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Social Media Use in Academia

Campus Students Perceptions of How Using Social Media Supports Educational Learning

Magister thesis within CSS

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Abstract

Traditional education system on campus has been using as a legacy over decades to support educational learning. The major change over time has been made by the use of technology supporting students in the academic community. As the majority of students in higher education today belong to the digital-age-student generation, they frequently use online technology to interact with instructors, other learners, and to access online materials. In this study, the result is primarily presented from campus students' perceptions, to gain a deeper understanding of how social media is being used to support educational and collaborative/cooperative learning. Although, almost all the respondents are frequent social media users, only a quarter of them use such media regularly for academic purposes. Through use of social media in academia, students have encountered with benefits─ as convenience, possibility of interaction anywhere/anytime, time-saving, low price and many others─ in addition to facing to limitations─ such as less effective or spontaneous contact, connection problems, lack of platform compatibility, less creative and innovative thinking, and other issues─ which have been discussed in this study.

This thesis adopted a qualitative research and the characterization of knowledge that is used is exploratory research method with the use of interview as a tool for empirical data collection. Twenty interviews have been conducted with Uppsala University higher education students within random subject disciplines. Among many different social media, the most frequent ones used by majority of students are e-mail, a common asynchronous media to interact with instructors and other learners; and Instant Messaging (IM), a synchronous communication way to interact with co-workers, classmates, or group-mates. Furthermore, learners use social media to coordinate their collaborative/cooperative work, share documents and ask questions. Facebook, Wikipedia, YouTube and other popular social media are also sometimes used for educational purposes.

The findings indicate that social media seems particularly beneficial for supporting educational learning; though there are some negative aspect and limitations. Learners look at using the technology and social media as a complement to support their studies and collaboration/cooperation. However, not many of them consider using such media as a substitute for face-to-face interactions and the traditional campus education. By drawing on this thesis and the previous studies, proposition on how use of social media supports educational learning in the future has been emerged.

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Yours sincerely,
Nam M. Aghaee

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1 Introduction

Outlined in this section are the background of the social media and educational learning in general followed by determining the research question and defining the purpose of the study, as well as clarifying the encountered perspectives. Finally, definitions of key terminologies are presented.

The number of educational practices and techniques are undoubtedly endless. With the eyes of academic communities, social media, a valuable *Information and communication technology* (ICT) tool in *computer-supported collaborative learning* (CSCL) is integrating online technology and educational and collaborative learning to support learners in academia. Although the use of technologies, like *virtual learning environments (VLE)*, *Web 2.0*, e-mail and other similar technologies has been debated for nearly 30 years, how and why campus learners are using social media or online technology to support educational learning is an interesting issue. In addressing this question, this study will review a significant number of related articles and gather empirical findings to draw a trustworthy conclusion. The aim is to achieve a deeper understanding of learners' perceptions of how to use social media as a complement to support educational learning. The research objective is to explore how students at Uppsala University use online learning, and what are the positive and negative aspects of using social media for campus students. [1]

1.1 Background

Changes in technology have led to modifications in generally accepted educational perspective. According to Seattler (2004:4), *"the historical function of educational technology is a process rather than a product"*. At the beginning of the twentieth century, blackboard was a tool to encourage group work as well as individual consultations between the students and instructors (Adelsberger et al., 2008). During the twentieth century, as Adelsberger et al. (2008) state, the emergence of media-richness was through mass media. At that time, the quality of being composed of relatively large particles were added by the microcomputers. Since the late 1970s, the issue of technology's influence on students' learning and academic achievement was discussed (Edens, 2008). Since the 1980s, Internet based tools and methods are being expanded to support the educational system, both campus- and distance-based (Williams et al., 1999).

Information and communication technology (ICT) is progressively getting more prevalent and used in educational process as well as in other organizational sectors (Keller & Cernerud, 2002). A large number of studies acknowledge computer-supported collaborative learning (CSCL) as a vital part of effective learning, makes learners able to communicate with each other through social media (Weinberger & Fischer, 2006). In the twenty-first century, the significant and distinctive attribute of education is the Internet-based computing, which offers diverse technical capabilities, such as *online learning*. However, ICT utilization in university education is not a new phenomenon; *e-learning* has been quite recently established by using digital media, to support learning process (Keller & Cernerud, 2002). The terms 'computer-based' refers to the online

[1] Terms in italic format are defined in Appendix C

education support (Williams et al., 1999), using e.g. bulletin board systems, e-mail systems, and computer/Internet-mediated prearranged meetings to consult and exchange information, VLEs and other technologies. [2]

A number of authors illustrate that the young generation are frequently using social media technologies for communication and collaboration (Smith et al., 1988). In the last quarter-century, as Andone et al. (2006a) state, virtually digitalizing of all life aspects is the most significant impact on learners' life. In this respect, Smith and Curtin (1998) discuss that ICT technologies support education by assisting young people to live in an information-rich technology world. The generation born after 1980, mainly the current higher education students, is an even more digital age group (Andone et al., 2006b). To this generation, the digital world is more permeating than for other generations and technology is a world that they know and live in. It has been claimed by Andone et al. (2006a) that digital age students who grown up with ICT, have special characteristics and different learning habits that lead them to use technology differently. In accordance, Prenksy (2001) notes this group as a generation with different technology skills and completely new set of cognitive capabilities. Kaplan and Haenlein, (2010) also note that the younger generation has considerable technical knowledge and tendency to engage online technology use, which in essence makes media usage different from other eras.

For learners, the primary issue in a modern online learning platform is to gain meaningful and perceptible knowledge (Chen & Chen, 2008). Distance and distributed education has come into existence in the academia, initially by using TV and radio, and completing by synchronous and asynchronous communications and online degree programs (Miller & Lu, 2003). Knowledge on recent educational development, as Rogers et al. (2009) argues, is pertinent to learners of the 21st century. Emergence of e-learning or online technology has provided learners with a new approach. They have access to diversity of resources and make use of online knowledge-based platforms, which no longer makes physical presence in particular places necessary (Chen & Chen, 2008).

1.2 Purpose of the Study and Research Question

Using face-to-face interactions and traditional educational system with physical lectures in classrooms and usually directed in a one-way communicative manner is a common way of educational learning, which has been experienced over generations. Consequently, the main characteristic of educational learning is traditionally defined as transferring knowledge and information on campus. However, recently, the appearance of ICT and Internet-based system has been a revolutionary but inevitable change in the industries and academia. Using online technology opens up a new and endless opportunity for academic systems to support educational learning, with the problem of how to convince academic educators and learners to adopt new ways of interactions. However, as it seems in Caraher and Braselman (2010), using technology to support educational learning is often used in academic system. The ways social media is used and the important issues that should be considered for using new technologies cannot be resolved unless there is a clarification concerning how educators and learners experience using social media in educational learning.

[2] The full terms of the acronyms used in the body are defined in Appendix D

Following the issues discussed above, the aim of this thesis has been addressed by exploring how social media is used to support educational learning in undergraduate and graduate level. The overriding purpose is to find out how students are using social media, as well as exploring social media utilities and limitations that users may have encountered. This study aims at investigating learners' perceptions to answer the research question of the study. Particularly, this covers their reflection on the use of social media in the educational and collaborative/cooperative learning. The study addresses the following research question; the focal theme of the study.

- How are students using social media to support educational learning and what are the benefits and limitations?

This research question is explored and answered by combining the theoretical and empirical findings to make the conclusion. The empirical data collection, interviews, are guided by this question. On the other hand, by focusing on exploring the answer of the research problem, more related questions might be evoked. Therefore, the study covers the consequent questions, by considering the previous related studies and with respect to the interviewees' perceptions. However, the evoked questions will not be considered as the main points and will only act as supplementary issues, due to methodological reasons and to ensure focusing on the most related data to fulfil the purpose of the study.

1.3 Perspective

There are different perspectives regarding social media utilization, which may vary from person to person. It is certainly not possible to cover all aspects of how students use social media. There are quite a number of existing media to be used in different ways in order to enhance educational learning. Accordingly, in order to fulfil the purpose of this study, interviews are conducted to reflect the following perspective, which is significant for this study.

- The learners' reflections on the ways they use social media and the social media benefits and limitations.

To a large extent, in this study, the focus is on students' point of view, as the key users of social media utilization for developing educational learning. In fact, the media students primarily use may be similar; however, the ways of utilization may differ person to person.

1.4 Definition of Key Terminology

This topic comprises an area of knowledge with almost new, scientific technical terms, which are vital to be understood accurately. The definitions of terms are mainly developed from authentic references to clarify terms in understandable and clear ways. Since in this study there are a number of technical terms, a list of definitions is available in Appendix C.

2 Methods

This section covers the research design, the data collection and a discussion of trustworthiness, exemplified by the concepts of reliability, validity and the general credibility of the study.

2.1 Research Design

There are different alternatives to ascertain research structure; however, using the most suitable methods regarding the research problem and purpose facilitates fulfilling desired outcomes. The characteristics of alternative methods are taken into consideration to specify the general pros and cons to make the reasonable choice. This defends that the chosen method would guide the study to gain the justifiable knowledge with respect to the research problems. According to Saunders et al. (2007), there are different research designs, explanatory, exploratory, and descriptive. Choosing an appropriate research method significantly leads to pick the right strategy and approach. Since in this thesis the focus is on the use of models in order to investigate and value the primary collected data, besides investigating a new topic with not defined result, the study is exploratory. As Adams and Schvaneveldt (1991) state, the exploratory research initially emphasises a broad subject and as it progresses, the topic gradually gets narrower. This study aims to explore the ways campus students are using social media, by the help of interviews as the primary tool.

2.1.1 Qualitative vs. Quantitative

There are two data collection and analyses techniques, qualitative and quantitative. They are differentiated since quantitative methodology uses numerical analysis, whereas qualitative methodology focuses on nun-numeric and descriptive researches to understand the situation (Chen & Hirschheim, 2004). Qualitative Research is a comprehensive concept that comprises various systematic investigations. This methodology, as it is in this study, mainly focuses on the meaning of the social phenomena with respect to their meaning or significance of interpretation. Qualitative research is fundamentally interpretive research, and deals with researchers' acquired knowledge regarding the participants', such as interviewees', perspectives (Merriam, 2002). In this study, the underlying focus is on the context and reflections, attained through the data collection procedure.

2.2 Data Collection

In qualitative research, the meaning of the phenomenon is constructed and understood by collecting data (Merriam, 2002). In the theory part, a set of frameworks based on social media in educational learning are defined. As Saunders et al., (2007) discuss, this secondary data collection is meant to describe the purpose and content of the primary data and obtain the result. Throughout the study, the topic is funnelled down, whilst the main theme is sustained. Consequently, the primary data, gathered through conducting interviews, is related to the set of theories and frameworks. This is to define the main key issues to lead how to guide the study for the analyses to draw the conclusion.

Secondary Data Collection

Secondary data is mainly collected in exploratory and qualitative studies (Saunders et al., 2007:248); "*Documentary secondary data are often used in the research projects*

that also use primary data collection methods". In accordance, documentary secondary data covers two sub-categories; written and then non-written materials. Here, the secondary data is collected from the academic resources with high trustworthiness, like scientific journals or other tangible published works like dissertations. In this study, the effort is to be neutral during the data collection and use generally accepted knowledge to follow the line of investigation.

2.2.1 Interview

Interviewing is one of the various existing tools for primary data collection. Any purposeful discussion between two or more people, aimed at collecting valid and reliable data, is considered as an interview (Saunders et al., 2007). Denzin, (2001) describes interview as a device, used by journalists, social scientists, psychiatrists, physicians, social workers and many others, to objectify individuals and gather information. He discusses that interview is a dialogical technique that functions as an explorative and descriptive method to turn experiences into narrative and consumable commodity. Furthermore, it makes interviewers able to collect reflections and make personal ideas public. Interview is an extensive data collection tool that embraces different branches, shown in figure 2-1. An interview may be standardised or non-standardised, formal and structured or informal and unstructured, and one-to-many or one-to-one. When deciding to use interview as a tool, it is important to consider its different types in order to justify which specific type is suited best to the study and why it is chosen.

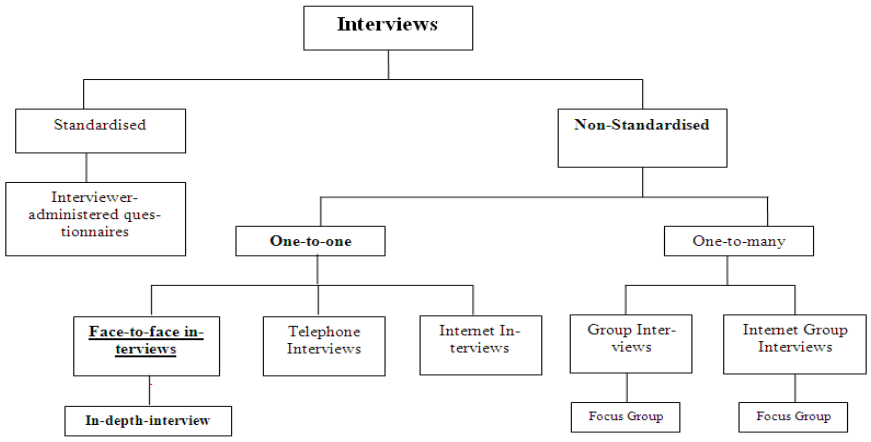

Fig 2-1 Forms of interview (Saunders et al., 2007:313)

A structured interview is a predetermined set of questions, not flexible and cannot be restructured. An unstructured interview is an opposite approach, in which the interviewee is able to talk informally and freely about their point of views (Teorell & Svensson, 2007). In between these two extremes, semi-structured is a moderate type that is a non-standardized interview and according King (2004) often is referred to as '*qualitative research interview*'. Thus, since this is a qualitative study, a 'qualitative research interview' is used, which has a list of questions that guides the interviews and a specific theme connected to the research question. Conducting a number of semi-structured, though open-ended interviews, is in order to collect interviewees' reflections in a similar way, which means that questions are always answered within the same

context. The interviews are conducted face-to-face, one-by-one, in a non-standardised approach, with English as the primary language.

Empirical Data Collection

"*While non-empirical studies help to develop concepts and build theory, empirical studies provide concrete evidence for testing theories*" (Chen & Hirschheim, 2004, pp. 205). The process of primary data collection is led by the research question and mainly based on the theoretical frameworks. Since in this study understanding the learners' perspective and the ways they use social media is important, as Saunders et al. (2007) argues, conducting qualitative interviews is a tool for collecting empirical data.

In this study, eleven questions were pre-defined and developed on basis of the research question and the theoretical framework of the study (questions are available in appendix A). The interviews were conducted in the same way for all interviewees. After the interview-questions were confirmed by the thesis supervisor, twenty interviews were conducted. The interviewees were random undergraduate and graduate students in different subject disciplines at Uppsala University. The interviews were conducted at the student nations, cafeterias and libraries. Each interview took approximately 20 minutes and the answers were transcribed verbatim. Ten (out of twenty) of the interviewees were graduate students and nine (out of twenty) were female.

Discussion and Analysis

As Williamson (2000) states, analysis of collected data is a process that focuses on three factors; order, structure, and meaning. In qualitative analysis the goal is to create a theory. Despite of numeric and quantitative research, in qualitative analysis there is no strict rules; instead there are some techniques to guide the study to '*make sense of the data*' (Williamson, 2000:293). The key method used in this thesis is to create 'summaries', as a helpful method to get the result from the interview transcripts. Saunders et al. (2007) argue that 'summaries' primarily focus on the key points and principal theme that emerge from the interviews. The classifying collected primary data is making us able to explore and analyse the data systematically and thoroughly (Saunders et al., 2007).

The analysis procedure, according to Saunders et al. (2007), involves four main vital activities. These activities are categorisation data, unitising data, relationships recognition besides categories development, and finally testing the theories and drawing the conclusion. The collected data is categorised in the discussion section and each category is meaningful and connected to the others. Unitising the collected data helps getting relevant words, sentences or paragraphs attached into the appropriate category. By comparing categories, the data are connected and integrated. Afterwards, by testing the patterns and relations, the conclusion regarding the actual relationships or connections is drawn (Saunders et al., 2007). These processes have been followed in this study in the regarding discussion and analysis.

2.3 Trustworthiness

'Validity' and 'reliability' are two important issues to be addressed beyond identifying the methodology of data collection. What makes validity of data collection so

significant is that the concept denotes how much the research findings are congruent with reality (Merriam, 2002). Merriam argues that when data is called 'valid', it gives a truthful picture of the topic that has been studied. Babbie (1990) consequently states that validity refers to the point or degree to which an empirical measurement adequately reflects the real meaning of the concepts under consideration. 'Reliability' is a matter of whether a particular technique, applied repeatedly to the same object, would yield the same result each time. It is significant to assess the reliability of the data and outcomes without referring to any bias. In accordance with this, Merriam (2002:27) also writes, "*Reliability refers to the extent to which research findings can be replicated*". A face-to-face data collection is a way, that interviewer gets the opportunity of collecting first-hand experiences of the interviewees in their own words. Therefore, interview is an appropriate instrument in this study to increase the validity and reliability. Figure 2-2, developed by Foddy (1994), illustrates the processes, followed here to enhance the trustworthy of this thesis.

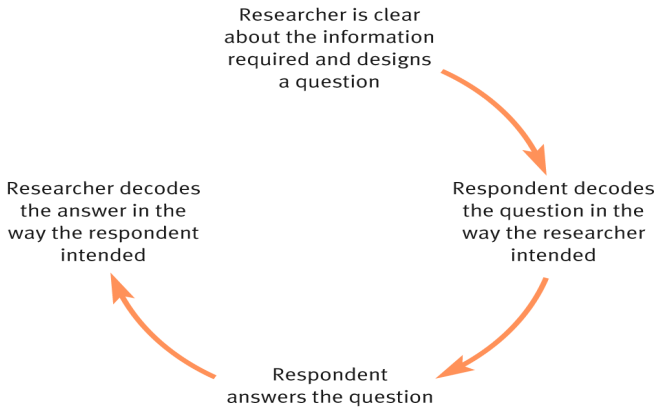

Fig 2-2 Steps that must occur to make a question valid and reliable (Saunders et al., 2007:367)

Gathering relevant theory and collect trustworthy empirical data through reliable methodologies, is always valuable. Drawing a credible and reliable conclusion in any research is the main purpose of authors. In this thesis, the theories regarding the social media are collected from the original references in scientific journals or books. The empirical data are directly collected from learners and the answers are transcribed verbatim, without influencing by authors' own ideas. The validity and reliability of data have been issues that are taken into consideration during the entire thesis and the collected data and explanations are written neutral, without any bias.

3 Social Media

This part consists of the theoretical frameworks and models, which are taken into account during empirical data collection. In the later part of the section, the research question is revisited and answered by the theoretical frameworks and models.

3.1 What Is Social Media?

Social media technology has been growing significantly to support users to gain access to valuable knowledge through different resources. As highlighted in other studies (Kaplan & Haenlein, 2010), appearance of social media is groundbreaking; nevertheless, there may be confusion as what exactly is included in this term and how it may differ from other similar and related concepts (Kaplan & Haenlein, 2010). There is a diversity of technologies used as effective tools to support students' educational learning. However, categorizing them into social media and non-social media technology is not easy. Kaplan and Haenlein (2010) discuss that although some of the technologies are apparently distinguished as social media, such as Wikipedia, YouTube, Facebook, and some virtual environments, there is no systematic way to differ and categorize applications. In this study, social media is defined as a utility tool to integrate online technologies and educational learning to support and develop academia. This means that technologies used by learners, which they believe is important and supportive for their educational learning can be considered as social media. Various functions, in and outside online learning management systems, support students' interactions synchronously and asynchronously. As Caraher and Braselman (2010) state, '*collaboration means education'* and social media is considered as a tool in education, used by more than half of the learners to enable collaboration, real-time dialogue and knowledge or data sharing (Caraher & Braselman, 2010). Different Internet applications and social media require a significantly higher user interaction, which is not only between learners and instructors, and other learners, but also between learners and content or other online applications.

In educational learning, social media is a web-based system to support interactions between learners and instructors as well as learners and learners. Since people are challenged to interact with each other on virtual environments, online interaction is a significant way of communication (Smith & Curtin, 1998). In academia, as Bereiter (1990) suggests, there should be a variety of available resources to help learners in bootstrapping their way to higher-level cognitive structures. Information and communication technology (ICT), used in educational system, is needed to be flexible to provide adaptability to a particular online learning situation. "*Technology enables students to reach new levels of connectedness to their professors, peers and others during a time that is incredibly demanding of our time and energy*" (Caraher & Braselman, 2010:22). There are different factors, affecting media and services performance in educational learning and user satisfaction. According to Suna et al. (2008), these factors are assigned into six categories: student, teacher, course, technology, system design, and environmental dimension.

3.2 Social Media Use for Educational Learning

Caraher and Braselman (2010) show "*64% of students use social media to 'connect with classmates' to study or work on class assignments at least several times per month. 41%*

use social media to 'study or work on class assignments' at least several times per month. 27% use Social Media to 'connect with faculty to study or work' on class assignments, at least several times per month" (Caraher & Braselman, 2010:13). According to Hrastinski et al. (2010:659), "*Synchronous media were argued to be more useful to support tasks and exchanges such as planning work.*" social media is useful for learners' interactions, which fulfils different cooperative/collaborative purposes, by enabling them to see receiver's reactions and get the results right away.

The important and related web-based concepts frequently considered and used as social media are Web 2.0, synchronous and asynchronous media alike as e-mail and IM. Web 2.0 according to Kaplan and Haenlein, is a web-based platform whereby content and applications are continuously modified by all users in a participatory and collaborative way. At this time, applications belonging to the era of Web 1.0, like personal web pages, encyclopaedia and content publishing are replaced by blogs, wikis, and collaborative projects in Web 2.0. *User Generated Content* (UGC) is applications enabling learners to make use of social media, which is usually referring to various publicly available forms of media content that are created by end-users (Kaplan & Haenlein, 2010). Keller and Cernerud (2002) state some of digital social media and e-learning system: web pages, online video conference, as well as utilized tools such as text, graphics, video, three-dimensional objects and animations. Additionally, Hrastinski (2009b), discuss about technologies, like social software and web 2.0, blogs, wiki, virtual world, voice and video technology, online meeting, games, mobile learning, learning objects open source and open standard, web-based supports for literatures, which are used by students to support their studies and educational learning.

3.3 Interaction Modes Supported by Social Media

Alexander (2001) argues that all education initiatives aim at supporting students to learn regardless of the media used. There are different ways that media technology significantly supports two-way educational interactions and communications (Bates, 1995). These social interactions, supported by new technologies as the main key, have consequently led to increased learners' interest in *collaborative* and *cooperative learning* (Underwood, & Underwood, 1999). Since educational system has become more learner-based, instructors rather focus on educational learning than covering the content (Mason & Rennie, 2008).

By using social media, learners are enabled to communicate with others engaged in educational learning. Moore (1989) described three central types of interactions in educational learning: learner-content, learner-instructor, and learner-learner interactions, which are the core of this study. Compared to Moore's model, Anderson and Garrison (1998) have come up with a new model to cover other possible interactions besides those that Moore already introduced. Garrison and Anderson (2003) offer a new idea, beyond one-way interaction between students, contents and teachers, showed in figure 3-1. This model adds interaction perspectives for teacher-teacher, teacher-content, content-content to the existing Moore's model. Afterwards, Dron (2007) has introduced four further significant interactions: student-group, teacher-group, content-group, and group-group. Social media technology supports all phases, introduced by Moore, Garrison and Anderson, and Dron, to make online interactions possible.

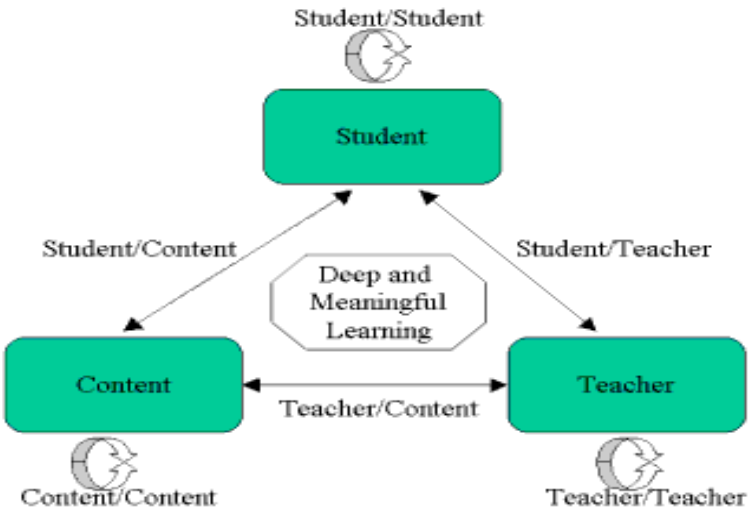

Fig 3-1 Modes of Interaction in Distance Education (Anderson & Garrison, 1998)

In the learner-content interaction, student interacts with content, which is uploaded by instructors (teacher-content) or students (learner-content), to access the course materials. As it has been discussed in different studies, the online learner-instructor interaction has drawn significant attention within both campus and web-based education (Hrastinski, 2009b). In the learner-instructor phase, students interact with the instructors through media technologies, such as email, to ask questions or talk about any educational issue. According to Hrastinski (2009a), appearance of social media on the Internet enables learners' interaction with instructors more frequently. The last phase is learner-learner interaction that is the most common interaction supported by social media. Student-group, which is a part of learner-learner interaction, is defined by Dron (2007:62) as, "*in an online environment, the learner is a part of the group mind, influencing yet influenced by it.*" This refers to students' academic contribution in group-work, which is supported by social media to enhance cooperative/collaborative learning.

3.4 Factors Influencing Social Media Use

When a learner aims to understand or explain an issue, it is important to consider the required interactions, besides the influencing factors. Some of the factors that may affect learners' online participation and, consequently, their educational learning are illustrated in figure 3-2. The three main categories, which are demographical, contextual and behavioural factors, encompass different micro-level factors. The focus here is on the factors, affecting "*how*" students use online technologies.

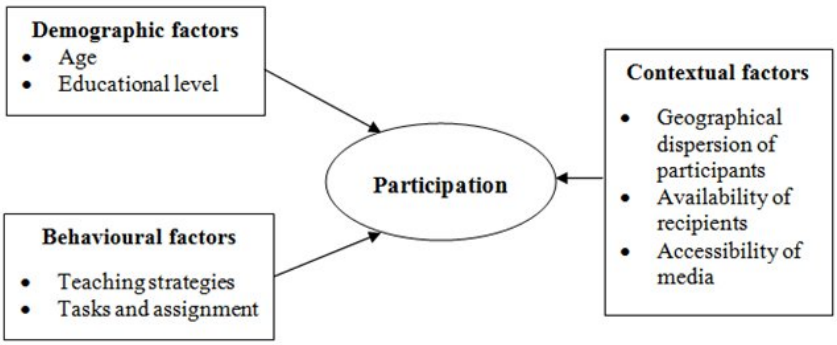

Fig 3-2 Significant factors for online student participation (Hrastinski, 2007:106)

The first category, *Contextual factors*, which according to Massey and Montoya-Weiss (2006) can affect the perceived utility of social media, covers three imperative factors: 'geographical dispersion of participant', 'availability of the recipients', and 'accessibility of media'. These factors are mentioned by many learners, in empirical data findings, as important issues to influence in the use of social media and participation in online learning. When there is 'geographical dispersion', learners have stronger tendencies of using web-based technologies for their interactions. Hrastinski (2007) shows that by using synchronous and asynchronous communication tools students seldom meet face to face in geographical dispersion. Accessing different recourses and people at a distance, motivates students to use social media. 'Availability of the recipients' is significant, since "*if recipients are not perceived to be available by a medium, another medium might be preferred" (Hrastinski, 2007:110)*. For instance, when students are not available on a specific medium, others chose not to use it. Availability of the recipients thereby is an effectual factor that makes learners use a social medium, which is used by other learners, to be accessible and access the others. 'Accessibility of the media' is an issue that stimulate learners desire to use the media. Some studies show that existing technical problems or lack of support influence specific medium utility and user satisfactions. When there are technical problems which limits the accessibility of a medium, it is less likely that students adopt using of that medium for their educational interactions.

In the *demographic factors,* three factors are mentioned and used in this study; 'age', 'educational level', 'learning style'. 'Age' is a complex issue, discussed in many scientific articles. According to Keller and Hrastinski (2006), age is a significant factor to affect perceived participation. The younger generation groups, who are digital age learners, have more desire of participating in online learning by using social media. In contrast, other findings in an opposing direction illustrate that the social media utilization is more related to the educational learning system, especially in the university level (Gerhard & Mayr, 2002). Regarding the 'educational level', Gerhard and Mayr (2002) note that as the level of education raises students' demands for education correspondingly increase. However, as they discuss, not all demands for specialized education are fulfilled, given that not many learners are able to attend campus courses. Therefore, Internet-based media increases the number of learners in higher educational level by offering courses or even complete degree programs via distance.

In *behavioural factor*, the key factors are 'teaching strategies' and 'tasks'. According to Alexander (2001), the important issues in a successful online education are teaching strategies, planning, thinking and teaching/learning context.

'Teaching strategies' is an e-learning activity, considered as a key issue in fulfilling education purposes. Moore (1989) states that instructors' roles are significant in order to motivate, support, and enhance learners' interest in participation. In accordance to this, Hrastinski (2007) argues the importance of teachers' roles to inspire students for online participation, especially in web-based educations. Shown in figure 3-3, Alexander (2001) points out teachers' strategies, as the closest layer to the students. This means that teaching strategies play an essential role in stimulating students to use such media. In some extent, the teaching strategy can inspire students to use online technology and participate in activities to support their educational and *collaborative learning*.

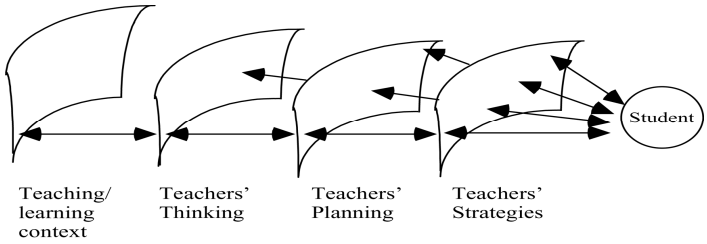

Fig 3-3 Levels of influence on student learning (Alexander, 2001)

On the other hand, as Dron (2007) discuss, too much instructional control may lead to unsuitable method, which makes students bored, unmotivated or confused. 'Tasks' and teaching/learning context is an issue that affects successful learning processes. Instructors play important roles in shaping students' educational interactions, especially their communications with peers. As Astin (1996) concludes in his study, *"the greater the interaction with peers, the more favourable the outcome"* (cited in Hrastinski, 2009a:79). The tasks, formulated by instructors, are significant to motivate students to collaborate with other students. Consequently, tasks or teaching contexts influence students' participation in cooperative and collaborative learning and using social media to work efficiently in a group.

3.5 Using Social Media to support Educational Learning

Bouwen and Taillieu (2004) state that ICT development enables globalization that calls forth the perspective of learning in organizations and societies. Online learning has recently grown significantly in academia, since learners have the possibility of continuous learning besides saving time and reducing travel costs (Mitchell & Honore, 2008). In online learning, Stephenson (2001), there are four major features: 'Dialogue', 'Involvement', 'Support' and 'Control' (DISC).

'Dialogue' is associated with different media communication, in different forms, among students as well as students and instructors. By developing the information system concepts, dialogue-based collaboration has been changed and getting better over time (Bouwen & Taillieu, 2004). Dialogue may include either real two-way communication or internal didactic conversation (Garrison & Baynton, 1987). "*When using a computer connected to the Internet with appropriate software (physical tool), it is possible to*

communicate with others by using language (psychological tool)" (Hrastinski, 2007:23). VLE, real-time/synchronous or asynchronous communication, forums for group discussion or debate, e-mail, bulletin boards, and texting, are some of the dialogue's examples (Hrastinski, 2009b; Stephenson, 2001). As Selwyn and Robson (1998) state, e-mail is a hybrid of oral and written communication to simplify acquiring and exchanging information. The study findings by Margaryan and Littlejohn (2008) show that e-mail is the main online medium that learners use to interact with lecturers. However, *"Students use their own tools (mobile phones, instant messaging) to contact peers and discuss relevant issues or collaborate whenever they need to"* (Margaryan & Littlejohn, 2008:15). Computer-based media is thus important for communications in distance learning and design of computer dialogues in online education (Dillenbourg, 1999b).

'Involvement' regards activities like student direction and collaboration in structured tasks, flow and motivation, and active engagement with material (Stephenson, 2001). More discussion regarding learners' participation in online learning and using social media besides the influencing factors are in the previous section, 3.3.

'Support' refers to the essential feature related to feedback on performance, peer-support, support service and software tools (Stephenson, 2001). Online technical support is also important for learners' interactions in online learning. Moreover, Miller and Lu (2003) present some strategies for online learning support, such as offering some additional materials like reference links, study links, assignment options, or posting exemplary past student work. This support tools can be implemented by using online technology, e.g., VLEs and e-mail, as supportive ways to support educational learning.

'Control' is about learners' authoritative power over important learning performance and the way to exercise that authority (Stephenson, 2001). Dron (2007:61) points out the fact "*being a learner implies a lack of knowledge and consequently requires control to be delegated to one who possesses that knowledge and is willing to communicate it, whether directly or mediated through a book, web page or computer program*". Stephenson (2001) argues that controls can cover responses to exercises, purposes, learning outcomes, overall direction and assessment of performance over the spent time on the course. Another issue pinpointed here is the ability of social media to enhance educational learning by supporting students' cooperation and collaboration, explained in the next subsection.

3.5.1 Social Media in Collaborative/Cooperative Learning

Interaction between learners via social media is a significant part of cooperative/collaborative learning in campus education, which is a predominant issue in this study. Sometimes, collaborative and cooperative learning are used as substitutable or identical terms; however, in some studies these terms are distinctively different according to the degree of task divisions.

Collaborative vs. cooperative learning'

"'*Collaborative learning' is a situation in which two or more people learn or attempt to learn something together"* (Dillenbourg, 1999a:1). In collaborative learning, all

participants contribute in doing sub-tasks and they work together. As Dillenbourg (1999a) notes, 'together' in this context can be referred to different interaction forms, such as face-to-face as well as web-based, synchronous or asynchronous, frequent or infrequent interactions (p. 2). Collaborative learning is an interaction between multiple learners, who are in some level of understanding (Dillenbourg, 1999b); this notion of collective learning is formed or developed from the fundamental building blocks. Given that social lives are highly interconnected, Bouwen & Taillieu (2004) state that in collaboration and virtual teamwork, independent actions of each individual may produce consequences on others' outcomes. In *'cooperative learning'*, Dillenbourg (1999a:8), "*partners split the work, solve sub-tasks individually and then assemble the partial results into the final output"*. In conformity, Curtis and Lawson (2001:22) state, in cooperative tasks, participants could agree on and distribute the elements of the task across group-members to work and complete the component independently. They can afterwards send the completed sub-tasks to the other members via synchronous or asynchronous communication tools. In cooperative work, sub-tasks are explicitly divided at the outset, which means roles and responsibilities are fixed, and not flexible to be shifted (Dillenbourg, 1999a).

Role of Social Media in collaborative/cooperative learning

As Underwood and Underwood (1999) mention, computer-based media can support, and are supporting different teaching/earning styles and interaction modes. They indicate that learners are more motivated for collaborative/cooperative learning via computers than in the traditional lecture; although, this is dependent on teaching strategies and tasks, discussed in sub-section 3.3, to motivate learners to collaborate or cooperate. The issues that lead collaborative learning to take place are principally the educational situation, available media, tools, and tasks (Dillenbourg, 1999b). The tools that support learners' collaborative or cooperative learning electronically includes e-mail, discussion boards, delayed text collaboration and file sharing, real time idea brainstorming and text or graphic collaboration (Bonk & King, 1995:290). Such media provides learners appropriate tool to understand the role of dialogue and thus interactions in collaborative/cooperative learning.

3.6 Positive and Negative Aspect of Using Social Media

The issues discussed in this sub-section will be explored in the empirical data. In the next part, more depth nature of benefits and limitations of social media use are explored.

Social Media Utility

"*A recent technology that has made it possible to communicate over a distance easier, quicker and cheaper is the Internet or often by exchanging text, is Internet and Computer-Mediated Communication (CMC).*" (Hrastinski, 2009a:80; Hrastinski 2007:22). CMC is an Internet-based way of communication over distance, which fulfills different educational purposes and has various definitions that may refer to synchronous or asynchronous interactions. CMC is virtually referred to as being email, chat, computer conferencing, or accessing information through online databases as CMC applications (Curtis & Lawson, 2001). The web-based tools, services, or virtual environments, as Margaryan & Littlejohn discuss, are characterized by decentralization of authority in knowledge creation and technology ownership. This enables new forms

of collaboration and knowledge sharing for learners. Furthermore, this enhances transferring knowledge between various contexts, e.g. online and offline realities or local and global networks (Margaryan & Littlejohn, 2008).

Online learning has recently grown significantly in academia, since learners have the possibility of continuous learning besides saving time and reducing travel costs (Mitchell & Honore, 2008). As Piccoli et al. (2001) mention, using online learning encompass advantages such as convenience and flexibility over traditional education. As Suna et. al (2008) discuss, e-learning is a web/Internet-based system, delivers education to learners and support them to access knowledge and information, regardless of where they are. In accordance, as Mitchell and Honore (2008) state, online learning comprises knowledge transferred through interactions over the Internet directly to the learner, beyond the classroom. In online learning, as there is less limitation and separation between learners and instructional system, interactions are easier and the learning process is more efficient (Moore, 1989). Social software, used in online learning, supports pedagogical communications. These tools help gaining new knowledge by accessing online resources, besides having the opportunity of interacting with instructors or students anytime, anywhere. As Hrastinski (2007) argues, the advantage of "anytime, anywhere" feature is that students with restrictions from family or work may still participate in online education, since social media enable them to access information and interact with others online. Online collaboration and communication give learners possibility of working with new people with different backgrounds to exchange and gain new knowledge (Curtis & Lawson, 2001). Daft et al. (1987) blend four factors as media utilities: immediacy of feedback, use of multiple verbal as well as nonverbal cues, language variety, and the advantage of being able to personalize messages (cited in Massey & Montoya-Weiss, 2006).

Andone et al. (2006b) note that social media mainly encompass two common benefits for the users: a) instantaneity and b) control over the environment. They discuss what students want is "*to be able to choose what to do and when and they are demanding it now*" (Andone et al., 2006b: 205). E-mail, Instant Messaging (text or audio/video based communications), interactive websites and social networking makes communication of friends, classmates, and colleagues possible via distance (Hrastinski, 2007). According to Curtis and Lawson (2001), online interactions by using media that include video, audio, and document sharing or real time text interaction, refer to synchronous interactions, which students showed a need to use. By using synchronous communicating devices, learners get quick and straight replies with no time delays. On the other hand, a very common type of communication among learners in online education is asynchronous communication, which provides learners with a higher degree of control and flexibility. It allows learners to log on to the online medium at anytime they wish, taking into consideration what has been posted and formulate the respond with having more time for reflection (Hrastinski, 2007). Hrastinski discusses online video-based resources, like YouTube, that support students to learn new knowledge out of classrooms. In addition, using discussion boards makes the advantage that learners can go back into the records of discussion to make more use of it (Curtis & Lawson, 2001).

According to Johnson and Johnson (1996), there are many advantages of using Social Media in collaborative learning; assisting each other when needed; exchanging

resources and documents; clarifying complex knowledge; sharing existing knowledge with others; giving and receiving reflections and feedback from others. Furthermore, advocating increased effort and perseverance among peers, engaging in group-skills, monitoring each other's efforts and contributions are significant media utilities in online learning (cited in Curtis & Lawson, 2001).

Negative Aspects of Using Social Media

An online interaction is very different from a face-to-face interaction (Curtis and Lawson 2001); it lacks the non-verbal cues, which may reduce the extent of the communication that occurs. In conformity, Markus (1994) points out misinterpretation as a negative aspect, due to limited ability of feeling exchanges, deficiency of transmitting the voice tones, gestures, eye contacts, and lack of any other important items used in face-to-face interactions. Arbaugh and Duray (2002) also discuss the disadvantages including the costly high failure rate. Margaryan and Littlejohn (2008) see use of social media as quite limited and mainly restricted to formal learning environments, due to teachers' choices in institutional educational learning. Technical problems are also a limitation, as learners may not feel that the peers are available or that the medium was perceived as accessible whenever they need that (Keller & Hrastinski, 2006). Bates (1995) proposes the lack of uniquely established grounded theoretical framework as the main negative aspect of using technology in terms of pedagogy.

Curtis and Lawson argue that different forms of asynchronous interaction are limited by the capacity of the communication links and only text interaction is accessible and reliable without difficulty. They also discuss that collaboration, as a learning activity, requires considerable time. Although online collaboration has advantages, it may be time consuming due to trying to catch up with everyone and to rely on others, who are responsible for other parts (Curtis & Lawson, 2001). Furthermore, online asynchronous conversations occur with substantial delays in receiving a reply. The issue that may emerge as a limitation in online collaboration is difficulty of interaction with new people, who do not know them well and having to rely on them to complete tasks.

In asynchronous communication for collaborative learning, the time delay is a negative issue since there is not an agreed or expected work schedule (Curtis & Lawson, 2001). In concurrence, communications through social media is not perceived as useful, and learners rather have a tendency to interact with others face-to-face (Massey & Montoya-Weiss, 2006).

4 Summary of the Empirical Findings

Outlined in this section is categorized result of the empirical data collection, the interviews. In this part, related questions and words are unitized and assigned into appropriate categories and by comparing categories, the data are connected and integrated.

4.1 General Information about the Interviewees

The following interviews are complementary data to the theoretical findings, to draw a trustworthy conclusion in the study. There are eleven interview questions, answered by twenty students at Uppsala University. Students are randomly picked in the libraries, student nations and cafeterias in Uppsala, in May 2010. The questions (enclosed in Appendix A), and answers (a summary is enclosed in Appendix B) are summarised below and similar questions are assigned into one category. The categories are presented through bulleting with general headers and the original numbers of the interview questions.

- Students' age, educational level, and field of studies (according to the Q 1, 2)

Since the students are picked randomly, the age interval is not specified and interviewees' ages vary between 19 and 39 with an average of 25-year-old. The students study in different subject disciplines at Uppsala University. Half of the interviewees are studying in graduate level, and the rest are bachelor or in some cases magister students, who are still studying in the undergraduate level of their four-/five-years program. Eleven of the interviewees were male and nine were female. The interviewees are studying in different subject disciplines and they do belong to different departments. More detailed information can be found in Appendix B.

- Frequency of social media utilization (according to the Q 3, 4)

All students use social media everyday or every other day; though, this utilization in many cases is not related to learners' educational learning. Social media can be used for both students' personal interaction or communication, and educational learning. By considering the result of the interviews (according to the tables enclosed in Appendix B), three groups of students are identified These groups are categorized according to how often students perceived using social media in general and how much this usage is to support educational learning. First group (table 1, Appendix B) is frequent users (n=5), who use social media so often for both of the purposes, personal and educational. Medium users (n=7) are those students used social media so often with medium relevance to their educational learning (table 2, Appendix B). The last group (table 3, Appendix B) are infrequent users (n=8), who still use social media regularly, but not so related to their studies and more for personal purposes. All students use informal communication media, which is mainly for their private life, and formal learning management system for their academic life. According to many students, the relevance of social media usage to student academic purposes varies and specially increases during the examination periods or near to the assignments' deadlines.

4.2 Technologies Used to Support Educational Learning

- What social media support students' interactions? (according to the Q 5,6)

Students use different technologies to support their educational interaction, to have access to or communicate with contents, instructors and students. Social media covers many online technologies that enable users to interact with other engaged people in educational learning. Moreover, it supports transformation of knowledge or information to develop collaborative and cooperative learning. Using online technology supports accessing to document, seminar and lecture uploaded by educators or other learners. Accessing e-book and online journal; besides communicating via internet e.g. through e-mail, IM, Web 2.0 and social networking, online forum, discussion board, and many other examples are all shown in figure 4-1. The following figure represents a conceptual model regarding different web-based technologies that students said that they were using to support their educational learning.

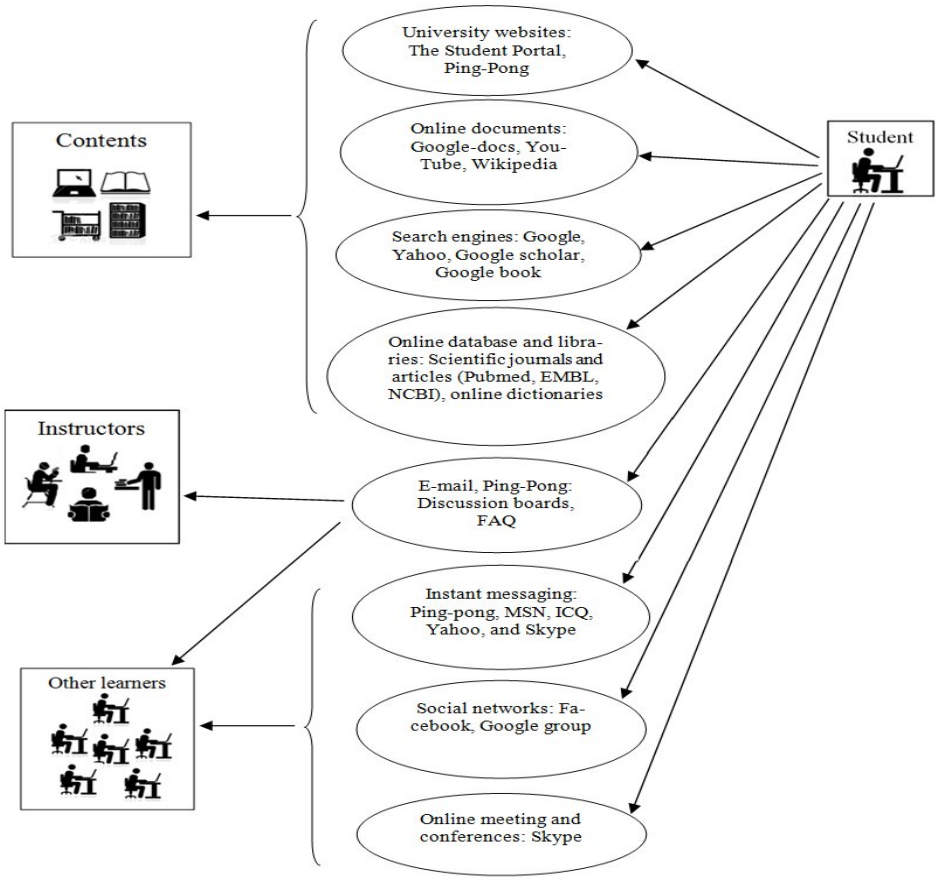

Fig 4-1 Online technologies used to support educational learning

4.3 How Students Use Internet-Based Technology

- In what ways is social-media used to support educational and collaborative/cooperative learning (according to the Q7)?

According to the first student, "*Through networks, students have access to the lecture notes, assignments, labs' information and instructions*". He continues that accessing lecture notes is an advantage since students can download and pre-study the lecture-notes in advance to the seminars or lectures. Consequently, students get a broader vision about the lectures, which helps them understand the contents better. Using formal learning management system is very frequent among learners, which is significantly helpful. Students consider the formal VLE useful to get course guidelines, lecture notes and other information regarding courses. All students but two mentioned university websites as a mean to have access to the course materials and related information that teachers upload, and one mentioned it as a fast and remote way of getting results of courses. Checking the university website regularly is a helpful way for students to be updated without being physically present at the university. By checking the university website, students can look for new documents and find related documents to the courses. In addition, one interviewee points out VLE as a way of communication synchronously and asynchronously with their classmates so efficiently.

Students state that social media helps them to access online databases to find related scientific articles. Three students mentioned Wikipedia, since they believe that using Wikipedia mainly helps them to get a broad picture, and to understand the background of the issues better. "*Wikipedia is a good resource to get a general idea about things and getting hints what to search about in the articles*". For instance, two biology students talked about using different web-based technology to check and see "*if the experiment has already been done by anyone else*". Students from language department, use some special software that helps them to improve their accentuation, besides using online dictionaries. A language student mentions about the online software, dictionaries and encyclopedia that are used to understand the phonetics, meaning and culture of the languages. She said that appearance of this kind of software brings more independency in learning a new language effectively.

Students use ICT to access available information and resources on the Internet. They mention YouTube to watch educational video-clips, which help them to improve understanding. Moreover, the video-clips can sometimes be used in students' presentations to help others to understand the issue. For instance, one student explains about his experience that, "*in a presentation in the leadership course, we used Obama's video-based speech through YouTube that was so useful*". As another student mentions, watching related video-based tutorials from YouTube is an easier and faster way rather than reading books to develop educational learning.

E-mail services are mainly used for learner-instructor as well as learner-learner interactions. Seventeen students use e-mail to share ideas, arrange appointments, send documents or tasks, and submit papers to teachers or other group-mates/classmates, and other things. One biology student says, "*e-mail is used to forward data from experiments*". An economics student says, "*When we want to send documents, we use e-mail or while chatting via messengers we send documents*".

By using synchronous media, students get straight answer to their questions and problems. Making private groups through online networks like MSN, Google group, and Facebook is mentioned by some students in order to upload documents or tasks in collaborative/cooperative learning, to make files available for other group members.

According to a student, "*Using Google group is to make a group, uploading files to share information with the other students*". Instant messaging (IM) is also used for learner-learner interaction. Some of the students believe that synchronous social media is significantly supporting students' collaborative and cooperative learning. Students communicate via IM or social networks, in order to plan appointments, while collaborating on a group-work. Furthermore, learners support cooperation works, as they mention, by working individually in different places and consulting with each other from a distance, via social media to get direct reply or new ideas, besides sending their sub-tasks to other group members. According to a student, "*if one of the group members cannot come to the meeting, then we can be online and still keep contact instantly with the missing person*". According to students, in a cooperative work, learners can share ideas and documents, or upload the latest version of their works to be accessible by other members from anywhere, at anytime.

Voice-based or video-based media such as Skype is used for group discussions regarding the courses or mostly group assignments. As students mention, Facebook can also be a useful application to find course-mates' or classmates' contact information to be able to communicate with them. As one student says; "*students can communicate via Facebook to ask concrete questions and get quick reply, since students are used to check their Facebook so often*". Another student states, "*we make closed groups for arranging the appointments for studying together. Anyone can put the info there available for the other members of the group, and others who are interested can pick the data and use it*".

4.4 Students' Perceptions on Using Social Media

- Benefits and advantages of using social media (according to the Q8,9)

The interviewees have pointed out most significant benefits gained by using social media. The biggest benefit, mentioned by fourteen students is the accessibility of interactions anytime/anywhere. Eleven students talked about time saving as one of the noteworthy benefits. Other important issues mentioned by students are convenience, being free or cheap, mass info-sharing, flexible, faster, regular updates and interaction, efficient since users have time to think and answer, and independency. These advantages help student learn to interact efficiently meanwhile having access to the required resources and interact with other course participants or teachers.

Students can share data and develop new ideas without necessarily being in the same geographical location. One interviewee notes, "*Social media reduces the time and location mismatching problems*". Through web-based technologies such as VLE, learners can be updated regularly by having access to what educators would share with them alike as lecture notes, assignments, labs' information and instructions. Online resources make students able to get prepared before the seminars or lab-works. Learners can find related documents through search engines or using online video-based resources. Some versions of tutorial-videos/-clips are helpful to understand the topic better, rather than reading the books. Students use online video-clips in the presentations to help others to understand better about what they are presenting. Online databases and library services are useful to give students access to the existing scientific journals, papers, experiment, thesis works and so on. "*Wikipedia is a good resource to*

get a general idea about things and getting hints what to search about in the articles". Thus, it helps learners to interact with the most adequate resource to access the most related and reliable data efficiently. "*Students get their desired related knowledge and obtain a broader learning view regarding different aspects of an issue"*.

Students are satisfied with the use of social media since they can have their own schedule besides keeping contacts with others. Using online dictionaries, encyclopaedia and online software to check and improve non-native language speakers' accentuations, makes students more independent. "*Regular use of social media improves students' interaction skills, without need of using body language*". Since such media makes data virtually available, mass data can be accessed by many users simultaneously from anywhere without waiting time. It can be at anytime, even after working hours from everywhere with Internet access. Students can work in distance and still keep interactions with resources and other students. As a student says, "*by using social media, students feel the globalization of the world that makes physical distances less significant*". He continues "*communications has become faster and easier through e-mail, discussion board, IM or using FAQ in order to get quick replies*".

By using social media, students eliminate the obligation of face-to-face meeting to ask questions or share files. According to a student, *"The main advantage is time saving. Moreover, social media like e-mail makes everything official and saving backup or documenting. E.g. having a copy of what we send via e-mail*". Another significant advantage of using e-mail, according to other students, is that students have access to their data from different computers, by connecting to the Internet and entering to their e-mail. When sending an e-mail, the sender can save a copy of the sent e-mail with all the information and attached files. The main benefit mentioned by one from using IM is "*to get straight answer from the other students, when you have a question or want to arrange group meetings*". In fact, it is efficient and easy to get the reflections of other students and arrange group meetings, when students are online at the same time.

Web 2.0 like social networking such as Facebook or even formal VLEs like university website, enables students to find students'/instructors' contact-information for communication. Making closed groups in social networks can help students to arrange group meetings, sharing ideas or the latest version of the documents, giving feedback on each other's work and invite other students. Some technological tools make students capable of making voice calls and videoconferences to explain things easier to the others. Accordingly, it still works to have group meetings even if one or more group members cannot come to the meeting. They can be online and still keep contact instantly with the absent member(s). Through social networks, students can interact with instructors anonymously and send them feedback to develop educational learning. Students can leave passive message or ask questions on VLE and get the reply by other students, group-mates or teachers. According to one of the students, "*we do not have to call other students and can just leave passive information. Thus, anyone who needs the data can pick their required knowledge"*.

- Limitation and disadvantages of using social media (according to the Q 10,11)

Dependency on the Internet connection to have access to the data and possibility of Internet disconnection are also negative aspects. Unreliability is an avoidable limitation. When planning for an online meeting and problem with connection or software downsides comes up, the work must be cancelled or postponed. Power failure or fluctuations and losing some hours work on a project or program can be a big risk. There are different types of social media, like MSN, Skype, and Google-talk, which are used by different users; thus, incompatibility of platforms can be considered as a problem. One says, "*The limitation can be lack of platform compatibility, which means that students may use different types of social media that may lead to lack of communication".* Sometimes, there is limitation on size of the attached documents to send; when the file is large, users cannot send it through social media. Thus, they should either split it up into smaller parts or transfer it by other instruments like data traveller, which may be time-consuming.

Some students mentioned that there is no access to the full text articles in the university databases, out of departments. One specifies the limitation as "*Students cannot access the general material from outside the network and they have to be at school to have full access to material.*" Another says almost the same thing, "*We have access to the databases full text articles only from school and not out of it*". The technical parts may not be so reliable; for instance, students rely on social media to send the final paper before the deadline and the system crashes at the last minutes and they will not be able to submit the papers. A computer science student mentions the limitation of message modification or deletion on the massage board, after it is read by another student. A student talks about that interacting through social media, like transferring a file, sometimes takes very long time. Functional problems may also happen; for example, when the recipient is offline and the software shows the person online. Therefore, the system could be perceived as unreliable, when one sends documents and the other person does not get it.

Many interviewees believe that by using social media, there will be less human interaction; therefore, it cannot be as interactive and effective as direct contact. There are more boundaries for online communications and it is not as effective as face-to-face communications. This causes loosing face-to-face contacts, which leads to less direct interaction and reduces the explicit knowledge transfer efficiency. Sometimes, it is very hard to describe a picture and there might be misunderstanding due to lack of body language or feeling interactions. Learners also talk about social media limitation for writing formulas, in IM or email, since they need some special formats and symbols. One student says that learners thus in compensation should explain every detail, which is inefficient and takes time to understand and follow the questions just as it should be.

By using social media, there are less face-to-face group discussions and experience of collaborative group work, which reduce learners' spontaneous reactions and collaboration skills. This makes learners less innovative thinkers and poor problem solvers. Since students work on different parts of a project separately, they do not truly understand the meaning of collaboration. For instance, member of a group just develop their cooperative skills by working on the sub-tasks. Consequently, they may never learn how to work together on all parts of a project with other people.

There are many available data, which make learners confused and unable to find the most relevant data regarding the issue. A biology student talks about the excessive data, available on the Internet, which makes it hard for students to find the most related and trustworthy data. There are many similar experiments on the Internet; it is hard to recognize which is what we want only by reading documents. Trustworthiness is a significant issue, since there is no specific way to recognize the information is reliable and can be generalized. In addition, students can easily get distracted by other interesting issues and be unfocused on the theme of the project.

People rely or depend on online information too much and they do not have knowledge on their own without having access to online recourses. Using Internet rather than other available information is the way they mainly use for solving problems. Hence, they get too lazy to use their own knowledge and cannot be quick responders, since they need some time to formulate their thoughts. Since learners have free access to online documents, taking experiment from Internet-based resources instead of doing them by themselves and trying to learn all processes is another negative aspect that reduces students' educational learning. Social media has negative impacts on students' communication skills to ask questions from instructors or maybe other students.

Social media cannot compensate instructors' knowledge transfer to the students. "*Some instructors think that with utilization of technology and uploading extra information, there is no need to the extra lectures anymore*", says one student. However, students believe that online data would not be as helpful as traditional lectures or seminars. New updates of information and documents by tutors after official working hours may cause students missing seminars or part of a course, if not regularly checking the course-website. Always accessing to social media makes students unable to "*distinguish their personal life and school life*". "*Social media makes students lazy to go out, have face-to-face communications, and ask their questions to learn more. It makes them less active and social".*

5 Discussion

What is provided in this section is the answer of the research question by analyzing the empirical findings against the theoretical frameworks and models.

5.1 Social Media Use for Educational Interaction

As discussed in the result section, all students were frequent social media users and used media almost every day. Nevertheless, only a quarter of them are using social media frequently for academic purposes to support their educational interactions (table 1, Appendix B). The rest (table 2 and 3, Appendix B) are students, who use social media mainly for their personal communications with their friends, family and other contacts, and not so related to their academic life. According to the figure 5-1, there are different interactions in educational learning. As explained in the theoretical part, the focus in this study is on three phases: learner-content interaction, learner-instructor interaction, and learner-learner interaction. The following figure inspired by figure 3-1, is shown to the interviewees to make the questions clearer while conducting interviews.

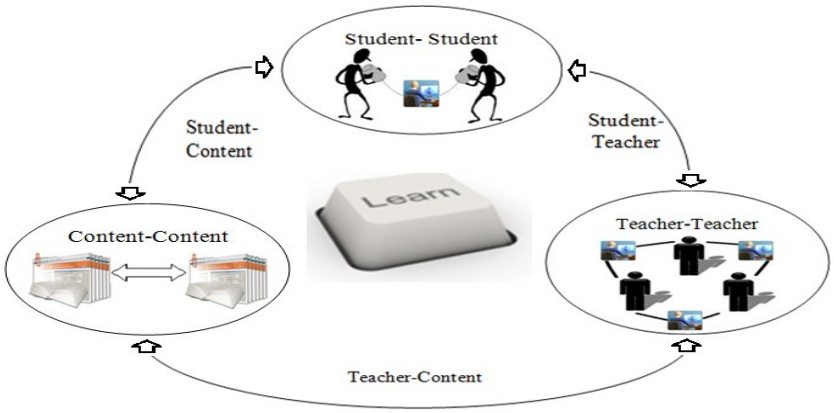

Fig 5-1 Interaction modes in educational learning (adapted from Anderson and Garrison)

According to the last section, learners' online interaction with content and learners is more common than with instructors. Students mention technologies like VLE that support interacting with contents or online documents. Formal VLE is a frequently used way of accessing materials; all but two students named specifically "university website" as the main online method to access course contents, guidelines and other related information, or even getting their course results. Online books, online databases and search engines, dictionaries, encyclopaedias and other available online recourses are also mentioned by learners as important ways of gaining trustworthy knowledge and get the answers of questions. Learners use social media such as Wikipedia to get ideas or general visions on the related subjects, YouTube clips or tutorials to understand topics better.

The second most frequently mentioned use of social media was to support learner-learner interactions. However, according to the theory part, as Margaryan and Littlejohn state and the finding in this study also confirms, e-mail is the main tool for learner-instructor interactions, which is mentioned by interviewees. E-mail is an important

social media that supports educational as well as collaborative and cooperative learning. On the other hand, as Margaryan and Littlejohn discuss, the empirical study illustrates that there is no specific social media for learners' interactions and many different media are used to communicate with learners. Some students mention e-mail as a medium used to communicate and share information and documents in cooperative learning; but in conformity with Margaryan and Littlejohn, learners contact peers, discuss and collaborate via their own tools, such as IM, personal e-mail, web 2.0 and others according to their needs. social media, such as Web 2.0 or social networking like Facebook, Google group, Google doc, MSN group or even formal VLE can be used for communications both synchronously and asynchronously. Learners use such social media to create private-study-groups and share ideas in addition to upload files, to support collaborative/cooperative learning or group studies.

The synchronous social media is suitable to get straight answer from the other students, when having questions, wanting to share files with group mates, setting group meetings or discussing related issues. A majority of the students mentioned IM or Skype as the main synchronous communication to support group works. However, although technology supports student educational and cooperative learning, it may have negative impacts on collaborative learning. Use of social media makes students participating less in collaborative activities and motivates them more to divide tasks and work on parts individually. Subsequently, by using social media, such as e-mail or IM, they send sub-tasks to each other. This may consequently have negative impacts on students' collaboration skills or working together as a group, to solve a problem collaboratively.

5.2 Students Perception on Influencing Factors

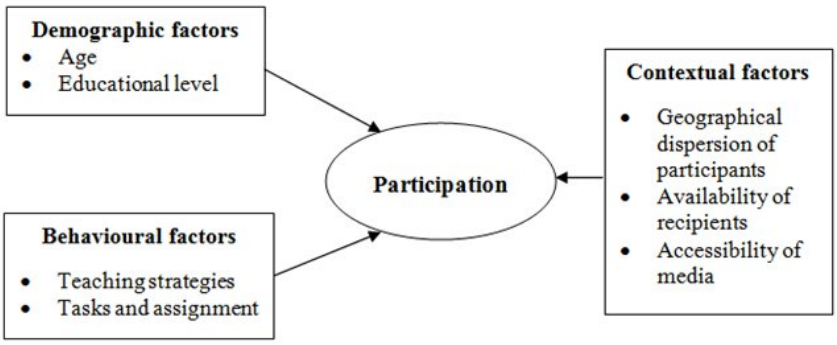

Fig 5-2 Significant factors for online participation (Hrastinski, 2007:106)

According to the figure 5-2, contextual factors include three main issues, which are noticeably significant, as almost all interviewees talk about them. social media is a bridge for geographical dispersion that makes interactions possible via distances. More than two-third of the interviewees state that using social media enable learners to access and communicate with other engaged educational people at anytime from anywhere. This means learners do not ought to be physically present in a specific geographical location and can contact their instructors or class/group mates by means of appropriate physical tools. Using online technology makes it possible to access data that students require regardless where they are or when it is. Another important issue in using synchronous communication is availability of the recipient. Some students refer to the importance of platform compatibility, which refers to the significance of the recipient

availability. Learners use media that are used by the others, in order to have access to the students more often. Many students are motivated to use Skype, since others are using it and thus they can interact with each other anytime they are online. Learners would like to have accessibility to the social media without limitations and technical problems. They are looking for social media with good technical support, to get easier communication and avoid facing problems. Long attaching time or sometimes size limitation for attaching a document makes students disappointed and may be the reason of migrating into use of another software. One student mentions the system down side in a critical moment as a problem, which requires more technical support. On the other hand, students believe that more support from the teachers are required. Uploading some complementary documents may be supportive; however, learners expect more support by having extra lectures, when it is needed. Technology enables learners to access an ocean of online resources and information, but may make them unable to be focused on the issue. As one interviewee states, there are excessive online data and it is quite hard to concentrate on the theme of the work. What is more, student should attempt to find the most relevant data with high trustworthiness to develop their educational performances.

Drawing on the interviews, which are only 20, finding a pattern for the demographic factors is quite hard. According to the theory section, when the range of the ages gets further from the digital age group, participants need more motivation to get involved in online education. This is not a new issue but more related to human tendency of remaining in the way they are used to be. According to the empirical findings, the range of interviewees' age is between 19 and 39. Although the average age of each group, frequent, medium and infrequent users is between 24 and 26 years, in the frequent users, all the students are less than 30 years, which means they all belong to the digital age group. Moreover, the two oldest students in this study belong to the infrequent user group. Half of the interviewees in this study are graduate students and the rest are undergraduate students. However, since there are only 20 interviewees, all at the university level from Uppsala University, they all follow an almost similar teaching strategy. Thus, no clear pattern is found to show differences between different levels.
By looking at the behavioral factors in figure 5-2 and in accordance to the theoretical explanations, students' use of social media for educational purposes is related to the teaching strategies. Students' involvement in online collaboration, cooperation and educational learning is mainly guided by instructors' strategies and the teaching contexts or given tasks. When information regarding the course, lab tasks or assignments, or students' grades is available on the VLE, learners get motivated to use social media often to be updated regularly. By uploading task on students' networks, instructors inspire students to use such technology to find related data and improve the online collaborations and group works.

5.3 Why Students Are Using Social Media

In accordance to the theoretical frameworks, the empirical findings illustrate similar result regarding the significant benefits and advantages of using social media in educational learning. As it has been discussed above in the theoretical framework section, almost all students believe in anywhere/anytime, as an important issue. Learners intend to access other engaged educational factors, e.g. content, teacher, and student, from anywhere at any time. Therefore, by using social media, physical

distances get less significant and students more obviously touch the globalization. As discussed in the theory part by Moore (1989), many students in agreement mention that using such media makes interactions more convenient, faster and cheaper. Almost one third of the students believe that social media is a good way of communication, since it is mostly free of charge, which can be considered as a big advantage for student-life. More than half of them also think that saving time is a significant issue, which makes their interactions more efficient, though may not be more effective. Efficiency in asynchronous communication is a significant factor, since students have time to think about their questions or answers and they have the opportunity of regular interaction, even though they cannot go to the university. For instance, when one is absent, the other fellow students or even teachers can update the student to help her/him to catch up.

Flexibility and independency are also two important matters. Students could have their own schedule and still keep in contact with others. They can be independent by using online recourses and available online information. One student notes mass information sharing, which is about mass data transferring in a short amount of time. Additionally, many learners can access one document simultaneously, without waiting time. For instance, many students can read an article or an online book simultaneously, instead of ordering it in libraries and waiting to get the printed version. Students mention that they can send useful information to each other at the time they want, with no longer need of meeting the person and handing paper version of data over to them. Thus, in agreement with Margaryan and Littlejohn (2008), web-based media, environments, and services make learners able to form online collaboration and share knowledge with others in a faster, cheaper and more comfortable way.

5.4 Negative Aspects of Using Social Media

According to the empirical findings and in conformity to the theoretical framework, almost half of the students think that interactions are less effective by using social media. This reduction of effectiveness might be due to losing body language and complexity of explanation, lack of symbols and difficulty of writing or sharing formulas. There is excessive reliance on social media; however, it may reduce the level of reliability since there may be technical problems such as power failure, Internet disconnection or platform incompatibility since students use different Social Media. Thus, users cannot achieve what they have planned and have in some cases to postpone their tasks or find another spontaneous solution. Since everything is available on the Internet, almost one-fourth of students pointed out that regular use of social media make students less creative and innovative thinkers. Students rely more on the online knowledge rather than their own, which makes them lazy to thins and come up with new ideas and solutions. Always interacting over the Internet reduces students' physical and mental activities, which leads to make student less interactive and less social. They would have fewer discussions and less collaborative skills since they only do different parts of a project, with no direct communication and fully understanding all different parts of the project. They send documents to each other through social media, thus they do not have opportunity to explain all the details. Accordingly, their communication skills become poor, which leads to more misunderstandings, and face-to-face communication would be harder for them.

There are technical limitations such as document size limitation for attaching documents to send it to other learners or instructors. In other cases, there are also functional limitations, e.g. long time to send a document, language limitation or encoded errors, besides having more boundaries for communications. Instructors lean on technology more than need and instead of allocating more formal lectures (when required), sometimes they upload complementary documents, which would not be as effective. Moreover, as one student explains, being available all the time by using online technologies causes a mixture of personal life with academic studies. Another mentions about less concentration and not be able to be focused on a topic. Students can easily get distracted by other interesting issues on the Internet, thus this leads to make learners less productive.

5.5 Reflections

The research could have had different perspectives, alternatively, campus instructors or VLE coordinators. It also would have been interesting to interview distance instructors involved in e-learning. However, in this study, there was no opportunity of meeting staffs at Uppsala University. Hence, the focus here was kept on students' perceptions, since considering and understanding students' perspective by hearing their experiences in their own words is an important issue. A good education cannot be designed if students' perspectives are not taken into account. In conclusion, a higher number of interviews could have been conducted to increase the validity and generalizability of the study.

6 Conclusion

Finally, this section concludes the analysis of the study and entails the answer of the research question. Furthering, there are some reflections and further related studies.

An education supported by social media is a development of online learning technology, which is a complementary method to the traditional educational learning. To come to a viable and sustainable conclusion, this study illustrates that almost all students are persuaded to use social media frequently for their interactions. This is while almost a quarter of students use such technology often to support their educational learning. The rest is using it for non-academic purposes in their personal life. Learners frequently use formal VLE to access contents and e-mail as the social main media to communicate with instructors. However, they use different social media to contact peers, discuss, collaborate or cooperate with learners. Social media strengthen the online learning and collaboration/cooperation, which supports academic learning process. Internet-based interaction is a solution to paper-based document limitation and problems. There is no longer need of dealing with mass papers to access to the resources or sub-tasks that are done.

Some examples of Social Media for efficient interaction to support educational learning are web 2-0 or social networking, e-mail services, and online video-based or text-based information e.g. YouTube and Wikipedia. Moreover, voice and video technology, e.g. IM, and Skype, enable students to improve cooperative/collaborative learning in a faster and cheaper way. Students can find their classmates to engage in dialogues, cooperate or collaborate synchronously or asynchronously through chat, forum, discussion-board or e-mail. Learners can divide projects, choose sub-tasks, take responsibility of the sub-parts and send files or share data in a quicker way with lower price by the help of synchronous (e.g. IM or Skype) or asynchronous (e-mail) communication. On the other hand, voice- and video-based social media (e.g. Skype) supports collaborative learning and make it more efficient by enabling learners to dialogue or discuss via distance without necessity of being in a specific geographical location.

Globalization is an issue that would be more tangible by the use of online technology to access resources and people anywhere, anytime. By using social media, learners get the possibility of promoting distance interconnections. Additionally, social media makes interactions more efficient with increasing learners' flexibility and independency. Accessibility of data with no longer need of being in a specific geographical location supports development of educational learning. Furthermore, it enables them to share knowledge, send files to other learners easier and faster, and to build effective communications. However, according to students' perception, characteristics of web-based interactions are different from direct interactions. Communication via social media is not as interactive and effective as face-to-face communicating. Regular use of technology makes students less active and unsocial and may have negative impacts on their communication and collaboration skills.

In conclusion, to a moderately sufficient extent, it is justified that social media can be a complement tool to the traditional educational system in higher education. There are significant advantages to motivate academia to adopt using social media to reduce geographical dispersions and support studies. The result of this study shows, almost all

learners are frequent users of online technology and they all use social media in a similar way to interact with other engaged factors. Moreover, the usage of social media to support student' collaborative and cooperative learning is guided by the teaching strategies and other influential factors.

6.1 Further studies

A number of areas for future studies within this field remain need to be explored. Further development on the similar and different contexts can be done on this study.

For further developing of this study, it is recommended to take into account other perspectives such as educators or e-learning supporters, in addition to conducting more interviews with students in other universities.

It would also be interesting to investigate whether younger generations use social media more frequently to support their academic learning, or if educational level plays an important role in students' participation in using social media in the 21st century.

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Appendices

Appendix A: Interview questions

Social Media:
Social media is any online or web-based technology, based on interaction and communication between people. It supports transformation of knowledge or information to develop educational and collaborative learning.

Some social media technologies are:

- Online document, seminar and lecture;
- E-book and online journal;
- Internet-based communication and instant messaging (IM), such as e-mail, MSN messenger, and so on;
- Online forum, discussion board, Facebook and other online communities.

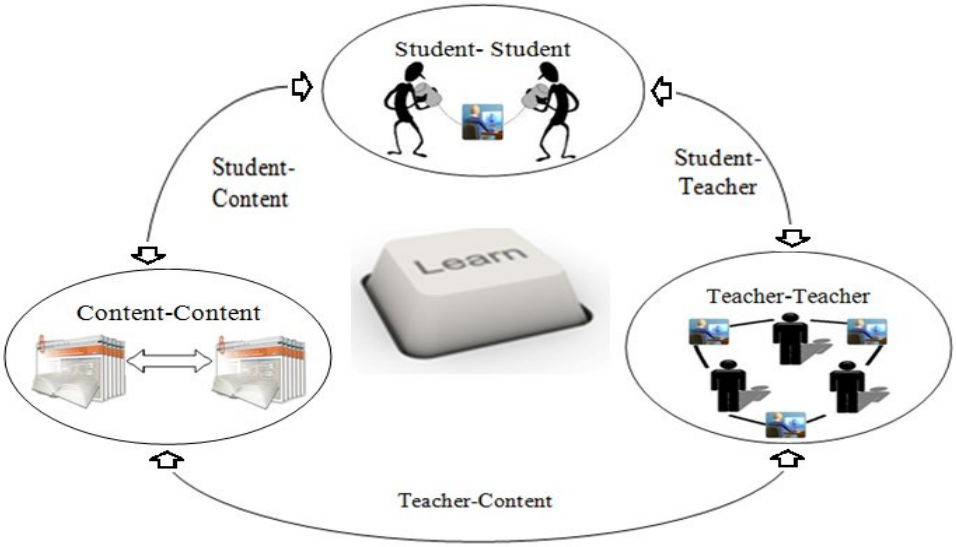

Fig 0-1 Modes of Interaction educational learning (inspired by Anderson and Garrison, 1998)

Interviewee's information:

1. How old are you?
2. What is your program and in which academic level do you study (BS or MS)?
3. How often do you use the Internet-based technologies (such as Ping-Pong, university email, the student portal, Facebook, YouTube, IM, etc...)?
4. How much do you think this technology usage supports your education?

Interviewee's information according to the model:
(regarding student-student, student-teacher & student-content)

5. Which social media do you frequently use to enhance your educational learning (for instance to access to the material or the required information regarding courses)?
6. What technologies do you normally use to enhance your collaborative learning (For instance to do the group assignments or projects more efficient and effective)?
7. How (in what way) do you use the most frequent social media you use?
8. What is your primary motivation or purpose to use this technology?
9. What advantages do you gain by using theses social media technologies?
10. Have you experienced any limitations of these social media technology (Are there certain things that you would like to do but cannot)?
11. What are the negative aspects for academic learning of using the social media that you use?

Appendix B: Summary of the Interview Analysis

Table 1 shows the group of students, who are frequent personal social media users with frequent academic social media use

Table 1: Frequent Users

St. #	***Original St. # & St. Age***	***St. Subj. discipline***	***S.M. for personal use***	***S.M. for academic use***	***Using S.M. for interacting with contents***	***Using synchronous and asynchronous media for human interaction***	***Benefits***	***Limitations***
1	(2) 24	BS, Business studies	Everyday	High relevance	VLE to access contents	E-mail, Google docs, Skype to communicate and share documents with students	Free/cheap, accessible anywhere/anytime	Less interactive and effective
2	(4) 28	MS, Computer Sience	Everyday	High relevance	VLE, Wikipedia, YouTube for tutorials	E-mail and Skype to communicate with students	Time-saving	Power failure, connection problems, less effective
3	(10) 23	BS, Economics	Everyday	High relevance	VLE, Search engines, online databases	E-mail and IM to communicate and share documents, Facebook to find students' contact information and create groups for study purposes	Time-saving, mass info-sharing, accessible anywhere/anytime	Mixing personal life with academic studies, lack of platform compatibility
4	(13) 26	MS, Human-computer interaction	Everyday	High relevance	VLE	Skype for voice and video conference, Google groups to create groups and share documents, Facebook, e-mail	Time-saving, convenience, accessible anywhere/anytime	Less effective, less concentration, less creative thinking
5	(18) 22	BS, Political science	Everyday	High relevance	VLE	IM (MSN) for tasks division, online meeting to share information and files, create MSN groups	Time-saving, convenience, accessible anywhere/anytime	Less effective, more misunderstandings, connection problems

Table 2 shows the group of students, who are frequent personal social media users with medium academic social media use

Table 2: Medium Users

St. #	***Original St. # & St. Age***	***St. Subj. discipline***	***S.M. for personal use***	***S.M. for academic use***	***Using S.M. for interacting with contents***	***Using synchronous and asynchronous media for human interaction***	***Benefits***	***Limitations***
6	(5) 26	MS, International business	Everyday	Medium relevance	Search engines, Wikipedia, video-based tutorials & lectures for broader visions and better understandings	E-mail, IM (MSN) for communications	Time-saving, convenience, efficient	Less interactive and effective, more misunderstanding, fewer discussions, less creative thinking
7	(6) 26	BS, Economics	Everyday other day	Medium relevance	Search engines, online databases	E-mail, IM (MSN) for communications	Time-saving, flexible, accessible anywhere/anytime	platforms incompatibility, less collaborative skills since students do different parts of an assignment without contact
8	(9) 23	MS, Hydrology	Everyday	Medium relevance	Online databases, VLE to access content and information	E-mail, IM (ICQ) to get a quick answer, Facebook for creating groups and locating students	Cheap, time-saving, convenience,	Less efficiency due to lack of symbols and difficulty of sharing formulas
9	(12) 21	MS, History	Everyday	Medium relevance	VLE like the student portal or Toledo	E-mail to contact teachers, Skype/MSN or Facebook to contact students	Time-saving, convenience, efficient	connection problems, less effective due to too much reliance on social media
10	(15) 24	MS, Economics	Everyday	Medium relevance	VLE	E-mail to contact teachers and share documents, IM (MSN), Skype, and Facebook to find students	Free/cheap, accessible anywhere/anytime, convenience, efficient	Functional limitation, less reliability, sometimes taking long time to send something
11	(20) 29	BS, Economics	Everyday	Medium relevance	VLE, online library services and databases	E-mail for communication with teachers and students	Free/cheap, accessible anywhere/anytime, convenience, efficient	Connection problems, less activity and interactions by staying at home
12	(19) 25	BS, Social	Everyday	Medium	VLE, search engines,	E-mail, IM (Google talk)	Flexible, faster,	Less activity and creativity

		Media		relevance	online databases		accessible anytime/anywhere	when students stay at home

Table 3 shows the group of students, who are frequent personal social media users with infrequent academic social media use

Table 3: Infrequent users

St. #	***Original St. # & St. Age***	***St. Subj. discipline***	***S.M. for personal use***	***S.M. for academic use***	***Using S.M. for interacting with contents***	***Using synchronous and asynchronous media for human interaction***	***Benefits***	***Limitations***
13	(1) 26	MS, Organic chemistry	Everyday	Low relevance	VLE and students' networks	IM to communicate with students	Regular updates & interaction, efficient convenience, Time-saving,	Less social, more boundaries, document-size limitation, less interaction & effectiveness
14	(3) 21	BS, Political science	Everyday	Low relevance	VLE, online databases	E-mail and sometimes IM to contact and set the appointments	Time-saving, convenience, accessible anytime/anywhere	Rely too much on Internet sources, less creative thinking
15	(7) 22	BS, Microbiology	Everyday	Low relevance	Scientific search-engines and online databases like Pubmed or Embl, Wikipedia	E-mail, VLE	Free/cheap, accessible anytime/anywhere, Regular updates	Easy to get distracted, local access of databases, less effective due to difficulty of explanation
16	(8) 30	MS, Computer science	Everyday	Low relevance	VLE	Skype for group assignments	Regular updates, convenience accessible anytime/anywhere	Lack of platform compatibility since students use different social media
17	(11) 39	MS, Computer science	Everyday	Low relevance	VLE, FAQ and discussion board, online library services and databases	E-mail teachers (Use the formal VLE frequently), VLE to contact students and teachers	Convenience, accessible anytime/anywhere, Regular updates	less spontaneous contact, too much rely on Internet sources
18	(14) 26	MS, Human-	Everyday	Low relevance	VLE, Scientific search-engines and databases	E-mail to share documents, Facebook	Convenience, time-saving, efficient	Lack of platform compatibility, documents'

		computer interaction			like Google scholar and NCBI	to find students and contact with them	since users have time to think and answer	size limitation, too much rely on Internet sources, less innovative thinking
19	(16) 28	BS, Computer science	Everyday	Low relevance	VLE, online dictionaries	VLE, IM and email for keeping contacts with other students and teachers	Accessible anytime/anywhere,	Less effective due to lose of body language, too much rely on Internet sources, formal lectures are complementary
20	(17) 19	BS, Nordic language	Everyday	Low relevance	VLE,	E-mail to share documents.	Accessible anytime/anywhere, independency	Language limitation, , connection problems

S.M.: Social Media

Appendix C: Definition of Key Terminology

Asynchronous learning	*Learning where learners are not in the same geographical area but still can indirectly interact with each other at different times (Mitchell & Honore, 2008).*
E-learning	*Using technology over the Internet to mediate and transfer online information to enable learner gain new knowledge (Mitchell & Honore, 2008).*
Collaborative Learning	*"A situation in which two or more people learn or attempt to learn something together" (Dillenbourg, 1999a:1).*
Computer-Mediated Communication	*An Internet-based way of communication over distance, which has made it possible to interact over distance in an easier, faster and cheaper way (Hrastinski, 2007).*
Computer-Supported Collaborative Learning	*A technique to support collaborative learning by using technologies such as computers and the Internet, which is used in psychology, computer science, and educational research.*
Cooperative Learning	*An approach to support organizational and educational activities, in which participants split the work and each gets the responsibility of a sub-task, solve sub-tasks individually and then assemble the partial results into the final output (Dillenbourg, 1999a:8), and when the group succeeds, it means that all partners succeed.*
Information and Communication Technologies	*The study of the technology used to handle information and aid communication, coined by Stevenson 1997 and promoted by the new National Curriculum documents for the UK in 200 (dictionary.com).*
Instant messaging	*A form of synchronous communication between two or more individuals, which is in order to interact directly, in real-time and in a text-based communication over a network, such as the Internet.*
Online Learning	*Refer to E-learning.*
Social Media	*A number of web/Internet-based applications for social interactions, which allows information creation and exchange through dialogues.*

Synchronous learning	*Learning where learners are not in the same geographical area but should be online at the same time to communicate with each other (Mitchell & Honore, 2008).*
User Generated Content (UGC)	*An application refers to various kinds of media content that are publicly available and produced by end-users to make social media use possible. (Kaplan & Haenlein, 2010).*
Virtual Learning Environment (VLE)	*An educational platform designed to deliver and support teaching and learning by using online technology with special visualization. On the other hand, VLE is defined as a package that lecturers use for discussions and sharing document, which requires minimum technical skill* (*Glossary, 2010).*

Appendix D: List of acronyms

IM*: Instant messaging*

VLE*: Virtual Learning Environment*

CMC*: Computer-Mediated Communication*

ICT: *Information and Communication Technologies*

CSCL: *Computer-Supported Collaborative Learning*

UGC: *User Generated Content*