting teachers and the school into their private lives and would keep like keeping a line between the two.

Section 7: Social Networking in education

Students were asked if they would use social networking for educational collaboration, 75% favoured the idea of using it for educational collaboration, 19% said they were against its use in education while 6% were indifferent about its use in education. This was in contracts to the student's unwillingness to accepting their teachers and schools as friends on their Social Networking Sites but they are willing to accept their classmates and use it in problem solving and collaboration in assignments.

Having accepted the use of Social Networking Sites for collaboration in schools, it was also found that students would most likely communicate with their fellow students the more and engage in activity that woud lead to collaboration and interaction between them and their classmates rather more than any communication with their teachers or school administration. See figure 3.6
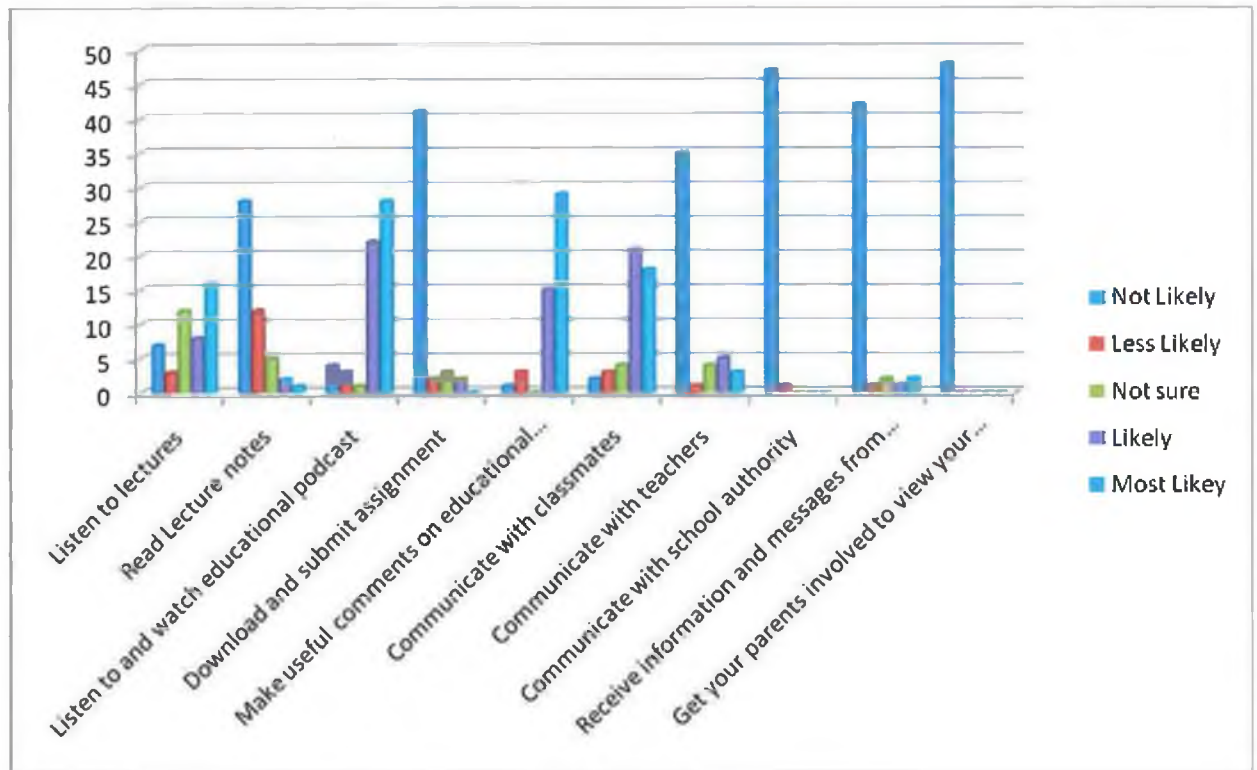
Figure 3.6: Educational activities that students do online.

3.9.3: Summary of findings

The response from the survey finding was great. This was the first contact with students and the success of this study rests on the response received from students on their perception and use of Social Networking Sites. This survey was important because it was aimed at giving me ideas and insights on how students use Social Networking Sites, this is very important in not only deciding which of the Social Networking Sites to use but also how to use it. It helped justified the case for the use of Ning Social Networking Sites as the preferred Social Network for collaboration and learning in second level education.

From the survey, it could be seen that with 56% of the answered survey that more female answered the questionnaire more than male. The reason for this could not be established but I believe it represents the interest of both genders when it comes to online socialization and networking. It was that 28% of the students were 18 years or over this again represents the age of those who uses Social Networking Sites more. This was confirmed with over 60% of students that responded were in the 6th year of secondary school. If this is so, then it is important to bridge the time spend accessing various Social Networking Sites on a daily basis which according to the student shows that 76% of students surveyed access their preferred Social Network more than 5 times a day, spending an average of 7.25 hours a day. This represents a large amount of time excluding time spent in school daily. It shows that students spend half the time meant for doing their home work, and other school and home activities accessing their

networks. It was found that 45 out of 50 students access their preferred Social Network from home and further 35 out of 50 accesses it from their mobile phone. Given the net generation age we are in today, this represents that students spend part of their school time accessing Social Network form their mobile devices while in school since some schools either block Social Networking Sites in school computers or they do not have any access to computer while in school.

Ning Social Networking Sites was the least Social Networking Sites known to students, Facebook and Bebo being the most popular. They also acknowledged that they receive too much information on their preferred Social Networking Sites hence the amount of time spent on it daily. Despite the time spent, and amount of information received 79% of the students said that the time spent and information received does not help their academic work in any way. 75% favoured the use of Social Networking to improve collaboration and learning in school though 88% would reject friendship request from their teacher and school.

This I believe is due to the fact that they wish to draw a line between school work and their personal lives, while overwhelmingly accepting online collaboration. It is observed that time and effort is spent by students on Social Networking Sites and would welcome its use in class.

Ning was therefore chosen after careful consideration and analysis of this survey because it neutral and would be used not only for academic purpose but would enable

students build profile and engage in activities as they would in other Social Networking

Sites.

3.10. Stakeholder's Attitudes (Focus Group)

The general acceptance of use of Social Networking Sites for collaboration and learning by students in the survey questionnaire, despite having information overload lead to the idea of finding a neutral Social Networking Sites that would give them the freedom of the excess information and keeping their teachers, family and schools from having access to their profile lead to the use if Ning Social Networking Site for learning and collaboration. It was vital to then get access to schools with this information and to highlight to the benefits and importance of integrating technology and web 2.0 to educational processes in the 21st century to the school authorities. A stakeholder's focus group meeting was therefore arranged. This section seeks to analyse the information that was gathered

3.10.1. Sample Group

The interview was held in the respective school's board meeting room. The group was made up of the following,

1) The Principal.

2) The Head teachers of respective classes.

3) Respective class teachers.

4) Representative of the IT department or the school computer science teacher.

5) Representative of the finance department.

3.10.2. *Study Findings*

Two similar structured meeting were organised for the two schools involved in this research work. The meeting involved personnel involved and responsible for teaching and management of the schools involved

The interview started off with the formalities of introduction, this was done by the principal. He also explained why each of those present has been invited to the meeting. I started the discussion by first seeking to find out what type or structure of the learning management system the school have in place. Both school had none in place, the private school do sometimes make use of YouTube for extra clarification on Biology Practical. They also have projectors and a DVD player which they use in English Literature class. I was also pleased to note that each of the school had a fully fitted computer laboratory with over 35 computers.

There was a 20 minutes PowerPoint presentation on the use of Ning Social Network in education. Emphasis was also laid on the great features of Ning which makes it a perfect choice for collaboration and learning tool.

After the presentation, questions were asked. Some of these questions were mostly asked by the Principal were to reinforce and clarify issues on the features of Ning, questions were also asked on Security, Privacy and accessibility from external source. This topic seems to be the most stressed and most important discussed.

The head teachers and teachers were interested on how collaboration and learning would be scored and graded and what best way to engage and support students in an online environment. They were also interested on how training would be provided for them as most of them have not heard about Ning prior to this briefing.

The computer science teacher was interested on the infrastructure needed to support the social networking site if it is accepted and implemented. It is worth noting here that there is no IT Department in any of the schools. The computer and other electronic equipment maintenance are being outsourced by the Department of Education. This issue was sorted and a sample and demonstration was displayed.

The representative of the Finance and Accounts Department was also interested in finding out the financial cost and implication. It was explained that there is no financial cost to the school. Even with the new changes of Ning, the education arm of it was not affected.

3.10.3. Summary

The focus group meeting was very successful in both schools. Every issues was discussed, suggestion made and the stakeholders were able to clarify issues that were bothering them.

3.11. Learning with Ning (Study II & III)

The quantitative data for this research was collected from scores from class tests given to the students involved in the research. The test was aimed at evaluating the effectiveness of the use of Ning Social Networking Sites as a collaborative and learning tool for second level students. Two sets of test were administered, the first given after the traditional class only based teaching and the second after using Ning Social Networking sites. The two tests were administered over a period of time. And the format of the experiment was the same as for the two observed schools.

This section would present the results of the findings which would help to answer the research question. The findings were tested statistically using SPSS statistical software. The results presented are for a statistical significance of 0.05, calculated using a two tailed group statistics t-test and a paired sample t-test for the two observed groups. Before we analyse and present the result of the finding, we need to first state the hypothesis of the research being tested.

3.11.1. Research Hypothesis

In analysing the assessment for this exercise, the research hypothesis needs to be stated. The research hypothesis therefore would be that *"student's academic performance would significantly improve because of the use of Social Networking Site as a collaboration and learning tool"*.

If the hypothesis is proven,

1) A clear relationship would be established between the use of Ning Social Networking Sites as collaboration and learning tool and improvement in student's academic performance.

2) The positive effect of Ning Social Networking Sites on student's academic performance as measured by two different tests will be established.

If the hypothesis is proven, we conclude that the use of Ning Social Networking Site for collaboration and learning can improve student academic performance.

If the hypothesis is rejected from the test result, the use of Ning Social Networking Sites for collaboration and learning and its improvement of student's academic performance in second level education would be ruled out. Meaning no specific conclusions could be drawn on test scores.

In summary, if the hypothesis is rejected we can conclude that the use of Ning Social Networking Site as a collaborative and learning tool does not improve student academic performance.

3.11.2. *Study II Sample Group*
The first group was a private all boys secondary school. This is made up of two classes of 30 students each. The first class was labelled the Control Group while the second was labelled the Experimental Group.

The two groups were subjected to a literature reading text titled "Pride and Prejudice" by Jane Austen. The Control Group for a period of four weeks read and discussed the book in class while the Experimental Group had to watch a serialised version of the same text on a video format in their school Ning network page. This they did either in the school computer laboratory which had enough computers for the entire class or they had the opportunity to access their Ning Page from home with their username and password.

Instead of discussing the text in class, the class teacher who is the facilitator encouraged them to do this online. There were series of questions and comments that would be answered and discussed. This was used as a guideline but does not limit the discussion and contribution of students. This was made compulsory. Students were encouraged to use different web 2.0 tool for discussion and communication.

3.11.2. Study II Sample Findings

The following represents the results from analysis of the class test that was ministered at the end of the study period. The test results were analysed with SPSS Statistical software using independent sample t-test. The result analysis is represented in tables 3.1 and 3.2 below.

	Group	N	Mean	Std. Deviation	Std. Error Mean
Test Score	Control Group	30	54.43	11.340	2.070
	Experimental Group	30	82.13	10.657	1.946

Table 3.1: Result of Group Statistics

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference		
		Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower
Test Score	Equal variances assumed	.000	.993	-9.750	58	.000	-27.700	2.841	-33.387	-22.013
	Equal variances not assumed			-9.750	57.777	.000	-27.700	2.841	-33.388	-22.012

Table 3.2: Independent Samples Test

The above test results were analysed using independent sample t-test using SPSS Statistical software. The result is represented above. The results of the class assessment from where these results were derived are attached in the appendix.

No

The result is to test the difference between the scores of students that used class based only teaching and those that used Ning Social Networking Site. In analysing the above results, we would state the null and alternative hypothesis.

Accept the alternative if they are not the same.

Reject Ho if Control Group and Experimental Group are the same.

From the results in Figure 4.15: Group Statistics, it shows that the Control Group (Mean 54.43, Standard Deviation 11.340) scored lower than the Experimental Group (Mean 82.13, Standard Deviation 10.657). The difference is significant ($p<.001$). We therefore reject the null hypothesis and conclude that students in the Ning Social Networking condition had an improve result more than those in the traditional setting.

3.11.3. *Study III Sample Group*

The second school was a state owned co educational secondary school. The experiment like in the first school was conducted over a four weeks period. Because there were a limited number of students offering the subject in their Leaving Certificate Examination, the sample population reduced considerably to 28 students, it was difficult to divide them into controlled and experimental groups. This was because there was a class trip already planned for the class and parents have been informed about it.

It was decided that the entire group would be used as a control and experimental group during the cause of the study. For the controlled experiment, two birds Redwings and

Fieldfares were chosen for study. They are part of the bird Thrush family that visited Ireland every winter. The study and discussion of the bird was done in class. A class assessment was given to the students at the end of the class to test their understanding and knowledge of the discussion and teaching made.

After a two weeks period the trip originally organised to Cape Clear which is in the extreme part of South West of Ireland. The birds that were under study and observation during the trip was the Eurasian Turtle Dove and Shearwater.

The students were encouraged to take pictures of the birds of the birds and also any bird, wildlife or anything they found interesting. Disposable cameras were provided by the school to students and those with camera phones where encouraged to use them. At the end of the trip which was a huge success. The cameras were collected, processed and pictures uploaded to the Geography page of their Ning Network. Students that used their camera phones were also encouraged to post the pictures up on the site.

Their class teacher then wrote a number of questions and comments on some of the pictures taken and students were expected to answer the questions and have at least three contributions to the discussion and comments made. They were also allowed to discuss on other pictures they took themselves, most of which included pictures of them and some of their classmates playing with the birds and other animals around, and pictures of them in the bus during the trip.

It was amazing to note also that some of the students took videos of some of the birds and activities during the trip and did post them on the Ning page. It was observed that there was a lot of discussion and opinions by students and some went to a great extent in sources materials and information to back their argument and their view point. This forum was open to students for a week and the class teacher monitors this on a regular basis for inappropriate information was removed. At the end of the discussion, the forum was wrapped up with a class test on the two birds.

None of the participants was absent or exempted from the trip and online discussion, and all was available for the test.

3.11.4. Study III Sample Findings

The assessment result was analysed using paired sample T test statistics test criterion using SPSS. The result of the analysis is represented in tables 3.3 to 3.5 below.

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Test 1	51.00	28	8.282	1.565
	Test 2	88.04	28	6.920	1.308

Table 3.3: Result Paired Samples Statistics

Table 3.4: Paired Samples Correlations Result

		Paired Differences						df	Sig. (2-tailed)
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Upper	Lower	t		
Pair 1	Test1 Test 2	- 37.036	10.290	1.945	-41.026	-33.046	- 19.045	27	.000

Table 3.5: Paired Samples Test Result

From the result represented above, it could be seen that from result of the descriptive statistics of the two variables in Figure 3.8

Shows that the score in test 1 (Mean 51.00, Standard Deviation 8.282) is lower than the score in test 2 (Mean 88.04, Standard Deviation 6.920). This difference is statistically significant (f=19.045; p<.001)

We would therefore reject the null hypothesis that there is no significance difference between the scores of assessment from class room only based teaching and using of Ning Social Networking Site for collaboration and Learning.

3.11.5. Summary

The exercises to test if the use of Ning Social Networking Sites was carried out as seen above using two different classes. The aim was to test how Ning would be used as a collaborative and learning tool in two different subjects. The condition for testing was also different as was seen. In the first study, they were two classes of 30 students doing the same subject it was therefore easy to administer the condition for the test. One class was texted using the classroom only traditional method of teacher while the second group had a used Ning Social Networking Site set up for the class for collaboration and communication while learning. The two groups were tested similarly and were asked the same question in the same condition.

The second study group had not enough students offering the subject under observation. The group therefore was texted over a period of time using both the classroom only type and the use of Ning for collaboration similar to the condition in study one above. The group was tested at the end of each exercise.

The results from the two studies suggests a positive improvement on the academic performance of students from using Ning Social Network as a collaborative and learning tool in second level education in Ireland. This finding correlates with findings in two separate studies by Deschryver, Mishra, Koehler & Francis, (2009) and Schroeder & Greenbowe, (2009), in which they highlighted the educational values and gains from using Ning Social Networking Sites in an educational environment. These gains they

described include supporting communication between students and teacher, collaboration between students and teachers, to eliciting the discussions of thoughts and ideas. They concluded the study by stating that Ning in education have established its own ability to function as an effective educational tool and have the ability to sustain, advance and improve learning.

From finding, it is proven that the use of Ning Social Networking Sites for collaboration and learning in second level education do improve students academic performance thereby accepting the research hypothesis and answering the research question. The general finding also did clarify the research objectives.

3.12. Evaluation of Study III Result finding

The result from the class assessment as shown suggests that there is a significant improvement in academic performance of students using Ning Social Networking Site as a collaborative and learning tool in second level education. In order to consolidate this result, it would be important to determine the role Ning Social Network played in improving academic performance of students or whether the increase was by change or other determinant factors. It would also help in answering the question *"are we doing the right thing, and are we doing it well?"* (Schwandt, 1998).

In evaluating and answering the above question, we would adapt the Kirkpatrick evaluation model as a method and measuring instrument as mentioned in the literature review. The Kirkpatrick model for evaluation of learning and training programme has been an important evaluation tool in institutional learning since 1959 and is easily applicable to any training program (Hamtini, 2008). This model is divided into four levels namely;

- Reaction

- Learning

- Behaviour

- Result

It is important at each of these levels for the evaluator to ask certain questions. The Reaction Level would be seeking to ask if the students were pleased with the new teaching and learning method and to assess the correlation of this pleasure. On the Learning Level, it is important to examine the new teaching and learning method and the old method to ascertain if there are any changes in outcome and student performance. The Behaviour Level would seek to assess and monitor the behavioural changes in students in relation to the materials and subject in general. If learning did occur, this would be a positive change in behaviour. The Result Level seeks to ask if there is a positive result in students. If there is it is beneficial to the students and school in general as there would be a significant increase in school overall performance.

For the purpose of this thesis, only the first level of Kirkpatrick Evaluation model was used in evaluating students feeling and perception on the use of Ning Social Networking Site as a collaboration and learning tool.

3.12.1. Reaction

Kirkpatrick defined Reaction as *"what the participants thought of the particular program including materials, instructors, facilities, methodology and content"* (Kirkpatrick D & Kirkpatrick P, 2006.p.4). The benefits of this level of evaluation include;

- It helps the evaluation and instructor gauge the feelings of the participants about the training event.

- It points out part of the materials that the students felt were missing from the new learning method.

- It helps the evaluator evaluate how captivated the learner was during the learning event

- It helps provides vital information about the overall learners reaction as well as learners comment and evaluation of specific aspects of the training event.

- An accurate evaluation will provide determining evaluation information that can be used to improve future versions of the lesson.

The evaluation of student's reaction was gathered through information received in a questionnaire also called a "smile or happy sheet" issued to all students that participated in the trial exercise. The questionnaire was issued after the training when students have received their scores and feedbacks from their teachers. There were 88 students in total that participated in the experiment, 58 completed the questionnaire as 30 students did not participate in the use of Ning Social Network training. A reward of a bar of chocolate was given to each student as a token of appreciation for their time, commitment and dedication towards the success of the experiment.

The questions in the evaluation sheet were divided into three sections. The first section seeks to elicit basic personal data and information. The second section seeks to gather information on the structure, relevance and use of Ning as a collaboration and learning

tool. The third section was an open remark section this was to help students leave a personal and meaningful feedback that they felt was not covered in the questionnaire.

The information gathered from the analysis of the questionnaire is as follows;

Section One: Personal Information

This section seeks to find out the gender and age of participating students. This was important in evaluation the effectiveness of Ning in education and profiling and knowing the students better as no prior information on the students were known. It was found that more male students were sampled, with 69% of the students being male and 31% were female. This was expected as more male's students were in the research group. It was also found that 38% of the sampled group was 18 years or over. This indicates the group that are probably doing their leaving certificate examination and are due to enter into third level education. The 17 years group are 28% while 24% are 16 years of age. See figure 3.7

Figure 3.7: Age of respondent

It was also found that that with 55% that the 6th year class were more in number followed by the 5th year class with 40%. This supports the distribution of age as could be seen in figure 3.8

Figure 3.8: Level of secondary education

Section Two: Use of Ning

This section seeks to evaluate student's attitude towards the use of Ning as a collaborative and learning tool. It was found that 91% of the respondents have not used Ning as a social networking site while only 9% acknowledged to have used it. Despite the low percentage of people that have used Ning prior to this, 56% of the students said it was excellent and found it user friendly, , 29% felt it was very good, 10% felt it was good and 5% felt it was just good. None of the respondent felt it was a poor social networking site. This analysis is represented in figure 3.9.

Figure 3.9: Category of Ning experience

It was also found that 56% strongly agreed that Ning was user friendly and easy to navigate, 34% agreed that it was easy to navigate through while 5% where indifferent about its easy of navigation. 2% disagreed on its easy of navigation while 3% strongly disagreed that it was easy for them to navigate through their Ning page. See figure 3.10

I also found that 84% of the students felt that that there is an increase in their academic performance, this they attributed to the use of Ning for collaboration and learning. This is represented in figure 3.12.
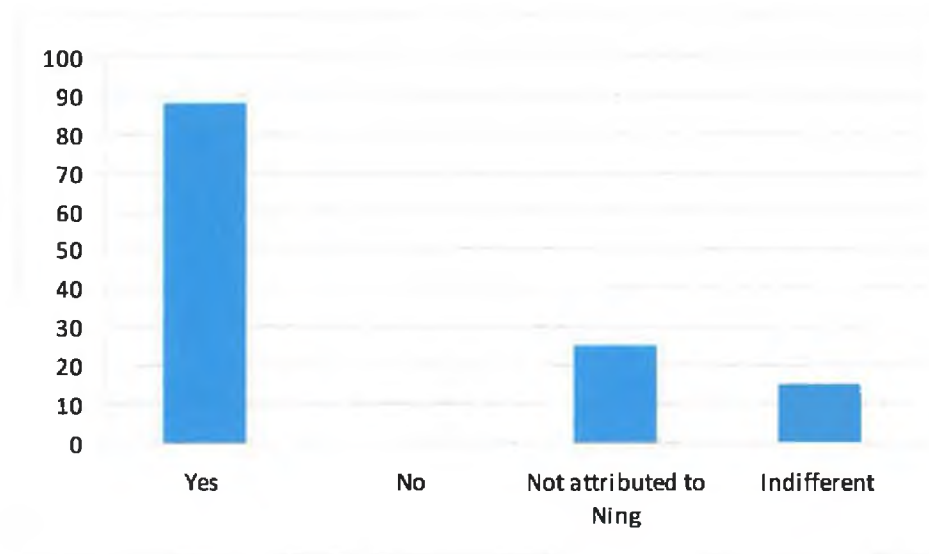
Figure 3.12: Increase in overall examination result

89% of the student agreed they would recommend the use of Nig education.

The last question asked in this section was to elicit if the student understood the subject better due to the use of Ning. 88% of the respondents agreed that they understood and learnt the subject better while 12% of the respondents felt they did not understand the subject any better.

Section Three: Remarks

This section was designed to elicit information from students that they felt was not covered in the evaluation sheet. Student's opinion was sort, but it was felt that a large proportion of students did not respond to or comment on this section. This was attributed to laziness or lack of time for them to write something instead of ticking in boxes. Out of 58 students that were given the questionnaire, only 22 provided a response to this section. This represented just 38% of the sampled population. The comments and recommendations are summarized below.

1) 22% of the respondents were of the opinion that the use of Ning in education should be extended beyond the subjects covered and should include more complex subjects like Mathematics, Physics, Biology and Chemistry.

2) 81% of students that respondent to this section of the evaluation sheet was of the opinion that friendship request and adding of friends to a students Ning page should go beyond there class members. They argued that there is a huge possibility that friends in other classes or years might have a better or different understanding to a problem that they need solutions and answer to more than the people in his class who are his friends by default.

3) A number of students where not familiar with the RSS Feed and Blogging section of the Ning Social Networking Site and want it removed or replaced with more photo sharing opportunity.

The response in general was positive and the students seems to be in great support and happy with using Ning in education.

3.13. *Summary of Evaluation*

The response to the evaluation questionnaire was very overwhelming and beyond my expectation as the researcher of this work and the evaluator. The students widely accepted the use of Ning Social Networking Sites as a collaborative and learning tool that they believe would make a world of difference if integrated as part of their learning management system and learning style.

4. Discussion

The general acceptance of Ning Social Networking Site for collaboration and learning is evident from the improvement of examination results. This also confirms Oblinger & Oblinger (2004) report on educating the net generation that learners are digitally literate and performs better and faster when they are connected and digitally and socially driven.

The research question and hypothesis were answered and accepted and the objective of the research achieved which include

1) Student's perception, understanding and ability to use any Social Networking Site were seen to be natural as was observed by the response of the questionnaire.

2) Students were sceptical at first to use Ning but as soon as it was set up they had little or no difficulty in opening and personalising their Ning page. And was not long for them to integrate and familiarise themselves with its functions and features.

3) The overwhelming success in academic improvement of students following the use of Ning shows that it is very important in supporting today's learners and recommended to be integrated into the Learning Management System of second level institutions in Ireland.

4) From the analysis of the evaluation questionnaire, it was seen that students were comfortable with the use of Ning in education and learning and did highly recommend its use in school and more subjects.

The study was not free from obstacles from the start. This section will seek to explore the successes and its implication on future of education and learning in using of Ning Social Networking Site as a collaborative and learning tool in second level education in Ireland. It would also look at the limitations of using Ning and social networks in general in education and the difficulties that were encountered throughout the duration of researching and writing of this thesis.

4.1. Generalisation

The results and findings of this research suggests an increase in students academic performance in two subjects namely English and Geography that were sampled, observed, examined and analysed. It is suggested that the use of Ning Social Networking Sites as a collaborative and learning tool in other subjects in the second level education curriculum in Ireland should be adopted.

1) It is essential that the conditions of students to facilitate the use of Social Networking Sites in schools are conducive for every student. The Central Statistics Office (CSO, 2008), reports of an increasing number of households with personal computers and internet access. But it is still necessary for schools and teachers adopting this learning and teaching strategy to ensure that all students in the class have access to a computer and internet access outside of the school. It is also essential for the school to find out the learning style of each student before embarking on this journey. Most importantly the level of computer literacy of every student needs to be taking into consideration.

2) Students are most likely to accept and use new technology for learning especially social networks of any sort as they are familiar with them. This would mean removing the learning curve like personal demonstration in class thereby allowing students to explore the network themselves at home and report any difficulty

encountered. This assists students in identifying efforts and expectancy of them in using the network.

3) A mechanism should be put in place to support students and encourage them in using the Ning Social Networking Site. This includes telling them of their fundamental rights and laws governing its use. This should be bold and clear for students to read and understand. They will also be made aware of monitoring and policing going on by their teacher. This would facilitate effort expectancy and respecting of other students privacy and using data and information that conforms to the school's rules and regulation.

4) It is also recommended as stated earlier in this thesis that the importance of use of Ning in education should be made aware to students and teachers. It is recommended to demonstrate how it would improve students understanding of what is being thought and students be advised that it would be graded and will form part of their final examination scores.

4.2. *Limitations and Difficulties*

The success of this research work and its meeting the stated objective and answering the research question does not mean that there were not difficulties and limitations encountered at various stages. The following are some of the limitations identified in this research work.

1) *"The real problem is not adding technology to the current organization of the classroom, but changing the culture of teaching and learning"* (November, 2010.p.189).

The above sentence is the backbone and one of the biggest limitations to the use of Ning Social Networking Site as a collaboration and learning tool and the use of technology in general in education. The integration of technology into the existing practices, teaching style and the learning management system means that the whole attitude and teaching culture have to change. It is in its own very difficult to change century long teaching tradition. Mot only would the teachers be unwilling to learn and familiarise themselves with the use of this new technology, they would also be very unlikely to let go of the old teaching method. This was evident at the initial stages of carry out the research work where getting access to schools was difficult because of teacher's unwillingness to try out the new teaching method being proposed.

2) Where schools were willing to try out the new technology and new teaching method, it was difficult to getting round the ethical and legal issues associated

with gaining access to schools. This issue is both from getting access and permission from the Department of Education and parents or guardians of the participating students that were under the age of 18 years.

3) It was observed during the training that when one of the schools granted access to use them for this studies as they have a similar product that they use, some of the teachers were willing to try out the use of Ning with the various subjects that they teach but there exist a gap between them and the digital aged students and facilities. This gap needs to be filled and this could be done by a structured training programme to teach teachers on the use of Social Networking Sites and web 2.0 as a whole.

4) The sample population were derived from two different sets of student. The first set was used to analyse students' use of social networking sites in general. These groups were chosen at random while the second set comprised of students from two different schools. It therefore would be difficult drawing conclusion if group one liking social networking sites would like Ning social network sites.

5) The data collected from this research work are self reported and therefore can be biased. A major weakness of information obtained by self-report is that the students might tell the researcher only what the researcher wants to know.

6) It was reported by the teachers that carried out the research and assessment for this project that it was very difficult to police and monitor the class Ning page and activities being carried out by the students. They reported that the students where initially not serious with its use as a learning tool though they were using it and warmed up to it very quickly, it still felt like their FaceBook or Bebo page. This was the case till they were told it will be marked, assessed and would carry a huge chunk of mark towards their final examination result.

5. Conclusion and Future Research

5.1. Conclusion

There is no doubting the importance of social networking sites as a collaboration and learning tool in supporting education in this digital age. This research have shown an overwhelming acceptance of Ning Social Networking Site as a collaboration and learning tool by students as evident from the result of the assessments comparing the traditional classroom effects on students understanding and learning and the effects using the Ning network. It could be seen that there is an increase from 54.29% to 82.12% for the first group scores and an increase from 51.28 to 88.08% for the second group of students that were examined. The acceptance was also evident in the positive response from the evaluation report. The positive response and the acceptance of Ning would bridge the gap that was identified initially at the beginning of the thesis on the social networking site researches feel would support and encourage learning. This also conforms to the case studies and literature reviews of successes and importance of social networking in education.

5.2. *Future Research*

Despite the success of this research, there are many significant opportunities for further research in this area.

- A future research and study could be done to include more subjects to determine if it would get similar or different response from this one. Subject would include those with little essay writing and more figures and numbers like Mathematics, Physics and Chemistry. It would be interest to know if students approach to collaboration and learning would be different.

- It was noted during the preliminary stages of this research that the greatest obstacle to the use of technology in secondary education was the teachers. Most of the teachers that were talked to still dwell in the past and would not use technology of any type in their classroom. Most of the teachers that were approached had never used any social networking sites nor have a profile in any social media. A research into ways to bridge the gap between the digital aged students and there old fashioned teachers need to be made as this is pivotal to the success of integrating not only Web 2.0 in education but also the use of technology in the classroom.

- Further students should be conducted on different classes of students. It is noted in this research that the research focused on 5th and 6th year secondary school

students. Further research on primary schools and other earlier secondary school

years is proposed in other to validate or reject the result of this research.

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Appendices

1: Questionnaire

USE OF SOCIAL NETWORKING SITE QUSTIONNAIRE

This questionnaire is part of research for a Masters of Science Degree in Learning Technologies at the National College of Ireland. It is in the use of Social Networking Sites as a collaborative tool in Learning and teaching in second level educational sector in Ireland. It focuses primarily on year four to year six classes. The result of this survey would purely be used for academic survey only. It is an anonymous survey therefore does not require any personal details.

The survey is estimated to take between four to eight minutes to complete. I greatly appreciate your help and time. Your contribution is of great value and truly appreciated. Thank you.

Uzokwe Ajuluchukwu. O
ouzokwe@hotmail.com

INSTRUCTION

Please tick the box which best correspond your answers. Please note that some questions require multiple answers.

QUESTION ONE:

Gender

☐ Male

☐ Female

QUESTION TWO:

What age are you

QUESTION THREE:

What level of secondary education are you currently in?

☐ Year 3

☐ Year 4

☐ Year 5

☐ Year 6

QUESTION FOUR:

How many hours do you spend on average on the interne ☐

QUESTION FIVE:

Do you know what online Social Networking is?

☐ Yes

☐ No

QUESTION SIX:

Do you use any of the following social networking sites? {Can choose more than one}

☐ Facebook

☐ Bebo

☐ Flickr

☐ Google Buzz

☐ MySpace

☐ LiveJournal

☐ Twitter

☐ Friendstar

☐ Faceparty

☐

Friends United

☐ Ning

Other [   ]

QUESTION SEVEN:

How often do you visit Social Networking Sites of your preference?

☐ 5+ times daily

☐ 3-4 times daily

☐ 1-2 times daily

☐ 3+ times weekly

☐ 1-2 times weekly

☐ Less than ones weekly

QUESTION EIGHT:

How do you access Social Networking Sites?

☐ Home PC / Laptop

☐ Library / Internet Cafe

☐ Friends / Families Home

☐ Schools /College network

☐ Mobile Phone

QUESTION NINE:

What activities do you engage in when you log on to Social Network of your choice?

	Never	Rarely	Sometimes	Regularly	All the time
Add/ search people's profile					
Edit my profile					
Change Profile pictures					
Update your status or mood					
Exchange comments or wall posts with friends					
Message friends					
Add or tag photo albums					
Join groups or networks					
Promote events					
Search / add music					
Search videos and/ or add videos					
Add applications					
Play games					
Browse Friends' Profiles					
Personalize page and layout					
Write or read blogs					
Participate in group discussion/ forum (s)					

QUESTION TEN:

How do you perceive the amount of information received on your Social Network?

☐ Too much

☐ Moderate

☐ Satisfactory

☐ Too little

QUESTION ELEVEN:

The information I receive helps me in my school and academic work

☐ Agree

☐ Disagree

QUESTION TWELVE:

Would you accept friendship request from your teacher

☐ Yes

☐ No

QUESTION THIRTEEN:

Would you accept friendship request from your school ?

☐ Yes

☐ No

QUESTION FORTEEN:

I would use my Social Network for educational collaborative work?

☐ Yes

☐ No

☐ Possibly

QUESTION FIFTEEN

In a scale of 1-5, 1 being low and 5 being high, what educational activity would you most likely do on your Social Networking sites?

	1	2	3	4	5
Listen to lectures					
Read Lecture notes					
Listen to and watch educational podcast					
Download and submit assignment					
Make useful comments on educational links, post and pictures					
Communicate with classmates					
Communicate with teachers					
Communicate with school authority					
Receive information and messages from schools					
Get your parents involved to view your profile and see your school progress					

Thank you for taking your time to fill out the questionnaire

Uzokwe Ajuluchukwu. O

2: *Evaluation Questionnaire*

MSc Learning Technologies Thesis Evaluation Questionnaire

USE OF SOCIAL NETWORKING SITE EVALUATION SHEET

This Evaluation sheet is part of research for a Masters of Science Degree in Learning Technologies at the National College of Ireland. It will be used to evaluate your experiences of using the Social Networking Site "Ning". Second level students in fourth to sixth year who are enrolled in Literature in English and Geography classes will be asked to participate.

The result of this survey will be strictly confidential and used for the purpose of this study only. It is anonymous and does not require any personal details.

The survey is estimated to take between four to eight minutes to complete. I greatly appreciate your help and time. Your contribution is of great value and truly appreciated. Thank you.

Uzokwe Ajuluchukwu. O
ouzokwe@hotmail.com

INSTRUCTION

Please tick the box you regard as the most appropriate.

Please note that some questions require multiple answers.

SECTION ONE: PERSONAL INFORMATION

QUESTION ONE:

Gender

☐ Male

☐ Female

QUESTION TWO:

What age are you [____]

QUESTION THREE:

What year of secondary school are you currently in?

☐ Third Year

☐ Fourth Year

☐ Fifth Year

☐ Sixth Year

SECTION TWO: USE OF NING

QUESTION FOUR:

Have you used Ning as a social Networking Site before this?

☐ Yes

☐ No

QUESTION FIVE:

How would you categorise Ning as a Social Networking Site?

☐ Poor

☐ Good

☐ Average

☐ Very Good

☐ Excellent

QUESTION SIX:

Ning is very user friendly and easy to navigate

☐ Strongly Disagree

☐ Disagree

☐ Don't Know

☐ Agree

☐ Strongly agree

QUESTION SEVEN:

Which of the features and application did you find helpful in terms of assisting with your learning [can choose more than one]

☐ Videos

☐ RSS Feeds

☐ Photo and Image sharing

☐ Chat

☐ Blog

☐ Podcasts

☐ Forum

☐ Text box

☐ Notes

QUESTION EIGHT:

Do you feel that you learnt more using Ning as collaboration and learning tool in school?

☐ Yes

☐ No

☐ Indifferent

QUESTION NINE:

In a scale of 1-5, 1 being low and 5 being high, how would you rate using Ning in education?

QUESTION TEN:

Was there any increase in your overall examination scores after using Ning?

☐ Yes

☐ No

☐ Increase wasn't as a result of using Ning

☐ Don't Know

QUESTION ELEVEN

Would you recommend the use of Ning to others in your school?

☐ Yes

☐ No

QUESTION TWELVE:

Do you feel that you learnt and understood some subjects better because of the use of Ning?

☐ Yes

☐ No

SECTION THREE: REMARKS

Further comments or rema

3: Transcript of Focus Group Meeting

SOCIAL NETWORKING SITES: USE OF NING AS A COLLABORATIVE AND LEARNING TOOL IN SECOND LEVEL

EDUCATION

FOCUS GROUP MEETING TRANSCRIPT SHEET

Facilitator
Uzokwe Ajuluchukwu. O

Participants
Principal of respective schools
Geography Teacher
English Literature Teacher
Representative of IT Department

TRANSCRIPT

Person	Discussion

4: SPSS table and results of statistical analysis

dataset1.sav

	TestScore	Group
1	56	1
2	58	1
3	51	1
4	64	1
5	49	1
6	43	1
7	53	1
8	67	1
9	44	1
10	49	1
11	58	1
12	59	1
13	60	1
14	72	1
15	63	1
16	54	1
17	35	1
18	32	1
19	41	1
20	48	1
21	59	1
22	61	1
23	65	1
24	77	1
25	79	1
26	51	1
27	45	1
28	46	1
29	51	1
30	43	1
31	76	2
32	79	2
33	83	2
34	89	2
35	77	2
36	69	2
37	68	2
38	87	2
39	79	2
40	74	2
41	89	2
42	91	2
43	93	2

	TestScore	Group
44	98	2
45	91	2
46	93	2
47	64	2
48	68	2
49	66	2
50	65	2
51	78	2
52	94	2
53	96	2
54	97	2
55	99	2
56	86	2
57	77	2
58	78	2
59	79	2
60	81	2

```
GET DATA /TYPE=XLS
   /FILE='W:\courses\MSCLT\Dissertation\AJ\test scores.xls'
   /SHEET=name 'Sheet1'
   /CELLRANGE=full
   /READNAMES=on
   /ASSUMEDSTRWIDTH=32767.
DATASET NAME DataSet1 WINDOW=FRONT.
SAVE OUTFILE='W:\courses\MSCLT\Dissertation\AJ\dataset1.sav'
 /COMPRESSED.
SAVE OUTFILE='W:\courses\MSCLT\Dissertation\AJ\dataset1.sav'
 /COMPRESSED.
T-TEST
  GROUPS = Group(1 2)
  /MISSING = ANALYSIS
  /VARIABLES = TestScore
  /CRITERIA = CI(.95) .
```

T-Test

[DataSet1] W:\courses\MSCLT\Dissertation\AJ\dataset1.sav

Group Statistics

	Group	N	Mean	Std. Deviation	Std. Error Mean
Test Score	Control Group	30	54.43	11.340	2.070
	Experimental Group	30	82.13	10.657	1.946

Independent Samples Test

		Levene's Test for Equality of Variances	
		F	Sig.
Test Score	Equal variances assumed	.000	.993
	Equal variances not assumed		

Independent Samples Test

		t-test for Equality of Means			
		t	df	Sig. (2-tailed)	Mean Difference
Test Score	Equal variances assumed	-9.750	58	.000	-27.700
	Equal variances not assumed	-9.750	57.777	.000	-27.700

	PreTest	PostTest
1	41	87
2	51	77
3	50	91
4	56	81
5	51	86
6	53	87
7	61	91
8	63	94
9	39	77
10	41	94
11	51	88
12	58	92
13	59	94
14	56	77
15	71	78
16	43	79
17	45	79
18	33	89
19	46	93
20	49	98
21	51	99
22	56	97
23	52	91
24	53	88
25	51	88
26	44	95
27	43	81
28	61	94

Independent Samples Test

		t-test for Equality of Means		
		Std. Error Difference	95% Confidence Interval of the Difference	
			Lower	Upper
Test Score	Equal variances assumed	2.841	-33.387	-22.013
	Equal variances not assumed	2.841	-33.388	-22.012

```
SET DATA /TYPE=XLS
   /FILE='W:\courses\MSCLT\Dissertation\AJ\test scores.xls'
   /SHEET=name 'Sheet2'
   /CELLRANGE=full
   /READNAMES=on
   /ASSUMEDSTRWIDTH=32767.
DATASET NAME DataSet2 WINDOW=FRONT.
T-TEST
  PAIRS = PreTest  WITH PostTest (PAIRED)
  /CRITERIA = CI(.95)
  /MISSING = ANALYSIS.
```

T-Test

[DataSet2]

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre-Test	51.00	28	8.282	1.565
	Post-Test	88.04	28	6.920	1.308

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Pre-Test & Post-Test	28	.092	.640

Paired Samples Test

		Paired Differences					
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t
					Lower	Upper	
Pair 1	Pre-Test - Post-Test	-37.036	10.290	1.945	-41.026	-33.046	-19.045

Paired Samples Test

		df	Sig. (2-tailed)
Pair 1	Pre-Test - Post-Test	27	.000

5. CASE STUDY

The Use of Alternative Social Networking Sites in Higher Educational Settings:

A Case Study of the E-Learning Benefits of Ning in Education

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During the fall semester of 2008, Ning was utilized by one fully asynchronous distance education, instructional technology courses and two blended learning, synchronous distance education educational leadership preparation courses. All three courses were at the graduate level and followed the traditional fifteen-week semester. The following sections highlight how Ning was used in the instructional technology courses and the one two sections of the educational leadership course.

Instructional Technology Course

Ning was utilized as the primary discussion tool for the fully asynchronous distance education course on 21st-century technology. A core component of this course is the integration of emerging technologies into teaching and learning practices. As an emerging social networking tool, Ning served as both a tool and an example of how social networking may be utilized in an educational context.

The course Ning network was open to all students and faculty of the College of Education, regardless of whether or not they were enrolled in the course. Within the college Ning network, each course had its own Ning site. Both faculty members and

students within the college were welcome and encouraged to engage in and contribute to the discussions. This was done with the goal of developing a large community of learners. The 21st-century technology Ning included outside members with backgrounds in technology education, language arts, educational leadership, and middle grades education. The wide array of backgrounds and perspectives from educators both within and outside of the course provided for a rich educational context. The Ning served as venue not only for sharing and discussing ideas, but also for developing and fostering collaborative connections across content areas.

The Ning was structured so that each topic covered in the course had its own forum within the site. Within each forum, students could post questions, comment on classmates' responses, and reflect on the readings. Each week, students in the course engaged in discussions co-lead by the professor and a student. Over the course of the semester, eight student-created forums emerged, addressing topics ranging from course-related assignments to lateral-entry teaching to emerging technologies. This allowed for students to create their own community of Learners within the larger community.

Ning was also used to discuss, share, and reflect upon assignments within the course. In addition to being posted within the course management software, all assignments and activities were posted in Ning along with accompanying rubrics. Posting the assignment descriptions within Ning allowed students to address questions and share thoughts and ideas with the class easily. This not only clarified misunderstandings, but

also aided the overall final product, as students were able to explore and discuss ideas, tools, and resources collaboratively.

Throughout the semester, students were required to post assignments on Ning and comment and offer feedback on classmates' assignments as part of their participation grade. By sharing completed assignments within the course, students were able to share and discuss ideas relating to the course topic. Ning supported the sharing of files and resources, while also providing a forum for discussing ideas. Some of the assignments also required for students to utilize Ning for group work. Ning provided students with a venue for sharing and discussing.

School Finance Course

Ning was used as an online discussion tool in two sections of the graduate-level school finance course. Both school finance courses were blended education courses in which class sessions were evenly divided between face-to-face meetings and fully synchronous, online sessions; Ning provided an asynchronous discussion tool. The two school finance course sections covered the same content.

In contrast to the instructional technology course, which used Ning as a core technological component in the course, Ning was a supplemental component in the school finance courses. Each week, the instructor placed a detailed discussion question on the Ning site encouraging discussion by class members. Despite the use of Ning as

supplemental tool, the impact of Ning in creating an authentic, social network of professional educators was significant.

As students became more familiar with the SNS, the quality of the discussions improved. Additionally, some students posed their own questions concerning the course, including questions on some of the course readings. Often, other students in the course would answer these questions. So, the Ning social network expanded into another source for understanding aspects of the course outside of the instructor.