The role of Web 2.0 tools in collaborative learning

Author: Abdulla Hell Mahmud
             Muhammad Hassanuzzaman

Lund University
Informatics

The role of Web 2.0 tools in collaborative learning

Abdulla Hell Mahmud
Muhammad Hassanuzzaman

Abstract

Web 2.0 is a debatable term and draws much argument. In spite of one's opinion towards the term, Web 2.0 tools such as blogs, wikis, podcasts and RSS feeds are enormously used in learning environments. In this sense, the overall purpose of this research was to investigate potential of using different Web 2.0 tools in collaborative learning as well as their advantage. Four interviews have been conducted with the user of Web 2.0 tools and number of documents has been taken as empirical data to analysis what Web 2.0 tools are preferred to use in collaborative learning and what will be the advantages of using Web 2.0 tools in education. This research work represents a framework for Web 2.0 tools through the assembly of literature and empirical data which describe the course of action in learning and benefits of these tools.

Acknowledgements

Contents

Table of Figures

1. Introduction

1.1 Background

The current change of media technologies and their ease of use in learning as well as education system facilitate folks to relate within the educational domain in new ecologies of learning. Particularly, Web 2.0 technologies like blogs, wikis, podcasts and the RSS process engage students to occupy an upcoming assortment of cognitive skills in order to perform and solve problems in this digital atmosphere. We can refer to these skills as digital literacy's (Gilster, 1997, Inoue et al., 1997; Pool, 1997). Recent years have witnessed a growing awareness in the newest generation of web-based collaboration tools namely wikis, blogs and podcasts, as evidenced by the growing number of publications on the subject and the many examples of online educational services that have adopted the use of these tools. Web 2.0 tools carry the potential of complementing, improving and adding new collaborative dimensions to many web based education and research services currently in existence which offer many unique and powerful information sharing and collaboration features. User does not require high technical skills to use these feature. That's why it is called transparent technology (Wheeler et al., 2005). The user is able to concentrate more on the learning task by seeing through the technological environment they are immersed within (Boulos et al., 2006). The World Wide Web technology declares Web 2.0 as trend which intends to smooth the progress sharing information, creativity, and mostly collaboration rehearsal between users. The web based communities and hosted services, such as wikis discussion forums, social-networking sites and blogs development and evaluation have guided by these concepts (Michelson, 2006). Web 2.0 is now known as second generation of web that develops the collaboration and sharing via social networking sites. Educational institutes are at a phase, admin and other experts are feeling that they could progress the existing education system to use some of the aspects that the Web 2.0 brings. This thesis will be an exploration of an overview of these technologies and digital literacy's required to integrate them into educational domain. Our main focus is to identify which type of theoretical perceptive is obligatory for incorporating such collaborative and co-constructed technologies within education?

Web 2.0 technologies permit desirable practices such as collaborative content creation, peer assessment, formative evaluation of student work, individual as well as group reflection on learning experiences and user centric up to date information regarding changes in collaborative spaces (Gilster, 1997; Tapscott, 1998; Eshet-Alkalai, 2004; 2005). In order to allow students to conduct intuitively in digital environments and to easily and effectively access the wide range of knowledge embedded in these domains, the teacher must have some conceptual understanding of the possibilities of their use (Duffy et al., 2006). Web 2.0 technologies such as blog wiki, podcast, create latest claims on self learning and provide new supports to self learning and dismantle some learning tools for education used in the past. We should have take care the impact of digital technologies on the process and practices of pedagogy because there are new literacy's and new conceptualisations needed to use these emerging technologies.

1.2 Opportunities & problem definition

Collaborative learning and knowledge sharing could be a useful process for any level of education. Web 2.0 tools can provides all possible functionality for collaborative learning

among the students of an educational institute. These tools could guide the students to do their projects or group assignments, finding solutions of a critical problem on the intranet knowledge base. The suitable Web 2.0 tools can generate a great learning space for the students in regard on aspects about usability, human cognition and to create a user-friendly environment. This can be done in many different areas as Web 2.0 take on many forms.

The main question to address:

- *What different types of Web 2.0 tools are preferred to use in an educational setting for collaborative learning?*

Sub question:

- *What will be the advantage of using web 2.0 tools in collaborative learning?*

1.3 Purpose

The purpose of our research is to figure out different types of Web 2.0 tools which are preferred to use in an educational setting for collaborative learning. We also evaluate the advantage of using Web 2.0 tools in collaborative learning. The educational settings acquire classroom education, distance education, research, and language learning and so on. Web 2.0 tools such as wikis, blogs, RSS and social bookmarking etc. with education process. The collaborative learning idea provides information system researchers with a deeper understanding and insight of the overall education system where Web 2.0 tools are integrated.

1.4 Problem approach and delimitations

Our main focus will be on analyzing specific Web 2.0 tools such as wikis, blogs, RSS and social bookmarking which could effort as a support tool for collaborative learning for students. Our goal is to evaluate collaborative learning using Web 2.0 tools which will be helpful for the students and teachers in education. We are not focusing on a specific area of education such as an interdisciplinary course or an engineering department rather we will put the spot light of our research study on entire area of education including distance education, classroom, research, language learning etc. We will not put much effort to find out on the disadvantages that will arise with the different Web 2.0 tools using in collaborative learning because of time limit. We have talked with the students (who have idea about web 2.0 tools) from Lund University and Malmo University and choose some experts comments and speech for evaluation. We are using video document as supplementary data because we are not confirm that those documents have never been used in any research. We will achieve our key information from their knowledge and experience which will be vital evidence for our research.

1.5 Structure of the thesis

The Literature review will present related information about a detail description of Web 2.0 and its tools, core competencies, web 2.0 driven learning framework educational impacts, benefits and uses. Methodology chapter presents the scientific standpoint of the study and the

process of work. This chapter describes the nature of how data was collected and analyzed. The empirical results chapter will show the results of the gathered information from documents and the answers for the respondents as well. The discussion chapter will represent the answer of our research questions and also carry various related discussion in general and we will summarize the answer of our research question in conclusion chapter.

1.6 Web 2.0 and Informatics

Ability to focus research attention on new and emerging technologies is one of the intriguing features of information systems research (Allen et al. 2007). "Evolving technology forces our discipline to change at a rate far exceeding that of other business disciplines" (Benamati et al., 2007, p.657). The attention of the information technology and computing industries, the IT trade press, and the several other professions and disciplines has captured by Web 2.0 phenomenon. Organizations and educational institutions are becoming integrated into by Web 2.0 applications and are beginning to shape education, business and communication practices. Social informatics directs research attention to the social, cultural and organizational contexts, within which technologies are designed, implemented and used (Kling et al. 2005). The unique definition of Web 2.0 characterize social life in either conceptual terms, such as network effects or collective intelligence, or by using positive, community based metaphorical language, such as folksonomies and participation (Allen et al. 2007). Web 2.0 has been declared to be a technology of independence that puts power in the hands of its users. Subjecting these declarations to careful analysis is an opportunity and perhaps even a requirement for IS research." Technologies are interpreted and configured differently by users and often leading to different outcomes for the same technology presumed by an analysis of social informatics" (Kling et al. 2005). "Because user configurability and recombination is central to the Web 2.0 concept, through mechanisms such as mashups, APIs and news feed syndication, finding a simple, deterministic impact of web 2.0 will be difficult" (Allen et al. 2007).

2. Literature Review

2.1 A new generation of web

A billion of users using web as global information space since one and half decade which has grown-up from a cluster work tools for scientists at CERN (European Organization for Nuclear Research). It is not only using as a read/write tool at present also launching a new, social and participatory stage. A conviction has leaded by these trends that web is entering a second phase, a 2.0 version of web (O'Reilley, 2005).

> "Web 2.0 is a marketing slogan. The problem I have with this 'Web 2.0' slogan is that it is a contrivance, meant to imply a unified movement or wave toward a better Web; a coordinated, standards-based, like-minded rebirth, reconstruction, renaissance, resurrection, whatever you want to call it. Many of these changes are incremental, and only related to each other in the broadest, most general sense" (Shaw, 2005).

In 2005, O'Reilly announce this term in a web media conference. The traditional web was not user centred such as Web 2.0 where user makes changes to some extent and interacts. A key characteristic of Web 2.0 technology is the ability of the end user to edit or create information provided by another user. It creates a dynamic usage. It is a feeling of many people that "dotcom" era was the turning point for the World Wide Web where it left its old web 1.0 state and became 2.0 instead (O'Reilly, 2005).

> "The social Web is about conversations, interpersonal networking, personalization and individualism. It is the people-centric Web" (O'Reilley, 2005).

WEB 1.0	➡	**WEB 2.0**
Encyclopaedia		**Wikipedia**
Personal Web Sites		**Blogs**
Publishing		**Participation**
		Syndication (RSS)
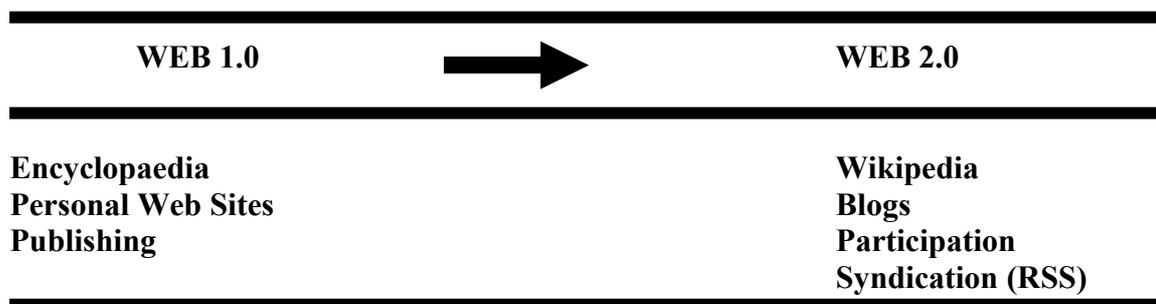
Figure 1. Web 1.0 and Web 2.0 difference model (O'Reilley, 2005)

The new term Web 2.0 facilitates different thoughts among people which have not been official yet. The meaning of Web 2.0 contains huge amount of disagreement inside general people's mind. Some people are complaining about Web 2.0 as a meaningless marketing buzzword and others accepting it as the new conventional insight (O'Reilley, 2005). Adding users information in the internet application enlarge the scope and known as the key competitive benefit.

These second generation internet technologies have opened new doors for sharing information, ideas and even data to understanding of specific topics. The use of open access web sites, blogs, podcasts and virtual realities can offer new opportunities to further research

collaboration in career and technical education (CTE) more than at any other time in our history (Rhoades et al., 2009).

> "Web 2.0 is the network as platform, spanning all connected devices; Web 2.0 applications are those that make the most of the intrinsic advantages of that platform: delivering software as a continually-updated service that gets better the more people use it, consuming and remixing data from multiple sources, including individual users, while providing their own data and services in a form that allows remixing by others, creating network effects through an 'architecture of participation' and going beyond the page metaphor of Web 1.0 to deliver rich user experiences" (O'Reilly, 2005).

Mainly information sharing, money maker, news communities are connected by each other in this map. It describes the way of their connection and forecast future performance. (Brelle, 2007)

2.2 Web 2.0 tools

Fundamentals of the Web 2.0 concept are based on a number of web services and applications which are already being used to a certain area in education. These services or user processes are built using the building block of technologies and open standards that underpin the internet and web. Many of the applications of web technologies are relatively mature including blogs, wikis, multimedia sharing services, content syndication, podcasting and content tagging services. These services have been use for a number of years although new features and capabilities are being added on a regular basis (Anderson, 2007). People have diverse opinions on what is Web 2.0 is or isn't of this indeterminate term. In our research, we will discuss most common Web 2.0 tools such as RSS, blogs, wikis, social bookmarking and newsgroup forums.

2.2.1 Wiki

A wiki (Hawaiian wiki, to hurry, swift) is a collaborative web site whose content can be edited by anyone who has access to it. 'Wikipedia – The free encyclopaedia' is the best example of a wiki (Answers.com). Some promising principles are represented by Wikis, and particularly Wikipedia that can significantly transform the internet information age and they have greatly grown in popularity in recent months and years (Connor, 2005). The first wiki engine, wikiwikiweb was developed in 1995 by Ward Cunningham (Lamb, 2004). Wikis are often used as a tool for personal information management, knowledge management, team collaboration and as a more flexible kind of weblog (Mattison, 2003). A wiki invites every user or visitor to contribute by editing or adding pages within the website. Thus, every reader can become a writer instantly. It seeks to involve the visitor in an ongoing process of creation of content and collaboration. Wikis are also often used to organize and cross-link knowledge, by making it extremely easy to add or edit links and texts. Another important aspect of a wiki is that it is inherently democratic, which means that every user has the exact rights and capabilities of every other user (Leuf and Cunningham, 2001).

The main idea of collaborative writing is at least two people work together in order to produce some text (Noel and Robert, 2003). Colen and Petelin (2004) describe various definitions of

collaboration, but conclude that collaborative writing is inherently a social act. Advantages of collaborative writing are an increase in the number of ideas and viewpoints, assurance that various subsections are written by experts (Noel and Robert, 2003, 2004), increased motivation among participants, possibilities for less experienced writers to improve their skills, and higher levels of acceptance of the final product (Colen and Petelin, 2004). Noel and Robert (2004) also describe negative aspects of collaborative writing such as it makes the task more difficult, which includes having to reconcile different writing styles and longer time to produce a document. Management aspects hamper the process of collaborative writing such as a group has to deal with people's emotions. An important role played by group and social issue during the writing process. For instance, different abilities of participants and conflicts among participants such types of issue a group has to deal sometimes. According to study of Noel and Robert (2004) describes 83% of the participants of their study used traditional word processors, wikis. An open system is the key characteristics of wikis; anyone can read and edit the text, which means that every page has an edit this button, which allows anyone to alter the text. Every edit of a page is saved as a new entry, thus whenever the content of a page is destroyed, a previous version can be reactivated instantly (Lamb, 2004). This is useless because of the self-regulating community by which errors are corrected almost instantly.

Some disadvantages of wiki may affect the quality and effectiveness. People sometimes deliberately destroy the content of the wiki to affect the quality and reliability. Another problem is that the quality of the content cannot always be determined that easy. As Kolbitsch and Maurer (2006) argue, the fundamental idea of a wiki is that errors will be found and corrected because a vast number of users read and edit the content and over time, the document will become more and more complete. Also, sometimes people argue that the anonymity of a wiki takes away a feeling of accountability, which could also damage the quality of the wiki (Kolbitsch and Maurer, 2006). However, this can also be easily avoided by requiring users to register before they can participate. Furthermore, sometimes large wikis have to deal with spam, automated scripts that edit pages and add commercial messages. Again, this can be easily avoided by requiring participants to register before they edit pages. However, this goes against the wiki principles. It is clear that wikis meet certain needs, like easy authoring of web content, open access, and unrestricted collaboration, which are simply not being satisfied by 'traditional' IT strategies and tools. This, together with the low barriers and costs of starting a wiki and its efficiency (Jesdanun, 2004) explains the wide adoption of wikis worldwide (Lamb, 2004), and makes it interesting to study this phenomenon more closely.

2.2.2 Blog

Recent developments of the web include writing together, posting their own thoughts, information and links. Blog founded in 1999, made easy the procedure of online publishing for web user. The introduction of commenting, possibility to write a response to postings, took this online discussion platform even further. This template of posting and commenting has become known as blogging which is extremely popular (Blood, 2004). Blogs are like online diaries where people can post their thoughts, information, links and interests. Blogs often differ in objectives and some offer functionalities that are not commonly used. There are some different forms of blogs for instance, blogs as personal diaries, organizational blogs, corporate blogs and knowledge blogs (Kelleher and Miller, 2006). In essence, every blog has its own function, but knowledge blogs are the ones that come closest to learning. Kelleher and

Miller (2006) describes knowledge blogs are online equivalent of professional journals in which authors document new knowledge in their professional domains, including research progress, references, observations, reflections and communication. Blogging is an easy tool for structuring thoughts, communication with others, and reflection on interesting things. Blogs are also widely adopted in the enterprise such as, by knowledge workers to spread their knowledge internally or to communicate with their public (Kelleher and Miller, 2006). Blogging is an easy tool for structuring thoughts, communication with others and reflection on interesting things. Blogs are also more widely adopted in the enterprise, for instance, by knowledge workers to spread their knowledge internally or to communicate with their public (Kelleher and Miller, 2006).

According to Poortman and Sloep (2005) blogs do have some disadvantages for instance, asynchronous communication which implies that reactions on message are not direct, but appear later which could severely slow down interaction, text-based communication implies that non-verbal aspects of communication are not included and information is less rich which could make harder transformation of ideas and thoughts. Discussion on a blog can become messy, because reactions and reactions on reactions can get disharmonious. Despite these disadvantages, blogs has some advantages (Poortman and Sloep, 2005). When people react on a blog, they are careful in their wording and reflect more on what they are writing. Therefore, posta and reactions often have the form of a short argument. Blogging also create a readable and searchable report of a discussion which can be recalled. Blogs are adopted more and more by individuals and educational and organizational institutions, relevant scientific literature on this topic is still scarce.

2.2.3 RSS

RSS is an abbreviation for 'real simple syndication' which allows user to discover updates the content of RSS enabled websites. RSS is a technical tool to get news and commentary from author directly to an audience or readership as they are published, such that intermediaries become obsolete. RSS feeds automatically works and having to determine settings without controlling (Ewing, 2007). According to Ward (2007), it can enable the user by staying up-to-date with huge amount of new information without surfing numerous websites everyday. Readers obtain news and commentary instantly by signing up to the RSS feed of a blog or site. An RSS-feed can be obtained and deciphered with help of a feed reader which keeps a reader updated on new posts. RSS allows users to compose their daily news package individually according to academic disciplines, professional and personal interests. Technically, XML-based data format represent RSS for websites to exchange files that contain publishing information and summaries of the site's contents. In reality, RSS was understood to stand for rich site summary in its earliest manifestation (Doctorow, 2002).

2.2.4 Social Bookmarking

In 2003, concept of social bookmarking has become popular with the start of the service del.icio.us (Alexander, 2006; Millen et al., 2005). Web user can store interesting web pages, offline, on their computer through bookmarking, so that they can retrieve these pages later. To manage bookmarking browsers offer simple tools like storing descriptions and storing bookmarks in specific folder. Social bookmarking offers people to store their bookmarks online thereby making them accessible from anywhere to anyone. According to Millen et al.

(2005), social bookmarking system has some common features such as user can create personal collections of bookmarking and they can share this with others. User can use tags (A freely chosen keywords that are assigned to a piece of information) to classify bookmarks. These tags made bookmarks organized and displayed with meaningful labels. Tagging also facilitates people to conserve bookmarks in a number of categories which makes it non-hierarchical and inclusive (Golder and Huberman, 2006). Users can browse other users bookmarks. Social bookmarking has a more explorative character (Kolbitsch and Maurer, 2006). According to Golder and Huberman (2006), tagging can be used to identify what or whom a piece of information is about, what it is (a journal or article), who owns it, to refine categories, to measure qualities etc. A major drawback of tagging is flexible which implies that you can define your own use of the system such as every service implements its own approach to the concept. A confusing situation could be arise when some services separate tags with commas, others with multiple word tags, some offer spaces and some offer underscore (Guy and Tonkin, 2006).

2.3 Web 2.0 driven learning frameworks

The shift of e-learning shows the way that several Web 2.0 technologies take control on modern e-learning (Downes, 2005). Web 2.0 and e-learning 2.0 are associated with several core technologies. Social interaction and collaboration work plays an important role in online community applications which must be considered in the context of learning (Safran et al. 2007). Interaction between e-learning practices and Web 2.0 concepts can be identified from several points. This section will represent those several points of intersection corresponding Web 2.0 technologies. Some e-learning approaches are supported by communities of practice such as socio-constructivist pedagogical method where learners interact and learn together (Safran et al. 2007). Discussion, commenting, collaborative writing on project occurs interaction (Ocker, 2001; Strijker et al. 2002). In the contemporary media and knowledge intensive era of collaboration culture centralized, one-size-fits-all, top-down, static and knowledge push models of traditional learning initiatives need to be changed with a more open, dynamic, emergent, social, personalized and knowledge pull model for learning (Chatti et al. 2007). There is an emerging arena of Web 2.0 concepts and technologies beyond classroom (Chatti et al. 2007). Web 2.0 concepts are opening new windows for more efficient learning and have the prospective to overcome many of the draw backs of traditional learning model (Chatti et al. 2007). With Web 2.0 technologies as an enabler, upcoming learning models need to spin around three core components such as networking and collaboration, intelligent search and knowledge creation

Networking and collaboration: Learning models require to knowing the social aspect of learning and as a consequence place of strong emphasis on knowledge networking and community building to leverage, sustain and share knowledge in a collaborative way to have a chance of success (Chatti et al. 2007). For building this communities and networks, we need to penetrate classrooms and organization boundaries to involve peers, partners, customers, suppliers and different types of frequently overlapping, formal and informal communities including learning communities, communities of interest and communities of practices (Chatti et al. 2007). Civic engagement, participatory culture with low barriers, strong support for creating and sharing one's invention and some type of informal mentorship required to build it (Chatti et al. 2007). A participatory culture where members believe that their contributions matter and feel some degree of social connection with one another is also required (Jenkins et al., 2006). Bottom up building of communities and network also supported by social media.

Blogs, social bookmarking and folksonomics are good instance of bottom up social media in action (Chatti et al. 2007). Interaction between blog author and readers possible and can lead to interesting discussion by making comment on blog post. New readers can join the discussion by making comment or writing a post on own blog with a reference to the blog post that they want to comment (Chatti et al. 2007). Blog rolls create a social knowledge network from people with similar practices and interests. A powerful way to foster community building as users share, organize, discover and find people with similar interest provided by social bookmarking and folksonomics (Chatti et al. 2007).
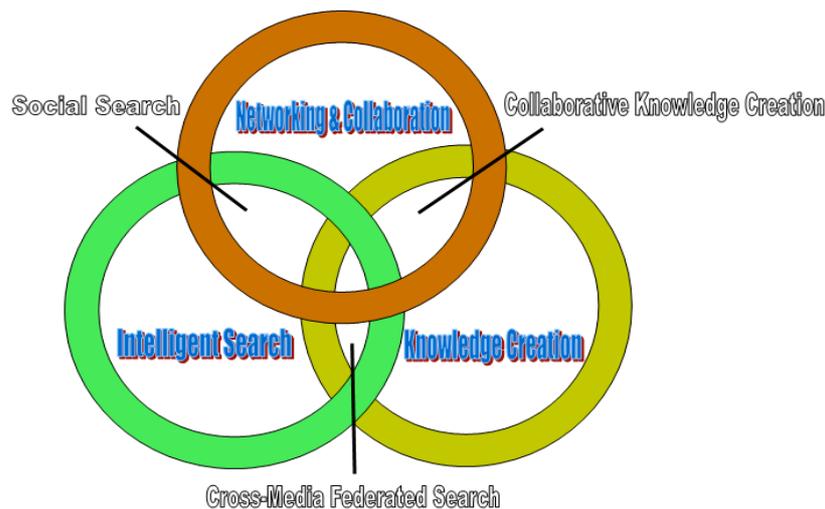
Figure 2. Web 2.0 driven learning frameworks (Chatti et al. 2007)

Intelligent search: Effective learning models requires a personal, open and knowledge pull method based on small, loosely joined pieces (Chatti et al. 2007). Information overflow on the web is the main obstacle of a knowledge pull model. Intelligent search ensure reliable access to information, services, communities and expertise (Chatti et al. 2007).

Knowledge creation: Learning as analogous to innovative processes of inquiry where something new is created and original knowledge is either substantially enriched or significantly transformed during the process viewed by the knowledge creation metaphor (Paavola et al. 2002). Ecologies that facilitate and enhance creativity and give people the support for collaborative knowledge creation needs to provide by effective learning models.

2.4 Collective intelligence, collaboration and Educational institutes

Collective intelligence has spreading its wings over a decade (Levy, 1997) and now its new surprise is giving rise to new insights on educational process (Downes, 2006), for instance, a better demonstration of power of collaboration through technology is wikis. O'Reilly claims in the context of Web 2.0 that it has an internal architecture of participation, a built in ethic of cooperation, in which the service initially acts as an intelligent broker, connecting the edges to each other and controlling the power of the users themselves (O'Reilly, 2005). Social cognitive competences can be develop through the internet and are being more valued each day (Simões & Borges Gouveia, 2008). Negotiation and the co-construction of meaning with others are emphasised by social constructivism (Bonk and Cunningham, 1998). According to

Vygotsky (1978), learning is a social process and the learners get benefits from the teacher or colleague. Web 2.0 tools makes easy to publishing the information and students put great effort to his/her work when he/she knows that this work will be available in the internet (Simões & Borges Gouveia, 2008). This effect will be more enhance if the student can receive direct commentary on his or her work through a channels. The context of joint activity is a part of collaborative learning and it consist the interactions that occur between participants (Stahl, Koschmann and Suthers, 2006). Under the term connectivism, Siemens (2004) has been applying ideas to the sound theoretical framework of connectionism (Rumelhart and Mcclelland, 1986) into the land of education to make clear the relation between cognitive process and social interaction. Connectionism is productive theory to explain distributed cognition at the individual level. Connectivist model of learning supports Web 2.0 that could lead to education directed to the needs of a society that needs creative thinkers, skilled workers where the them wikis, blogs, RSS, social bookmarking might sound like hype and complex jargon to the educators (Simões & Borges Gouveia, 2008)).

2.5 Educational Impact of Web 2.0

Educational communities have a potential impact from Web 2.0. Traditional educational context could be rebuilt by powerful application of Web 2.0 technologies. We can classify the attitude of learning as passive and active. Passive learning is less effective because student just takes in what the teacher teaches. In the active learning paradigm student seeks out what he/she wants to discover. Students need not only listen but also read, write, discuss or be engaged in solving problem (Chickering & Gamson, 1987). Deep learning engage students not only memorization but also involve higher level task such as analysis, synthesis and evaluation. A research conducted by National Training Laboratories in Bethel, Maine produced learning pyramid which summarized usefulness of different teaching and learning method.

Pyramid Learning (Avg. Retention Rates)

Lecture 5%
Reading 10%
Audio/Visual 20%
Demonstration 30%
Discussion Group 50%
Practice by Doing 75%
Teach Others 90%

Jerome S. Brunner - The Process of Learning
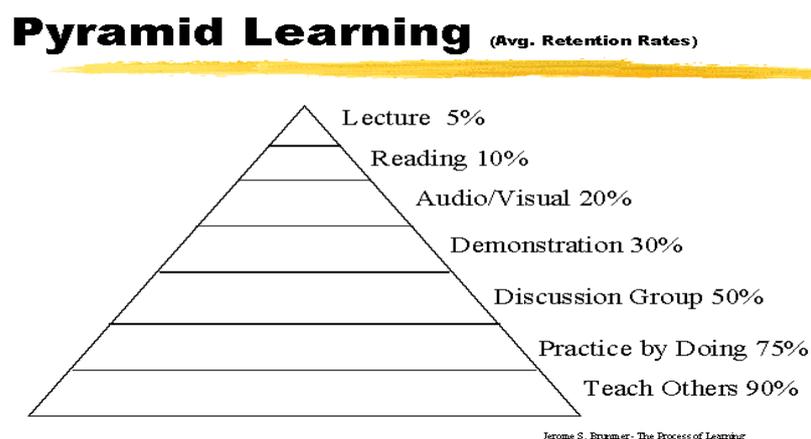
Figure 3. Pyramid Learning (Polovina, 2006)

According to above chart, average retention rates of "lecture" is 5% which is most common form of teaching in any higher educational institute consider as worst. In the lecture base system student takes note about lecture, review them and present them in exam and forget most of them thereafter. On the other hand, "Teach others" method contain 90% of avg. retention rates which encouraging deep learning rather than surface learning. So it is clear that

we need to provide our educational communities the opportunities and environments to discuss, practice and use the knowledge learned in the classroom. Web 2.0 concept points us the correct way for developing such environments. It also builds collaboration oriented environments where we can form a big learning community including professors, students and industrial professionals from all over the world. Students are no longer listener in such an open learning community. They get plenty of opportunities to interact with other people in the same topic. Active learning connecting students to online communities which provide more memorable learning experiences than less interactive educational environments.

2.6 Educational benefits & uses of web 2.0 tools

2.6.1 Blogs

Benefits: 'Creative interaction with one's own development helps to ensure that new knowledge is incorporated in and integrated with existing knowledge' (walker, 1985, p. 65). According to Will Richardson (2006), some potential benefits have been identified by teach specialists Fernette and Brock Eide. Blog can promote critical, analytical, creative intuitive, analogical and associational thinking. It is also potential for increased access and exposure to quality information and combination of solitary and social interaction. It helps students to take creative risks, demonstrate critical thinking and make sophisticated use of language and design elements. Students also obtain creative, critical, communicative and collaborative skills that may be useful in scholarly and professional perspective. (Duffy & Bruns, 2006)
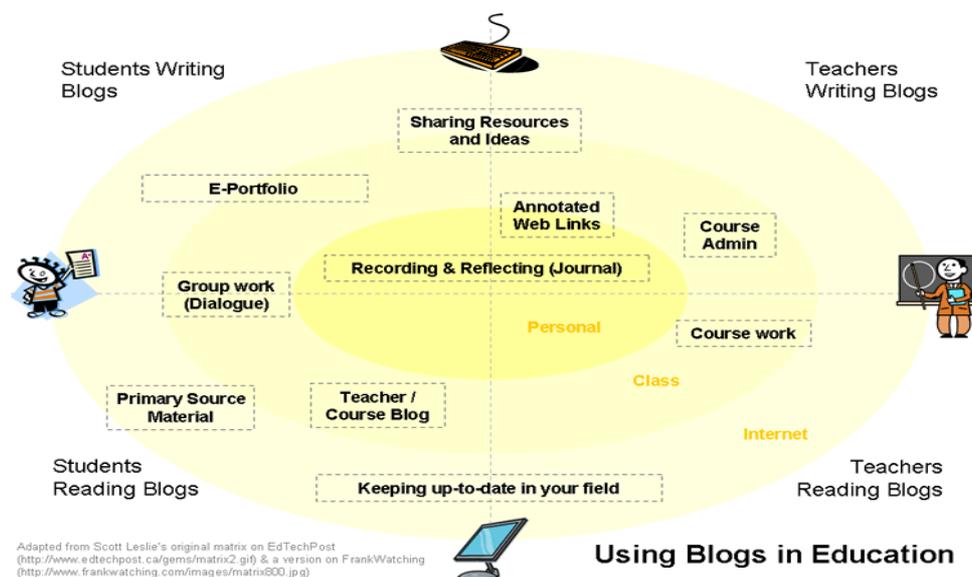
Figure 4. Using blogs in education (Lingard, 2006)

Uses: uses of blogs can describe in three different perspectives which is personal academic perspective, organisational perspective and pedagogical perspective (Duffy & Bruns, 2006). According to Duffy and Bruns (2006), the uses of blogs within a personal academic perspective support reflection on teaching experiences, categorised descriptions of resources and methodologies for teaching, ramblings regarding professional challenges and teaching tips for academics, illustration of specific technology-related tips for others. Organisational perspective can support a common online presence for unit-related information such as calendars, events, assignments and resources (Duffy & Bruns, 2006). Pedagogical perspective

can support comments based on literature readings and response of a student, a collaborative space for students to act as reviewers for course-related materials, images and reflections related to industry placement, an online gallery for review of works and writings, teachers encouraging reactions, reflections and ideas by commenting on their students blogs, development of a student portfolio work (Duffy & Bruns, 2006).

2.6.2 Wikis

Benefits: According to Duffy and Bruns (2006), a collaborative authorship and writing in online space offered by wikis. It is available for all web users and members of specific communities, it's version control tools allows authors to track previous work pages, the evidence of their contributions. Students can create simple websites without having prior knowledge in HTML programming or current software used for website authoring. A wiki facilitates the ability to interact with an evolving document over time (Duffy & Bruns, 2006). The authors can see the evaluation of written task and comment on it rather putting comments on final work. Wiki is very useful for tracking and streamlining group projects. (Duffy & Bruns, 2006)
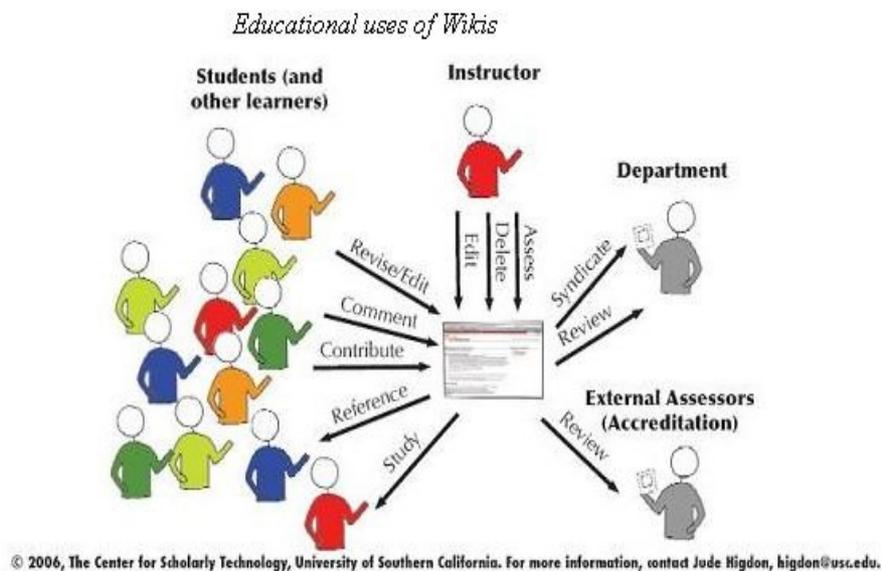
Figure 5. Educational uses of wikis. (Source: http://shtmteacherswiki.pbworks.com/Using-wikis-for-your-subjects)

Uses: A wiki can use by student to develop their research projects where it will act ongoing documentation of their work (Duffy & Bruns, 2006). Students can use it to add sum of their thought from the prescribed readings, building a collaborative annotated bibliography. Wikis can be used as a knowledge base for teacher; they can share reflections and thoughts regarding teaching practices as well as versioning and documentation, though wiki is searchable it has easy navigation, categorisation and file management system (Duffy & Bruns, 2006). Wiki can be used to map concepts, useful for brainstorming and authoring a wiki on a given topic produces a linked network of resources and to facilitate a presentation in place of conventional software such as keynote and PPT. Group authoring is supported by wikis. Groups collaborate on a document by sending it on to every member rather emailing a file to everyone causes edits on their own and attempt is then made to coordinate all edits so that everyone's work is equally represented. Students of Brown University have started course

advisor wiki, a place for students to collaboratively write reviews of taken courses. (Duffy & Bruns, 2006)

2.6.3 RSS

Harrsch (2006), describe some potential use of RSS feed in an educational context include following,

- Students and teacher can keep track their useful websites.
- They can be informed by many websites about the updates of relevant course topics where there will be a large number of blogs, wikis, news, research and media sites that are consistently update rather revisiting all on a daily basis.
- We can avoid email list subscription by using RSS.
- Students can linkup RSS feeds relating to assignment topics and research interest which allow access to up-to-date content on a wide variety of subjects time to time.

3. Research Methodology

3.1 Research Approach

To conduct a research work mainly two kinds of research approaches follow: Qualitative and Quantitative (Creswell, 2007). The main reason behind this choice, we need a real life experience of number of individuals for conducting our thesis work. So, we choose qualitative method to accumulate qualitative data (Creswell, 2007). According to Berg (2004), there are several qualitative research strategies like interviewing, focus groups interviews, ethnographic field studies, action research and case studies. There is still controversial for research strategy which method should be followed if the papers find the actual empirical data, qualitative versus quantitative. Miles and Huberman (1994) argue that this is not the question.

The core point of taking qualitative approach that is we are looking for participants live experience about using Web 2.0 tools in learning and we believe that it is easy to get the actual data which is very important. So, we will get broader knowledge of their relevance knowledge and their user involves perspective (Creswell, 1999; Miles & Huberman, 1994).

3.2 Study relevance and model

Social, scientific and personal relevance in this thesis is described in this section.

Social relevance: Now a day's, lots of buzz going on social software tools in the virtual community. There are many new tools invent everyday which causes descriptive thinking on what constitutes social software and how it could successfully implement in educational process (Kloos, 2006). We can consider social software tools used by individuals in general. Our thesis places social software tools in a perspective where it could be easily use in groups of students for collaborative learning (Kloos, 2006).

Scientific relevance: Role of social software tools in education could be a research area. Some research has been conducted on the use of social software tools in collaborative educational settings which is mainly in an exploratory stage (Kloos, 2006). We are trying to contribute some understanding with this thesis that how social software tools can be applied in collaborative learning process.

Personal relevance: Personal relevance points our own view. We find rapid and interesting development of World Wide Web which makes us to believe that it will have far reaching consequences. We convinced to write this thesis when we saw our department employ social software tools for collaborative learning which causes a better outcome (Kloos, 2006).

According to Verschuren and Doorewaard (2000, according to Kloos, 2006), In order to reach the research objective, we can use research model as a schematic representation of the research objective and visualization of the steps of the total research work. The research model can be expressed as the relation of concepts and definition of Web 2.0 tools, literature of Web 2.0 tools for   education with Web 2.0 driven leaning frameworks lead to theoretical insights that explain how and to what extent Web 2.0 tools can be supportive for collaborative learning. An interview with users of Web 2.0 tools helps to refine and test the result which explains how and to what extent Web 2.0 tools can support the education system.
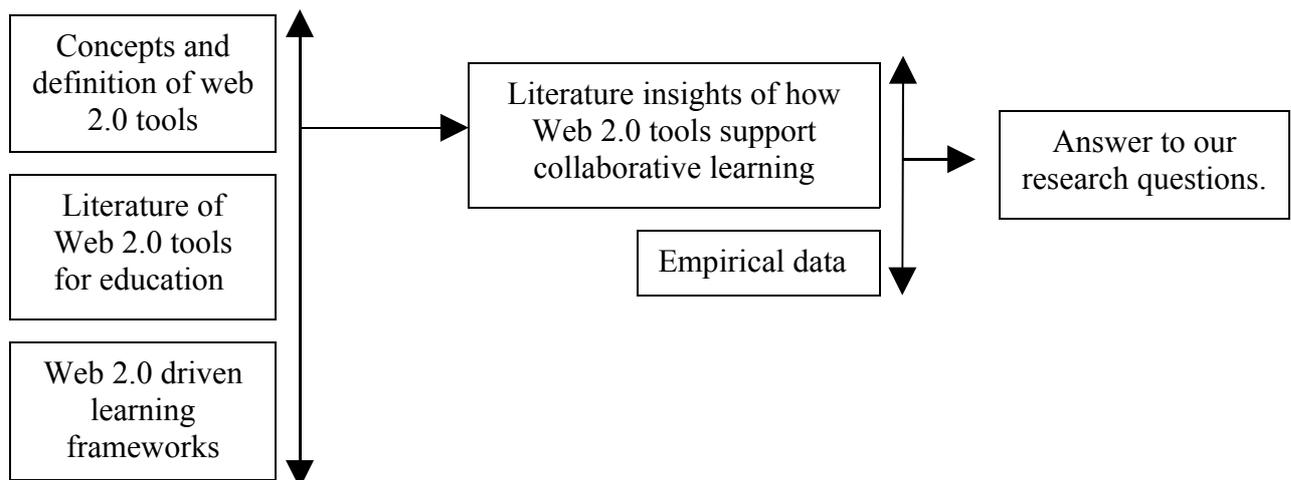
Figure 6. Research model (Verschuren and Doorewaard, 2000 cited in Kloos, 2006)

3.3 Data Collection

In order to fulfil our requirements, data collection consists of two parts which are in-depth interviews with participants and documents (Video documents) as supplementary data. Our objective is taking some live experience of some individuals who are already familiar with collaborative learning and understand the tools of web 2.0. On the other hand, we gather some special opinion from various experts about incorporating web 2.0 tools in education system through some video documents. The combinations of these two data sources help us to find the optimal point where the web 2.0 tools explore its essential characteristic for education. We have chosen semi structured interviews and documents (which include videotape of interview and self reflection about our research context) as data collection tools to collect our empirical materials. We have taken four interviews of students from Lund University and Malmo University. We have collected video documents of self reflection of a school teacher from Spain, an education researcher from United States of America and interview of group of teachers and principals from various states of USA, from their personal websites, personal blogs and popular media sharing websites called Google video and Youtube.

Documents

In order to get a complete picture of problem, we choose documents from several sources as supplementary data. Documents use in our research to obtain expert peoples experiences about implication of Web 2.0 tools in education, how these tools can incorporate in learning, how to use these tools for knowledge sharing and so on. We have collected a number of video files from reliable sources such as personal websites, personal blogs and popular media sharing websites called Google video and Youtube where experts discussed and suggested actual facts from their own experiences. It is essential to ensure that presented documents are reliable and to make it clear we described when and where the documents were published. Collected data from documents must not only support researchers own ideas and opinion but also represent contradicts information of results (Patel & Davidson, 1994). For this reason, we have collected many different sources in order to get different views of this research work. We have verified the creator's identity before selecting those documents in order to prevent non reliable facts.

Interviews

Kvale (1997) describes interview can create detailed information from fewer people. The purpose of data collection measures the degree of structure. An unstructured interview contains undetermined format and content of the questions. Structured interview contain determined questions. Semi-structured interview is the combination of both unstructured and structured interview which has basic interview guideline to follow (Andersson, 1994). We have chosen to use semi-structured interviews where we can obtain information about the topics we are interested in without being constrained by the questions. In this way, we can follow up topics that we are more interested in and form the interview as we choose it. The respondents have the possibility to give explanation about the central factors in the topics in their opinion and they are allowed to speak freely during the interview. We gave the respondents this possibility but ensured that the topics were followed. In that way, we ensured that we have received the information that we have searched for without controlling the respondents during the entire interview.

3.4 Method of Analysis

It is most obvious that when researcher starts their research they at first investigate the pattern, link with data collection according of their research work. Meanwhile data analysis also following the discussion and conclusion. Normally, until and unless final data collection is finished conclusion can not be drawn (Miles & Huberman, 1994). We choose Colaizzi's (1978 cited in Creswell 2007) method for our data analysis. A risk contain when recorded material is transcribed differently by different person. Kavel (1996) describes breaks, giggles and sighs can be perceived differently depending on the one that interprets the data. We recorded our interviews as video tape and we have used documents which are also in video format although both involve a lot of work. We have printed both in order to manage data processing easily. We have excluded all kind of emotional expressions from the transcription of interview and documents. We believe this kind of details will not supply purposeful information.
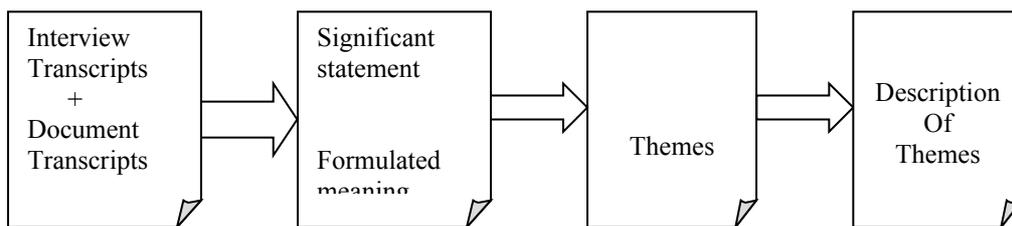
Figure 7. Data analysis flow (Colaizzi's method)

There are different methods for data analysis and the method we are using will facilitate our analysis with a type of tools that is relevant with our data collection. First, we are taking the significant statements form our interview and documents transcripts. After this we generate the formulated meanings from that chosen significant statement which will help us to make themes. At the end, we will give an exhaustive description of each theme which will lead our research work to the discussion chapter and provide us the appropriate information for giving answer to our research questions in the conclusion chapter.

3.5 Research Quality and Ethics

According to Lincoln & Guba (1999) the assurance of quality research is based on its trustworthiness. Also followed by Seale (1999) mentioned "trustworthiness of a research report lies at the heart of issues conventionally discussed as validity and reliability". The core key Competence of trustworthiness has four elements: credibility, transferability, dependability and conformability that are the previous core competence of internal validity, external validity, reliability and objectivity. Any research paper has some identifies issues like reliability and validity, sometimes it focus the depth inside of the overall quality and the way of work. In the way of constructing, validity mainly deals with "establishing correct operational measures for the concepts being studied" (Yin, 2002, p.34).

We need to set up the key qualities to enhance our research quality that are describes as follows.

Internal validity: The way of dealing internal validity "establishing a casual relationship, whereby certain conditions are shown to lead to other conditions, as distinguished from spurious relationships" (Yin, 2002, p.34). More intensively the internal validity was more specified from the interviewed data. To maintain the research quality has to endure the concept of internal validity and it based on research results and findings (Lincoln & Guba, 1985; Norris, 1997). Our research results and findings mainly relate with the expression and credibility of our subject. And try to ignore an egocentric point of view that visualizes our own ideas. That means we get the insight depth of the relevance of the collected data from the interviewers and observe their experiences and analyze their situations. On the other hand it also decent to assure the objectivity of our research (Seale, 1999).

External Validity: External validity mainly controls "establishing the domain to which a study's finding can be generalized" (Yin, 2002, p.34). For our research purpose we have to collect empirical data that is directly connect with different level of people and different level of experiences that ensures the using web 2.0 tools that specified the higher level of generalization.. We are focusing on much logical evidence that providing in different perspective to collect the significant data and its impact on quality of the data.

 Reliability: Reliability mainly controls "demonstrating that the operations of a study- such as the data collections procedures- can be repeated, with the same results". Whatever it's really difficult to find the actual data because the way we are collecting information is dynamic so it's varied from our respondent.

In order to conduct an ethics of good research quality there is several issues were taken while doing our research work. The main important issue for a research work to determine the ethical issue under the criteria of the research work. Its obvious to show the reflection on the research work, during the time what kind of action is taken and it was right or wrong and which way our research conducted with people they are really influenced by us that also taken into account in ethical aspect.

Kvale (1996) and Miles Huberman (1994) argue that, informed consent is the most important ethical issues for any research work. For our research purpose at first we had to ensure people that we took interview they had understood why we were doing. To ensure the research ethical quality we have taken interview , used some documents and file records and spent some time with people Because we were responsible to give the brief description of our

research work and they are agreed with us to give their good contribution to get information. Shortly we described the potentiality, the risks, and harm of the contribution and some expectation and benefits might be obtained from the research work. (Israel & Hay, 2006; Kvale, 1996; Singer & Vinson 2002; Sieber, 2001)

Sieber (2001) and Israel & Hay (2006) describes confidentiality is another ethical research issue. When we were doing our research work we didn't face any barriers to deal with confidentiality; overall every informants knows their information what we provided before taking interview. They hadn't any problem to use their real name and position to mention our research work. The interviewee of our research works; they felt proud to tell about web 2.0 tools and also spontaneously gave their best support to get the useful information. We had built our trust for the interviewed people that we wouldn't reveal any information and try to keep confidential.

As we followed scientific research, so we agreed upon that our investigation about research work on web 2.0 tools and the effects of educational process it wouldn't make any harm by Israel & Hay (2006) to anyone. And the effect of harm can be physical or social or may be another kind (Israel & Hay, 2006; Singer & Vinson, 2002).

Voluntary means the participant are doing something without any beneficiary; just give their contribution, cooperation that are valuable for both sides. Here participants are free to move to give such contribution that is not really any kind of influential or over coercion (Singer & Vinson, 2002). We don't push people to do something it depends on their willingness because if they do willingly the results would be more fruitful besides unwillingly or forcefully doing something the outcome might not be acceptable. Moreover we have to think about their respect unless forcefully we can't get the better output (Israel & Hay, 2006; Singer & Vinson, 2002).

As an author of the thesis, when we judge or analysis any data or source bias can be happened consciously or unconsciously. Without giving any sense or support someone belief that mislead conclusions (Hammersley & Gomm, 1997). Human being always biased its common natural tendency and there are some cognitive and influential determinants that lie behind for human biased behaviour (Ehrlinger et al., 2005).

According to Norris (1997) human activity is always biased and attempts to invent new thing that initially erroneous. When any researcher doing research or interpret their data somehow they try integrate their own ideas but that are really biased to meet the certain criteria. In another way they can't judge their own belief, really that are link with another data. More or less they are scary or unwillingly they confess their biasness. A person always feels that they are unbiased and they don't want to disclose their real facts about their data what they are given and it can be happened that different from their own perception (Ehrlinger et al., 2005).

Finally, it's really important for any researcher to come up in conclusion to avoid erroneous activity that reflects our research quality. So we think as a researcher can't avoid fully biasness of research work but at least aware of their research work that will be accepted by world and critically acclaim from critics. Nevertheless we have to be prepared that the integration between our research question and our main topic will be meeting our certain criteria in order to minimize the biasness. Might be we can take help from our colleagues or participants those who are giving their valuable comments when they evaluate our ideas and find out some biases and try to avoid it.

3.6 Questions table

The following table represents the research topics, research questions and interview questions. It will be convenient for reader to understand our research work.

Table 1. Relation between research and interview questions

Research topics	Research Questions	Interview Questions
Web 2.0 tools as collaborative learning process and knowledge platform for education	Main Question: What different types of Web 2.0 tools are preferred to use in an educational setting for collaborative learning? Sub Question: What will be the advantage of using web 2.0 tools in collaborative learning?	• What different type of Web 2.0 tools you use in general? • How Web 2.0 tools can help you in collaborative learning? • What type of Web 2.0 tools you do use for education so far? • How does Web 2.0 help students in your department or institute? • Comparing to the traditional education system, what are the possible advantage of using Web 2.0 tools in collaborative learning from your point of view? • What do you think about the affect of using Web 2.0 tools in global learning (such as language learning, short course, research work etc.)? • What problem did you experience regarding using Web 2.0 tools? • What do you think if educational institution adopts Web 2.0 in learning practice, they will face any barriers? If yes why? If No why? • What is the main real meaning of Web 2.0 tools for students when they realize this is best application to practice in collaborative learning? • What do you think about the importance of Web 2.0 tools for educational practice? • How does Web 2.0 tools impact learning and teaching from your viewpoint?

4. Empirical Results

4.1 Document Materials

There are three documents for this study. We have named them as Document A, B and C. Document A represents a self reflection of Dr. Suzanne Le Beau. Document B is also self reflection of Graham Stanley and Document C is an interview of number of principles and teachers.

4.1.1 Document Material A

'Ways of use blogs, wikis and podcasts in the class room' by Dr. Suzanne Le Beau.
(Appendix A)

The source of these documents is a video tape where she presents her self reflection about ways of use blogs, wikis and podcasts in the class room. We have collected it from her website (http://www.suelebeau.com) but it is also available in famous social media site YouTube.

Description of Dr. Suzanne Le Beau

Suzanne Le Beau has extensive experience in online education at higher education institutions and has over 30 years of experience teaching in the elementary and middle school grades in both the regular education and gifted classrooms. She has also served as a technology advisor in several elementary schools, where she worked with students and teachers to integrate technology into the curriculum.

Suzanne holds a Doctor of Education in Organizational Leadership in Instructional Technology, a Master of Arts in Instructional Technology, a Master of Education, and a Bachelor of Arts in Elementary Education. She is the recipient of the Teacher of the Year Award for both 1993 and 1994, is listed in Who's Who among America's Teachers for 1994, Who's Who among Students in American Universities and Colleges for 2002, and recipient of the Teacher Recognition Award from Johns Hopkins University for 2001.

Suzanne is also the recipient of the Technology Fellowship: Mentoring and Modelling Program for the state of New Jersey for the 2001-2002 school years, where she trained teachers across the state to integrate technology in the classroom.

Representation of Document Material A

Table 2. Document Material A

Significant statements	Formulated meanings
We all know that students respond the technology whole quicker then respond a pen and pencil. We have a great right for learners in our class rooms that would respond much more quickly if we use technology tools.	Technology can be used in classroom to make learning process faster.
Form time to time I will post the different ways that	Blog can be use as an online learning

you can use blogs in the class room at this blogging site. So feel free to visit it I would ask to make some comments on it time to time.	tool.
How can students use blogs? They can use blogs by recording different experiences that they had in class rooms, results of experiments, they can use the book reports ways of sharing ideas and opinion on books.	Students can use blog for information sharing.
Another great technology tool called wiki and a lot of people have a great concern of wikis.	Wiki is a popular technology.
It can be used as a great collaborative tool in a way that if you are lets say planning a meeting with a group of individuals from around the countries, even in your own school is set up a wiki, add to the agenda, any body who can subscribe to that wiki or you are else to that wiki can go in and hit the edit button and add any kind of information.	Wiki can be used as a collaborative tool for learning purpose.
Podcasting is very cool. As you find out hundred and hundreds of podcasts may be thousands and thousands of podcast on the net today. Podcast range from all kind of topics and can be use very easily in the class room.	Podcast is useable in class room.
The possibilities are endless. So I give you challenge today, I give you challenge to go out their, find the tools that you can use the best use in your class rooms to support learning.	Podcast can give best support for learning in class room.
Again from time to time, I will be post video and audio podcast clips on my web site for those of you who would like to learn more.	Podcast is a good learning tool.

4.1.2 Document Material B

Language learning and Web 2.0 by Graham Stanley (Appendix B)

This video document has been represented by Graham Stanley where he describes about language learning and web 2.0. The source of this document is social media site. Following the URL: http://helennew.wordpress.com/2007/11/30/youtube-video-by-graham-stanley/

Description of Graham Stanley

Originally from the north-east of England, He is a teacher who has been based in Barcelona, Catalonia for over eleven years now. Although he mainly teach EFL (English as a Foreign Language), He is also involved in esp. & content teaching at university and polytechnic level (including Catalan Culture, Customer Relations for Tourism, Theme Tourism). He is particularly interested in the use of ICT in education: blogs, podcasting, online communities and web-based tools that can be used for e-learning or blended learning. He has also written

articles for several professional publications and has taken part in online conferences and workshop. The source of this information is www.grahamstanley.com

Representation of Document Material B

Table 3. Document Material B

Significant statements	Formulated meanings
I am particularly interested in use of emerging technologies and language learning.	Technology can be use in language learning.
This new media is transforming the radio, television and press to the tools called blogs, wiki and podcasting and particularly useful for publishing students work online.	Blogs, wikis and podcast is a transformed version of traditional media.
Blogging appeals the language teachers because it's a way of opening a classroom walls and showing the wider world what is happening. The wider world means other students in the class, an organization, friends, and parents, other students and teachers of another school and in fact, anyone with an internet connection and an interest.	Blog can use as open classroom where everyone can connect and gather information.
Blogs is being using in a way to keeping track what is happening in the classroom, posting home work and linking to internet resources are relevant to a group of students, this is the most basic way of using a blog and usually run by the classroom teacher, if however if you give each students a blog and empowering the students and providing a much wider audience for anything they write.	Blog is a tracking tool by which students can keep them up to date.
How are wikis being used by language teachers? Well as online classroom web pages that can be changed easily by teachers and students for class room projects instead of putting students work on this place and class room, teachers can post students work in the web and then are some projects such as wiki Val which allow students from all over the world to collaborate together about things they are interested in as well as learning a language.	Wiki is a usable tool for language learning because students and teachers can collaborate together.
Podcasting appeals to the digital natives. The students of today and future who think the web as with might think have a book or telephone tools, vital tool for getting information or for communicating with	Podcast is a vital tool for colleting information and communicating with people.

people. Why use podcasts? Well as their audio and video files that can be downloaded listen to what ever you want. You can take language lesson with you and listen in your lunch hour using your MP3 player as many times you want and teachers are starting to produce podcast for students and also to share the podcast made by students.	Lessons as podcast format can downloaded in any portable device and listen in ideal time.

4.1.3 Document Material C

Teachers and principals told us why they use Google docs. (Appendix C)

In this document, we have got some valuable information about the use of Google Docs. This is an interview video tape where students, teachers and principals are talking about why they use Google docs.

Description of teachers and Principals

Kyle Brumbaugh is administrative vice principal of Woodside high school, Woodside, CA. Cheryl Davis is technology coordinator of Acalanes Union high school District in Lafayette, CA. Jason levy is a principal of CIS 339 in Bronx, NY. Chris Heumann is a science teacher of Kennedy junior high school in Cupertino, CA. Deena walk is a Teacher of CIS 339, Bronx, NY. Jim Sill is also a Teacher of EI Diamante high school in Visalia; CA. Jesse Spevack is a Teacher of CIS 339 in Bronx, NY. Donna Axelson is a Technology Resource teacher of Cupertino union school district in Cupertino; CA. Steve Burrell is Assistant principal of Miller Middle School in San Jose, CA.

Representation of Document Material C

Table 4. Document Material C

Significant statements	Formulated meanings
The biggest thing with docs is that it is accessible 24*7*365.	Always available.
One student is in seating in front of the computer and rest are looking over his head, now finally all the students are able to participate in one particular assignment.	Students can participate in collaborative learning through Google docs.
The benefit of using Google docs, Google presentation and spreadsheets that allow to students really to publish and to become publisher in world wide level.	Possible to publish own work in a certain standard.
Google docs are really given my students to controls over their education to higher than they had before.	Enhance student's knowledge.

If you learn to use Google docs that will make the class room more efficient, you can save time and you can do the art of teaching better than the fussing factors of teaching.	Google docs help to save time and increase the art of teaching level.
With Google docs I can write on a document at home, open it up on my email here and finish it up.	Mobility option is everywhere.
One students began a column and two other students are actually they are finishing the column, that is beautiful.	Collaborative works make content meaningful and error free.
I look at my Google docs and I saw one of the prompts was written by two kids in very same time at eleven O'clock at night, it to me that means learning is happening at all times of the day.	Cross the limit of learning time and schedule.
It's no longer that I am doing this for the points needed for the grade and the teachers who do not want to see it; I am now publishing my Peers, publishing for my parents.	Peoples and friends can see each other work.

4.1.4 Themes: Document Material A, B and C

From the three document transcripts we have choose significant statements and represent formulated meaning of that statements in the above three tables and the following table represent themes related to formulated meanings of selected significant statements. We have also represented the description of themes.

Table 5. Document Materials Theme

Themes	Cluster of formulated meanings
Technology and learning.	Technology can be used in classroom to make learning process faster. These tools can give best support for learning in class room. Technology can be use in language learning. Blogs, wikis and podcast is a transformed version of traditional media. Mobility option is everywhere. Cross the limit of learning time and schedule.
Web 2.0 tools for learning and teaching.	Blog can use as open classroom where everyone can connect and gather information. Blog is a tracking tool by which students can keep them up to date. Blog can be use as an online learning tool. Students can use blog for information sharing. Wiki is a popular technology. Wiki can be used as a collaborative tool for learning purpose. Wiki is a usable tool for language learning because students and teachers can collaborate together. Podcast is a vital tool for colleting information and communicating with people. Lesson as podcast format can downloaded in some device and listen it in

	ideal moment. Podcast is useable in class room. These tools can give best support for learning in class room. Podcast is a good learning tool. Students can participate in collaborative learning through Google docs. Possible to publish own work in a certain standard. Enhance student's knowledge. Google docs help to save time and increase the art of teaching level. Collaborative works make content meaningful and error free. Cross the limit of learning time and schedule. Peoples and friends can see each other work.

Technology and learning

Technology can be used in class room to make the learning process faster. It is easy for students to get the idea about a new technology. In some cases, the respond ratio of a technology is better than the traditional pen and pencil technology. Using technology inside the classroom generates quick respond among learners than general. Dr. Suzanne Le Beau said in her self reflection about technology base learning,

> *"We all know that students respond the technology whole quicker then respond a pen and pencil. We have a great right for learners in our class rooms that would respond much more quickly if we use technology tools."*(Document A)

These technologies not only suitable for any specific educational sector but it can be use in language learning. We found several documents where many people said using technology and interactive system in language learning could be a great step. We found a document where Graham Stanley said,

> *"I am particularly interested in use of emerging technologies and language learning."*(Document B)

Blogs, wiki, and podcasts are transformed version of traditional media. Before invention of these technologies, people were dependent on television, radio and mostly press to share new information. Now, due to change of time students can get access and gather information from internet according to their requirements and necessity. In most cases, students use different blogs, wikis, and podcasts for their data and information collection. These tools are not only used for information collection rather those are also useful for publishing present works in online. Stanley also said,

> *"This new media is transforming the radio, television and press to the tools called blogs, wiki and podcasting and particularly useful for publishing students work online."* (Document B)

Such technologies bring mobility into the educational system. People can start writing about a topics seating in his or her home and later on he or she can finish it whenever or wherever he or she wants to finish it. It is not like that he or she always carry their documents inside their portable device rather these tools such as Google docs, wikis has the option that they can reach it form anywhere through internet. One student said,

"With Google docs I can write on a document at home, open it up on my email here and finish it up." (Document C)

Using Web 2.0 technology such as Google Docs in open house decision making platform could minimize the waste unnecessary time. Through these tools many people can communicate each other and can take look each other works without arranging a number of physical meetings. Jason levy said,

"We had a technology open house last week, lets say it's ten people and hoping to planned different phases in that open house, we open up a Google document and we all enter in what we have done and what steps we taken, questions we have for each other and does not require endless amounts of meeting in fact it requires zero meetings…"(Document C)

Web 2.0 tools for learning and teaching

Blog can use as an open class room where everyone can connect and gather information. Many people use blog or forum to get rid of from an anonymous problem. Most Linux users use blog for solving problem. Language teacher use blog to open a class room wall which is visible to others from all over the world. Graham Stanley said,

"Blogging appeals the language teachers because it's a way of opening a classroom walls and showing the wider world what is happening. The wider world means other students in the class, an organization, friends, and parents, other students and teachers of another school and in fact, anyone with an internet connection and an interest." (Document B)

Blog is a tracking tool by which student can keep them up to date about new things because many people post a brief explanation about new issue in their blog. Students can keep track about the latest happenings of class room, their upcoming homework and useful resources. Graham also said,

"Blogs is being using in a way to keeping track what is happening in the classroom, posting home work and linking to internet resources are relevant to a group of students, this is the most basic way of using a blog and usually run by the classroom teacher, if however if you give each students a blog and empowering the students and providing a much wider audience for anything they write." (Document B)

Students can use blog for information sharing and also can be use as an online learning tool. They can post their regular experience from their classes and laboratories; share their personal opinion about their reading materials and personal ideas. Dr. Suzanne Le Beau said,

"How can students use blogs? They can use blogs by recording different experiences that they had in class rooms, results of experiments, they can use the book reports ways of sharing ideas and opinion on books." (Document A)

Wiki can be used as a collaborative tool for learning purpose. Students can make a plan about their meeting with a group of individuals from around the world. They can perform a virtual

meeting through wiki. Wiki is a tool where anyone can set an agenda and anybody can subscribe to that wiki and edit that agenda or add any new information. She said,

> *"It can be used as a great collaborative tool in a way that if you are lets say planning a meeting with a group of individuals from around the countries, even in your own school is set up a wiki, add to the agenda, any body who can subscribe to that wiki or you are else to that wiki can go in and hit the edit button and add any kind of information."* (Document A)

Wiki is a usable tool for language learning because students and teachers can collaborate together. Being an online classroom the wiki pages can be changed by teachers and students. Teachers can post class work inside the wiki which is accessible from anywhere from the world. Students do not need to come to a specific place and gather for a while. They could collaborate together from anywhere. Graham said,

> *"How are wikis being used by language teachers? Well as online classroom web pages that can be changed easily by teachers and students for class room projects instead of putting students work on this place and class room, teachers can post students work in the web and then are some projects such as wiki Val which allow students from all over the world to collaborate together about things they are interested in as well as learning a language."* (Document B)

Podcast is usable in class room. This tool can give best support for learning in class room. It is very easy to find a number of podcast on the internet. There are many podcast is available which contain educational materials. Student can use those podcast for their learning. Reading books or attain classroom in a regular basis for learning is not convenient for all. Dr. Suzanne Le Beau said,

> *"Podcasting is very cool. As you find out hundred and hundreds of podcasts may be thousands and thousands of podcast on the net today. Podcast range from all kind of topics and can be use very easily in the class room."* (Document A)

There are endless possibilities of using podcast in classroom. Students can collect different types of podcast from internet relevant to their interest and play that tutorial by using their mp3 players in their lunch period. She also said,

> *"The possibilities are endless. So I give you challenge today, I give you challenge to go out their, find the tools that you can use the best use in your class rooms to support learning."* (Document A)

Podcast is a vital tool for collecting information and communicating with people. A digital natives appealed by podcasting. Students of today and future may use this type of vital tools for getting information and communicating with each others. Graham said,

> *"Podcasting appeals to the digital natives. The students of today and future who think the web as with might think have a book or telephone tools, vital tool for getting information or for communicating with people."* (Document B)

Lessons as podcast format can downloaded in any portable device and listen in ideal time. He also said,

"Why use podcasts? Well as their audio and video files that can be downloaded listen to what ever you want. You can take language lesson with you and listen in your lunch hour using your MP3 player as many times you want and teachers are starting to produce podcast for students and also to share the podcast made by students." (Document B)

Student can participate in collaborative learning through Google Docs. Now, it is difficult to locate a scenario where a group of students are doing a project and one student is working in a computer and other are seating around him and try to look at his work over his head. Google Docs makes student group work comfortable. Through this tool students can participate in one project work from different place. Cheryl Davis said,

"One student is in seating in front of the computer and rest are looking over his head, now finally all the students are able to participate in one particular assignment." (Document C)

It is possible to publish own work in a certain standard. Students own work such as their articles, individual projects are now available in internet through Google Docs. Anyone can see their work from any part of the world. Davis also mentioned,

"The benefit of using Google docs, Google presentation and spreadsheets that allow to students really to publish and to become publisher in world wide level." (Document C)

Using Google docs in school for learning and information sharing is appeal to increase students knowledge. At present, students have proper control and knowledge over their education for example, using Google Docs for doing their projects and homework they are able to concentrate on quality because they can share information with each other which is helping them to produce an error free document. Chris Heumann said,

"Google docs are really given my students to controls over their education to higher than they had before." (Document C)

Google docs help to save time and increase the art of teaching level. By using Google Docs it is possible to make classroom efficient. Teachers can save time and make their teaching quality better than before by erasing the fussing factors. Chris also said,

"If you learn to use Google docs that will make the class room more efficient, you can save time and you can do the art of teaching better than the fussing factors of teaching" (Document C)

Working in Google Docs is a kind of collaborative work. Collaborative works make content meaningful and error free. If a number of students try to build a project work through web there is no doubt that they have to maintain a collaborative platform which will increase the quality of their work. Due to the different thinking level when several students will put their own idea on the same work automatically it will carrying great weight. Deena Walk said,

"One students began a column and two other students are actually they are finishing the column, that is beautiful." (Document C)

This type of tool causes cross the limit of learning time and schedule. Learners can start learning any time because they do not need to go to school for doing their work. If needed, a student can open his computer at night and start writing on his project work. If it is group work the same thing is granted. Jim Sill said,

> *"I look at my Google docs and I saw one of the prompts was written by two kids in very same time at eleven O'clock at night, it to me that means learning is happening at all times of the day."* (Document C)

Now a day, each and every one can see each other work which is very useful for information sharing in learning. Few years ago, when someone writes an article on some specific interest he or she has to review it manually. But now using Google Docs it is very easy to examine own work by others because published material can be easily read by friends, parents and others. Steve Burrell said,

> *"It's no longer that I am doing this for the points needed for the grade and the teachers who do not want to see it; I am now publishing my Peers, publishing for my parents."* (Document C)

4.2 Interview Materials

We arranged four interviews for collecting empirical data for conducting this research work. All of them are student and familiar with web 2.0 tools. We have described the description of each interviewee and represent their information in the following. We named the interviewees and interviews as A, B, C and D.

4.2.1 Description of the interview participants

Interview A: Karin Andersson. She is a student of Malmo University and presently doing her Bachelor degree in International Migration and Relation. (Appendix E)

Interview B: Petter Ellgard. He is a student of Lund University and presently doing masters in informatics. (Appendix F)

Interview C: Mikael Mallander. He is a student of Lund University and presently doing his Bachelor degree in Informatics. (Appendix G)

Interview D: Johan Winndahn. He is a student of Lund University and presently doing masters in informatics. (Appendix H)

4.2.2 Themes

The following tables represent the themes which are generated by clusters of formulated meanings of previous table (Table 6).

Table 6. Themes from interview materials.

Themes	Clusters of formulated meaning.
Usages of	Web 2.0 sites/tools have been used for several issues.

Web 2.0 tools	Blogs and Wikipedia are used for information sharing.
	Facebook, Google Docs and RSS are used in general.
	Wiki and Google Docs are much more familiar than blogs.
	Wiki is enormously useful tool for collaborative writing and learning.
Educational impact	Web 2.0 tools are useful for collaborative learning.
	Social networking removes physical distance among people.
	Collaboration and information sharing is main advantage of Web 2.0 tools from educational point of view.
	Collaborative learning through technology encourages student to do project work.
Disagreement of proper exploit	Web 2.0 tools are more useful in distance learning rather classroom.
	Distance education could be beneficial by Web 2.0 tools.
	Web 2.0 tools are very much potential for collaborative learning and not limited to distance learning.
	Distance learning could be helpful.
Potential advantage	Technology helps student to get rid off from every kind of confusion and now works like acknowledgement system.
	Minimize the cost and make quicker contact among teachers and students.
	Increase interaction between people.
	Student use Web 2.0 tools for writing thesis and group project work.
	Web 2.0 tools increase educational opportunities through information sharing.
Limitations and recovery	Some Web 2.0 tools usability does not reach user satisfaction.
	Sometimes student get confused to adopt new technology.
	Software bugs decline student attention to adopting new technology.
	More effort in the development of interactive web site could maximize user involvement and hype.

Usage of Web 2.0 tools

Web 2.0 sites and tools have been used for various purposes. Some people used social networking site to maintain the social connection and wants to share their things to others. Many of them are using these tools such as blogs, social bookmarking, RSS for information sharing and latest news collection. One of our respondents said,

> *"I use social networking sites like facebook. I also have kept blogs for several years, and have photos on Flickr photo sharing site."*(Interview A)

In most cases, Blogs and Wikipedia are used to collect required information and knowledge sharing. Collaboration between several tools sometime seems rare. A number of users among these tools are mostly fascinated by one or two specific tools. Another one said,

> *"I have used blogs and off course the Wikipedia to look for information but haven't collaborated with it."* (Interview B)

One of our respondent told, he mostly used "Google Docs" and "RSS" for his learning purpose and "facebook" to keep in touch with friends whom are living in different places. RSS helps him to know latest news from all over the world. He used Google Docs to make work shortcut. He cited,

> *"I use facebook, Google docs, RSS, especially Google docs for example to attachment my files like personalise to make some shortcuts, that I am doing it."* (Interview D)

In some extent, Wiki and Google Docs are better known than Blogs. It might be for the ease of use limitations. The usability and functionality of Wiki and Google Docs are seems comfortable with some students. In one word, they do not feel better to use blogs. One of our respondents expressed,

> *"I use MySpace, Google Docs, and Wiki, face book earlier. Not so much blogs."* (Interview C)

Wiki is enormously useful tool for collaborative writing and learning. When students do some assignment in a group they need to meet again and again which required a very long spell of time slot. Wiki could release them from this hassle as wiki is very good for group work. One respondent expressed,

> *"When you have an assignment then you have to do together as a group it is good if you easily can access the same files and documents. Wikis like the official Wikipedia and others are also very helpful, regardless if you are on your own on an assignment, of if it's a group assignment."* (Interview C)

Educational Impact

Collaborative learning can be benefited by Web 2.0 tools because of the influential characteristics for the field of collaborative learning. Students used them because those tools felt them they are connected to their teachers and other students of the class. One interview participant said,

> *"I think Web 2.0 tools has been an influential tool for collaborative learning for several reasons. I like to use them, and feel more connected to the professors and other students in the class."* (Interview A)

On the other hand, social network tools remove the physical distance among people and generally bring them together. From the educational point of view, the collaboration and information sharing of Web 2.0 tools is a plus because many students has right to use the documents whatever and whenever they need. One respondent talked about this point,

> *"I think the main advantage of this is mainly collaboration and also for storing information so many people can access to documents whatever they need."* (Interview B)

In practice, collaborative learning through technology encourages student to do project work. In some cases, course instructor force students to use Web 2.0 tools for doing their group projects. One respondent express that one of his course instructor bound them to use blog for doing their project work because the total grading of that course will be judged or depended after following up the blogging activities of the group members. He also said,

"Definitely I used with FC account to incorporate with students or collaborate with my project, and it only like getting information or distributing. It's really helpful for students to encourage and give greater support." (Interview D)

Disagreement of proper exploit

After conducting the interview for our research work we find one conflict of the use of Web 2.0 tools in the educational context. Some respondents believed that Web 2.0 tools are more useful in distance learning rather class room. Distance learning required these types of tool because students from distance learning do not have interaction with classmates. Blogs, wikis, or any kind of social networking could make them interconnect with each other. One respondent said,

"I don't think it is useful in the classroom. I think it is more or less distance learning, I mean when you are not present. I can't see any benefit inside the classroom." (Interview B)

There is a possibility that distance learning could be helpful by using Web 2.0 tools but it is uncertain to declare that uses of Web 2.0 tools in class room will be meaning less because any kinds of project work or group assignments need a collaborative work between groups of student. Another one said,

"I think it's very important for distance learning and more or less limited for classroom education practice." (Interview D)

During interview we asked one respondent that why distance education could be beneficial by Web 2.0 tools. The answer was not vivid because it really creates confusion if we try to specify the points; there will be several points which will provide meaningful evidence for above question. He answered,

"Haven't thought much about it, but it might be useful when in some part combined with "education by distance"." (Interview C)

On the other hand, one of our respondents thought Web 2.0 tools are very much potential for collaborative learning which also include classroom and not only limited to distance learning. We will see a big growth in those applications which have been using for collaboration from last few years. He said,

"…Big potential, specially, but not limited to learning by distance. I think generally that we will see a big growth in applications (web and non-web) for collaboration…." (Interview C)

Potential advantage

Technology helps student to get rid of from every kind of uncertainty and a mechanism which provide an acknowledgement system. Some students are not comfortable to talk inside classroom but through web 2.0 tools they can share their thoughts and hidden potentials such as if students of a specific course used a blog than everyone can post their suggestions and information related to that course. However, using wikis for a classroom it is possible to post

announcements or ideas from students which can be change anytime and all students will notified at same time. One respondent said,

> *"First, the participants have a different opportunity to craft their statements before sharing them. These appeal to different types of learners who may not be comfortable speaking during class. Second, the Web 2.0 tools make information sharing not just a classroom activity. Whereas we used to have to wait for the next class to hear announcements or ideas from students, now it can be done anytime…"* (Interview A)

It helps to minimize the cost and make quicker contact among teachers and students. A classroom wiki or blog helps to make quick contact both student and teacher. Teachers can post the related course materials inside in a wiki which will keep far students from photocopying and these types of posting inform all students about their preparation for next class. Another one expressed,

> *"I'm just assuming that these will tools help professors communicate with us when needed. There is less photocopying (they post it online) and it lets them alert the students of what to prepare before the class, instead of during."* (Interview A)

Increase interaction between students. Using different types of Web 2.0 tools in classroom such as blogs, wikis, Google Docs etc. for collaborative learning not only help students in an academic point of view but these types of tools boost up their social activities. One respondent believe that,

> *"Sharing information I think, like cross borders, discuss things, it's easier to connect with people. So I would say it's a practical thing. People can connect and interact with better way…."* (Interview D)

Students use Web 2.0 tools for writing thesis and group project work. If we consider about writing a thesis in a group of two or three people, the simple procedure is distribute the work among them and then start working form different place. They need several meeting for discussing about their roadmap while working. Using a Google Docs could be release them form arranging physical meeting which is very time consuming. One said,
> *"I've used Google Docs and Google Groups during writing of thesis, and some other school-assignments. I've been using its learning and other distance-education-platforms during some courses I've taken."* (Interview C)

Web 2.0 tools increase educational opportunities through information sharing. World is moving headed for online learning for instance students are more interested in Wikipedia rather public library to find or make query about one specific information. Web 2.0 is increase the educational prospect and opportunities between students and teachers. One respondent talked,

> *"I think the world is moving towards more internet based learning (just Wikipedia has changed the face of information sharing) and web 2.0 is the application of information sharing to educational opportunities. I think it will just grow."* (Interview A)

Limitations and recovery

We have also received some obligation about few drawbacks of using Web 2.0 tools. Some Web 2.0 tools usability does not reach user satisfaction. Due to problematic navigation structure students had some bad experiences for example personal blogs contain menu to hold specific things which makes confusion to others. One respondent talked,

> *"...I found some difficulty to use blogs, one person's specific blog. If I want to look for some specific task, I had to go some menu; I mean the navigation structure could be problematic."* (Interview B)

Sometimes students from basic level get confused to adopt new technology. Another one said,

> *"It depends, the basic level of students is not used to through this technology, and it could be scary to dependant of this system. If you are advance user you should used to or adopt it...."* (Interview D)

Software bugs decline student attention to adopting new technology. Though, these technologies and tools are a combination of code and logical language so it is normal that they have few errors. One of our respondents said,

> *"An example is I found many bugs in Google Docs. Otherwise, I haven't seen any problems really"* (Interview C)

More effort in the development of interactive web site could maximize user involvement and hype. One respondent expressed,

> *"..I think creating applications for the web, although we see more complex web applications all the time, is somewhat more tricky (technically) than developing applications for the desktop. Therefore it might require more effort in development, but I can't see any definitive barriers...."* (Interview C)

5. Discussion

5.1 Web 2.0 tools and their advantages for collaborative learning

Blogging and learning

In this research, we have found that blog is very useful in collaborative learning. In section 2.2 of literature study, we have described the definition of blog and section 2.6.1 we have also briefed the educational uses and benefits of blogs. Richardson (2006) lists few positive impacts of blogs on learners. Blogs have quite many potential areas for educational uses. It is possible to replace the traditional web page. Blog allows student to perfectly locate information in relation to dates in the academic year and it is not presenting any new thing rather it provide a chronological sequence of information (Downes, 2004). Most of the respondent and expert agreed class discussion became organized through using a blog and it used to publish links to journal and articles and websites associated with the course module. It is also allowing students to submit their comments on the articles and websites. Students share opinions and learning to increase their constructive analysis of other's posting. Both students and teachers learn from each other by using blogs. Bases on our literature study and empirical results, we can draw a framework as table layout which will describe the preference of using blog in collaborative learning.

Table 7. Framework of blog in learning.

Tools Name	Course of action in learning	Benefits
Blog or weblog	Post links to Lecture, course literature, reading list, articles, opinions and information. Support student commenting, questioning and complete home task on a blog. Generate space for in class discussion and note recording as well as offer students feedback. Network with outside world and possible to share carrier portfolio.	Minimum technical skill required and chronological order has been maintained in posting and learning style is reflective, visual and active. Promote four thinking level described in section 2.6. Every one can subscribe each other feed and linking promotes referencing of information.

Wikis in education

In our literature study, we have described the definition of wiki and discussed the educational benefits and uses. Wiki offers a collaborative authorship and writing space (Duffy & Bruns, 2006). Most of the respondent and expert approved, Wiki used to publish course notes, handouts and recommended reading lists and very useful for group projects because authors can see the evaluation of written task and comment on it rather putting comments on final work. Collaboration and information sharing bring success in all fields. Students developed their collaborative skills, reading abilities, writing abilities and critical thinking by appropriate use of a wiki. According to Burns (2005), students do not want to publish their work on websites in a less than perfect state as they did not want others to examine their work. We have figured out, wiki used as a knowledge base for teacher; they share reflections and

thoughts regarding teaching practices as well as versioning and documentation, though wiki is searchable it has easy navigation, categorisation and file management system (Duffy & Bruns, 2006). Based on our literature study and empirical findings, we can draw a framework in a table format which will provide the precious fondness of wikis in education.

Table 8. Framework of wiki.

Tools Name	Course of action in learning	Benefits
Wiki	Publish reading list, course notes, In class notes, student portfolio of documents, and handouts. Keep record of projects, views and opinions on recommended reading. Space for course documents, share teaching and learning techniques and record minutes of student and teachers meeting. Critically analyze and make update of existing documents.	Maximize the internal perception of an institute. Collaborative space makes student reader. Networking with others and realistic exercises with publicly exposed objective. Learning style is active, visual and reflective.

Learning from podcasting

Podcast is known as audio blog. It is easy to create without having any great expertise. In this research, we had few interviews and documents where participant and narrators were expressing their own ideas about the use of podcast in education. Lecturers record all of his lecture or parts of them and make it open to students. New library of knowledge has created by podcasts which is different in medium to the conventional text library. Richardson (2006) believed a well known podcast library called podcastalley.com which hosts more than twenty thousand podcasts on topics ranging science, sports, computing and television. In United Kingdom, a website has been opened which is called podcast for education (http://recap.ltd.uk/podcasting/) that lists over four hundred nominated podcast channels for education purpose. The lists of those podcast cover history, quantum theory, language lesson, computing and medicine. Based on our literature study and empirical findings, we draw a framework represent as table which will provide the preference of use of podcast in collaborative learning.

Table 9. Framework for Podcast.

Tools Name	Course of action in learning	Benefits
Podcasts	Partial or entire lecture from own institute and others lectures or seminars. Student can deliver their home task as podcast format. Specialist can do critical analysis of presented podcast.	Student will notify about audio recording, compression and storage technology.

Social Bookmarking for knowledge sharing

Identification could be a common problem for students to find out high quality and relevant articles among thousands of blogs, wikis and podcasts. We have already discussed the definition and functionality about social bookmarking in literature review. Once again, social bookmarking is a tool where contributors approach links to scientific paper and articles by category. Suppose, a professor trying to get a document on a specific topics it will makes his life easy if he starts finding his topics in Del.icio.us (cf. section 2.2.4). According to Richardson (2006), a peer review of website is available where user rate and tag specific bookmarks and this considers a catalogue of websites reviewed by people in the same interest domain. The educational potential is representing students to peer evaluated articles, in the same way that a reference list of our thesis reveals the sources of used information. Students put their opinion and ratings on already presented articles and make new contribution by submitting new links and articles. Our literature study and empirical results support us to draw a framework which is represented as table will describe the usage and advantages of social bookmarking for collaborative learning.

Table 10. Framework of social bookmarking.

Tools Name	Course of action in learning	Benefits
Social Bookmarking	The list of course related content has been provided by a central area. Lecture related sites exposes to students.	Increase the availability of RSS feeds and account in Del.icio.us is free of charge. Enable to put opinions about websites and critical analysis.

Google Docs in practical use for learning

We have found Google Docs used by a group of students working together on a project which involves creating one or more of the most common knowledge artefacts like word documents, spreadsheets or presentation. A group of students can share the editing rights to different documents in the Google Docs online environment. One of our participant said, all group members can work on the same document from different locations. We have found revision history of Google Docs helps to track the changes that have been made as well as provide in formulation about their authors and permit any of the earlier versions of the document to be reverted back to. We draw a framework form our empirical study about Google Docs which will represent the course of action and benefits. At the very beginning we did not consider Google Docs as Web 2.0 tools which could be useful for learning and teaching but while we conducting interviews our respondents was very much focused on these tools.

Table 11. Framework for Google Docs

Tools	Course of action	Benefits
Google Docs	Support group of participants in a single document. Revision history helps to keep track the change. Allow publisher to publish their document in world wide.	Remove the traditional time consuming process. Increase the control of students over their education. Independent accessibility.

5.2 Interactive education through Web 2.0 tools

Student, education and technology have been changed in the pass of time. So, we have passed from static web to a dynamic one, almost over night. The new only born user has no longer a passive role but he can participate and collaborate by creating and sharing content (cf. section 2.1). These new user has an active role that an able to him be a part of the massive community. These new web also called social web is a nominated web 2.0. The users are the leaders of new change and the old web also called the web of data, it is now the web of people. It generates space where interaction is constructed by the social factor and technology. The users share content for information and communication. In web 2.0 interactions is given by user platform such as blogs, wikis and forums and the content can be classified into categories for example, Wikipedia created in 2001 by same users. Twitter is a wide platform for lazy teachers who can write little messages to get students informed what is going on. Teachers and students can stayed in two communities but they will login same school off course. So these tools like blog, wiki and twitter are the easiest one to use for learning purposes.

According to our empirical data, by means of blog, student put files and multimedia facts and in return they receive commentaries from visitors. In the case of wiki, it is possible to edit, publish and modified information on built knowledge. If anyone wants to share a document or work together on line Google Docs is a perfect platform we can say that from our empirical study. We can also foster values, participation, respect, and acceptance which will encourage working together. Now, we do belong to the digital immigrant generation. At this time, how can we short gap with our new students and the answer is the using e-tools they fortune motivation and projects of their own. For us, this is a hard task to reach their level of abilities on the net but not impossible. This gap can smaller if we start get in touch the new ways of teaching. Finally, the web 2.0 offers a wide range of teaching learning possibilities in any field to know, to share, to participate to help us all to interact. It is a high thought but we want to work together with our digital natives and keeps man steps back.

5.3 Implications for education

The educational system is continually being changed to keep up advantage and technology. As a particular piece of technology gains critical mass in general society their pressures brought to bear by supporters of this technology to incorporate into all settings, personal business and into the educational settings. This is happen through history with the invention of papers, calculators, computers, the internet and now the web 2.0 social software's. So these web 2.0 or social software tools such as blogs, wikis, and podcasting for example have already become accepted in many educational settings particularly in distance education and e-learning. Other example of web 2.0 or social software's such as RSS, FaceBook, and MySpace have not experienced in such a worm welcome. Already the educational system pretty influenced these new ways that social software were bring in. our thesis work presents some of implications for schools, teachers and students as web 2.0 social software continue the encouragement into the educational settings. Web 2.0 social software is a recent term on education reader seen. There is still some little disagreement and precise limited affiliation on this term. O'reilly (2005) describes web 2.0 as "a cluster of technologies that combine to allow web sites to become interactive". Styles (2006), defines "social software as one that users can contribute their content to, and in so doing, the content becomes richer or more accurate and more people can use it". There is much such definition about web 2.0 social

software we found in literature. Suarez (2006) and his research found hundreds of definitions for web 2.0 social software and his focus on this rather simple definition is for his own use. "Web 2.0 social software is about connecting people and amplifying the power of working together". Web 2.0 social software is multifaceted in many aspects how we communicate and learn electronically today.

A common core of these characteristics is social software (Presented in Literature review, section 2.1) makes possible collaborative effort of individuals and groups over a web base environment to achieve a common goal or purpose. Learning in a tool web 2.0 social software meditative worlds is focus more in learner's hand than in the teachers. Web 2.0 social software is probably the most significant change agent to hit education and world in general since we had been MOSAIC the first visual web browser which part a world of information take sound and pictures with click of a button. Marhan (2006), in her article 'connectivism, concepts and principals for emerging learning networks' suggests at there is already silly presents of social networking applications in virtual learning environments. It stands a reason that ones establish on these environments only be time before we see more of these instant messaging, blogs. Wikis, RSS, VOIP, social bookmarking technologies in our environment. These social technologies make in roads into the learning environments they are reshaping learner's behaviour and needs but also the theories and principals of learning process as design an evaluations.

Web 2.0 and social software now brings to directly use in the collected and individual wisdom of the world. Publishing and editing of new knowledge now is open up to just about anyone with an internet connected device. Web 2.0 technologies have move learner's from content consumers to content creators while engaging in a more participatory environments through activities such as soft publishing and user generating content using multiple forms of interaction. The learner engages in deep level of social interaction and results enhance knowledge creation. A key question for education is so what impact of this how students learn and teachers teach in the classroom? Learning in a Web 2.0 world will be influence by a globalization of how we learn and growing culturally. This globalization has been brought on by the ease of use desperate people can interact with one another through technology and a common interest. Students today are using social software as an extension of their physical selves. They are communication and creating social networks and sharing details if their lives to the world. However, for most school is currently is a place of disconnect, they have to power it on when they go to class to learn. Many schools have no cell phones, no electronic devices policies in a fact. These creates a kind of disconnect any nation from many students with how they communicate learn and connect to their world. This alienation of learning and technology is slowly starting to break down as schools and educator realize that today students are connected generation some called "Netgen" and we hope to capture their attention we need to start communicating with them at their level. In addition, distance educations with some students even in regular, schools take part of starting to use more and more these social software technologies. The question is becoming if we can use it in distance education than why we can not use it in class room?

5.4 Learning and knowledge building using Web 2.0 technologies

Our main research focus is on web 2.0 tools and how these apply in all kind of collaborative learning. Factor or case is here to introduce web 2.0 tools for teaching and learning. So we know more about this as we get engaging and practicing with these tools and technologies and conducting the research. According to our literature review, first thing we know Web 2.0 is a

metaphor, a paradigm shift, a new culture (O'reilly, 2005). It is about thinking different about internet, what we can do with internet technologies? As saying this, the point is requesting a paradigm shift different thinking and this thinking also is in respect to how do you use these tools in teaching and learning? Second thing in that web 2.0 user control information which means they can subscribe information and will just go to internet to consume information. But online participation is necessary. Appling this model in learning and teaching that's means that students are not only consume the content that prepared for them but actually participate internet content useful for others in around. Another point is presence, we know lots of students have an account in FaceBook, and they have a blogs which basically builds their identities in cyberspace, it is not anymore that students just put on a webpage but they have lots of information about them self, make their profile to connect other people to make the friends, friends of the friends, meantime, the collections of browsers bookmarks online. They have their favourite video song online and information harvesting and bringing content together in blogs and on around.

As a social environment, in web 2.0, in a moment students are not alone the user of the internet information, but actually a participant of interaction and collaboration and all this technologies. That's why we are talking about Web 2.0 as a social web (O'reilly, 2005). Web as a platform (cf. Section 2.1) this is another very important concept of web 2.0, now we find information like a Google docs, mind mapping and so on. All these applications inside in the internet environment students need to turn on their computer and go to the internet and they will get latest version software available for use. So, web as platform (cf. Section 2.1). Web 2.0 is also reach forms of expression as we said one of the first points is user activate participate integration of information. However, this information is driven by powerful and user friendly tools that emerge everyday on internet, the tools that allow us to create multimedia presentation, the tools that allow us to mix the video with audio, the tools allow us to grab our phone and speak to the phone and immediately broadcast online. So, the new forms of expression empower the multi model tools and communication.

6. Conclusions and further research

6.1 Conclusions

One main question and one sub question have been asked at the beginning of this research in an effort to explore the using preference of Web 2.0 tools in collaborative learning environment as well as their advantages. In order to give answer the first question which was: What Web 2.0 tools are preferred to use in an educational environment for collaborative learning? Let us make clear about one thing once again that is, we actually mean by the word 'environment' here as different field of education like classroom learning, distance education, research work and language learning.

Finally, we have found blog, wiki, podcast; social bookmarking and Google Docs are very useful for learning. We have produced a framework as a table format for each of them which have described their individual course of action in learning and advantages. Blogs, wikis, podcasts, social bookmarking and Google Docs have increased the interaction between teachers and students. The implication of those tools for education has been discussed thoroughly in our discussion chapter in section 5.2, 5.3, 5.4 which included educational system has pretty influenced by these new ways. Social software's were bringing in and become accepted in many educational settings particularly in distance education and e-learning. The ability to incorporate personalisation, scalable and customized system has provided by the use of blogs, wikis, podcasts, social bookmarking and Google Docs in education. Students want a learning atmosphere which has the capacity to support a variety of different resources and systems. The use of above stated components are attractive to both students and teachers because of its extensive feature. Students used blog, wiki, podcast, social bookmarking and Google Docs in every single day in their personal lives through this attractiveness, educational institute can push themselves into a position that is inviting and extremely attractive to learners.

In order to provide answer the sub question which was: What will be the advantage of using Web 2.0 tools in collaborative learning? We have discussed the several benefits of using Web 2.0 tools like blog, wiki, podcast, Google Docs and social bookmarking in learning as well as teaching. Using a blog in classroom is very easy because it does not require high technical skill, chronological order has been maintained in the case of posting and learning style is reflective, visual and active. Class discussion has organized through a blog and it has used to publish links to journal and articles and websites associated with the course module. Main characteristics of a blog which is, it promotes critical, analytical, analogical and creative thinking. Wiki's represent a swing in learning where learners have the facility to make other's work as his own work. It provides a peer learning concept which has no existence in the traditional learning and collaboration space makes student reader. The learning style of wiki is active, visual and reflective. Using podcasts student will notify about many new technology such as audio recording, compression and the storage technology. Learners have utilized their maximum time by adopting these modern technologies in their learning environment. Google Docs is accessible 24*7*365. It allows students and publishers to publish their work in a world wide level and remove the traditional time consuming staffs. It also increase the control of a student over his education and unlimited the learning time. In this research, we could not argue that it is very easy to transform the education system over night by using Web 2.0 tools where as traditional learning is standing method for learning commonly used everywhere. A learner equipped for a knowledge economy needs to be capable of to dealing with uncertainty, needs to be flexible, portable, inventive and entrepreneurial. The avenues of communication,

greater choice of learning and enlarged communication channels would augment academic capabilities and boost up the engagement in the classroom. Students require to have right to use the course content over their learning period while at institute and also access to course content so that they may return to trace material previously studied that may be useful to them for a second time.

6.2 Further Research

The features of Web 2.0 construct infinite opportunities and possibilities of further research. The use of Web 2.0 tools in educational environment is still new approach and their benefits and drawbacks are not yet fully recognized. We have discussed the different use of web 2.0 tools in learning purpose. There is a need for further research to evaluate this use more deeply in order to augment the understanding and stand on the most controversial issues related to data quality, accuracy and other side effects.

Appendix A

Document transcript A

Name of document: Ways to use blogs, wikis and podcasts in the class room

Name of participant: Dr. Suzanne LeBeau

Email: s_lebeau@yahoo.com

Personal website: http://www.suelebeau.com/bio.htm

Statement

Good afternoon, I want to talk to you about some of the technology tools that we have available to us in education. Many of these tools have been around for a while even though we haven't been using those tools in schools in our class rooms to support learning in the curriculum. But they are none in the less I think we have to get on board and start using some of these tools in the class room. We all know that students respond the technology whole quicker then respond a pen and pencil. We have a great right for learners in our class rooms that would respond much more quickly if we use technology tools. Some of the newer technology tools we have today are called blogs may be heard off the new blogging industry that's taken off like a storm. It really took off much more quickly after 9/11.9/11 people make started their blogs and started recording their experiences after the 9/11 tragedy. In our class room however we can use blogs not so much as a diary as many people think of a blog is more or less diary recording you knows what I had a lunch for yesterday, is not something that anybody cares to hear about. Who ever in the class rooms we can uses blogs in a Variety of ways. I will be posting on my blog in different ways that we can uses blogs in the class room. So you might want take a minute and judge down that you are owe.

 Form time to time I will post the different ways that you can use blogs in the class room at this blogging site. So feel free to visit it I would ask to make some comments on it time to time. I would like to start your own blog if you look to right on this blog and you will see list of links and those links are links that go out to many (many) free blogging services. I don't recommend one over another because they are pretty much same capabilities, play with them, and experiment with them and share with your thought and ideas in that blog and may be we can form together a type of community where we support one another in blogs. How can students use blogs? They can use blogs by recording different experiences that they had in class rooms, results of experiments, they can use the book reports ways of sharing ideas and opinion on books. There are numerous different ways that we can use blogs in the class room. So as we join together in this blogging community may be you can share some ways that you will be use blogs in class rooms.

Another great technology tool called wiki and a lot of people have a great concern of wikis. Wikis are actually a web site that can be edited by anyone. These web sites has the capability of being like as edited with a simple click of a button you can click edit go in and change any thing in that web site. It can be used as a great collaborative tool in a way that if you are lets say planning a meeting with a group of individuals from around the countries, even in your own school is set up a wiki, add to the agenda, any body who can subscribe to that wiki or you are else to that wiki can go in and hit the edit button and add any kind of information. I have used wikis in a number of times with different groups of people in different types of collaboration. So blogging and wikis are two tools that we can use as a collaborative type tool. I will be post in my web site as well different web sites that you can go and start

free wiki. In addition to blogs and wikis you will find podcasting probably the most unthawing activities that you can do with children and young adult. Podcasting is very cool.

As you find out hundred and hundreds of podcasts may be thousands and thousands of podcast on the net today. Podcast range from all kind of topics and can be use very easily in the class room. The cool thing about podcast is it is video clips that can be easily downloaded to your ipod. When you download to your ipod then you can take your video with you, audio with you and listen and view your podcast right on your ipod. It's very easily done. There are many (many) podcasting tools out there today actually one that I am using right now is from youtube and you can actually go in, set up a free account, and record your video as I am recording right now and save it and posted it on to this free web site. The possibilities are endless. So I give you challenge today, I give you challenge to go out their, find the tools that you can use the best use in your class rooms to support learning. Again from time to time, I will be post video and audio podcast clips on my web site for those of you who would like to learn more. Please visit my blog and you will learn about some very cool podcast that are out their today in the field of education and technology.

Appendix B

Statement:

I am particularly interested in use of emerging technologies and language learning. One I am hope into do in this short presentation is to introduce some of the tools new web 2.0 and hopefully show u few examples what can be done to engage our 21st century language learners. I will also be taking a quick look at the exciting virtual world of second life which is buzzing with educational activity and full of promising possibilities and some commentators already protected could be the prototype of World Wide Web may become not so distinct feature, a three dimensional web or web 3d some of called it. Before I move to the third generation of web, what about the second generation of web or web 2.0 as it's been levelled? Well, why the name? What seems to be true is at the way of many people interact with the web and what they want from is changed.

The same is true for education with the lot of people, what are the new tools and how they are being use by language teachers? A lot of them are transformative tools are being talked about a lot of different fields especially where media was involved as their all about making it possible for any one to do it in home or previously only professionals with expensive equipment could accomplish. This new media is transforming the radio, television and press to the tools called blogs, wiki and podcasting and particularly useful for publishing students work online. So let's start by humming a look at blogs and how they are being used at English language teaching. Blogging appeals the language teachers because it's a way of opening a classroom walls and showing the wider world what is happening. The wider world means other students in the class, an organization, friends, and parents, other students and teachers of another school and in fact, anyone with an internet connection and an interest. Blogs is being using in a way to keeping track what is happening in the classroom, posting home work and linking to internet resources are relevant to a group of students, this is the most basic way of using a blog and usually run by the classroom teacher, if however if you give each students a blog and empowering the students and providing a much wider audience for anything they write. It's also easy to connect with teachers doing the same thing from another part of the world that creating a small language learning community.

The wiki is the next tool I would like to talk about. Wiki is basically a web site that can be written to be easily by a lot of people. It's a space where content given priority not design and any change made to a page can reverse because wiki has a revision history function. How are wikis being used by language teachers? Well as online classroom web pages that can be changed easily by teachers and students for class room projects instead of putting students work on this place and class room, teachers can post students work in the web and then are some projects such as wiki Val which allow students from all over the world to collaborate together about things they are interested in as well as learning a language. It's a little bit a like the projects Wikipedia for students. The last tool is about I would like to talk is podcasting which is a way to using voice to help students who connect to others from around the world as well as providing lots of different recourses for students they listen to off course. Podcasting appeals to the digital natives. The students of today and future who think the web as with might think have a book or telephone tools, vital tool for getting information or for

communicating with people. Why use podcasts? Well as their audio and video files that can be downloaded listen to what ever you want.

You can take language lesson with you and listen in your lunch hour using your MP3 player as many times you want and teachers are starting to produce podcast for students and also to share the podcast made by students. It's another great way to opening of the classroom to the wider world. Students also take great take care as they produce when they know there is an audience. There are lots of directories where you can make students work available to the world and also getting contact with light mined teachers who running podcasting projects. Communities of practice in online are probably the best places they can in touches with the other podcasting classes. In this way, your students can be involved in producing exciting inter culture radio shows for example for other students in different parts of the worlds a truly motivating project. When running this projects blogs, wikis, all podcasts it also very easy to show the students by using free tools available on the web that the reasons audiences and students other people listening to them to extremely motivating.

Appendix C

Document transcript C

Name of the document: Teachers and principals told us why they use Google docs.

Respondent identity and their speech

Kyle Brumbaugh, Administrative vice principal, Woodside high school, Woodside, CA

"The biggest thing with docs is that it is accessible 24*7*365"

"You able to see the students writing and do they really take the comments on the page from a teacher and then apply those back on their work"

Cheryl Davis, technology coordinator, Acalanes Union high school District, Lafayette, CA

"On my docs are right there no matter what machine or what station I am on"

"One student is in seating in front of the computer and rest are looking over his head, now finally all the students are able to participate in one particular assignment"

"The benefit of using Google docs, Google presentation and spreadsheets that allow to students really to publish and to become publisher in world wide level"

Jason levy, principal, CIS 339, Bronx, NY.

"We are able to incorporate and integrate Google apps and Google docs into pretty much we do everything in school"

"We had a technology open house last week, lets say it's ten people and hoping to planned different phases in that open house, we open up a Google document and we all enter in what we have done and what steps we taken, questions we have for each other and does not require endless amounts of meeting in fact it requires zero meetings"

Chris Heumann, science teacher, kennedy junior high school, Cupertino, CA.

"Google docs is really given my students to controls over their education to higher than they had before"

"If you learn to use Google docs that will make the class room more efficient, you can save time and you can do the art of teaching better than the fussing factors of teaching"

Student

"With google docs I can write on a documents at home, open it up on my email here and finish it up"

"Instead up like bothering emailing like documents back and forth than it is ok, I can save it here I could to open it from Honk Kong, India wherever I am"

Deena walk, Teacher, CIS 339, Bronx, NY.

"One students began a column and two other students are actually they are finishing the column, that is beautiful"

Jim Sill, Teacher, El Diamante high school, Visalia, CA.

"I look at my Google docs and I saw one of the prompts was written by two kids in very same time at eleven O'clock at night, it to me that means learning is happening at all times of the day"

"How I used to say my students that my idea is perfect and so somebody else to read that and why interact with somebody else with my idea and the idea becomes better and I think Google docs help us to do that"

Susan Ettenheim, teacher, Eleanor Roosevelt high school, NY.

"Recently we had students in Virginia and Alaska talking about hunting together, the Alaskan student look at some NY city stories and they get in quite great because no idea where I was"

"We work gathering together some college recommendations, how long is going to task the piece of paper around the room, one of the teacher seating at the table and said this is obviously Google docs we can not do it in any other ways"

Student

"I thought it is really easy how you can talk between people because I know he and I say we can find get another opinion before I turn it in"

"It would be pretty same order to seating next to someone and working it together but you could be in your houses"

Jesse Spevack, Teacher, CIS 339, Bronx, NY.

"We work on a major writing piece in class and go to the writing process, brain storm, improvise and publish and all this is done in Google docs"

"Ken sue were totally devastated from learning now interested my class at all, come in everyday and really excited to get in the laptop and which makes the lesson interactive and exactly improve learning"

Donna Axelson, Technology Resource teacher, Cupertino union school district, Cupertino, CA.

"As a teacher that gives me the opportunity to see which students are doing the lien share of their work"

"You have raises a level of their work because they are begin to understand how many people are reading what they have done and they want it to be the best they can do"

Steve Burrell, Assistant principal, Miller Middle School, San Jose, CA.

"It's no longer that I am doing this for the points needed for the grade and the teachers who do not want to see it, I am now publishing my Peers, publishing for my parents"

David Prinstein, Dean of Instruction, CIS 339, Bronx, NY.

"I can't even furthermore what we have done this time in last year without the communication or without the collaboration and without the ease of saving that Google docs offered us so far, so far I said because I have no idea what is coming next"

Appendix D

Interview Guide

Name: Interviewer name:

Occupation: Date:

Organization:

Step 1: take appointment from interviewer.

Step 2: introduce ourselves and explain our purpose to the interviewer.

Step 3: explain the rights of interviewer in relation to confidentiality, consequences of the interview.

Step 4: ask interviewee if he or she has any questions or need any explanations before starting to record the interview.

Step 5: start recording and ask questions according to the themes below.

1. What different type of Web 2.0 tools you use in general?
2. How Web 2.0 tools can help you in collaborative learning?
3. What type of Web 2.0 tools you do use for education so far?
4. How does Web 2.0 help students in your department or institute?
5. Comparing to the traditional education system, what are the possible advantage of using Web 2.0 tools in collaborative learning from your point of view?
6. What do you think about the affect of using Web 2.0 tools in global learning (such as language learning, short course, research work etc.)?
7. What problem did you experience regarding using Web 2.0 tools?
8. What do you think if educational institution adopts Web 2.0 in learning practice, they will face any barriers? If yes why? If No why?
9. What is the main real meaning of Web 2.0 tools for students when they realize this is best application to practice in collaborative learning?
10. What do you think about the importance of Web 2.0 tools for educational practice?
11. How does Web 2.0 tools impact learning and teaching from your viewpoint?

Appendix E

Interview Transcript A

Interviewee Name: Karin Andersson

Q: What different type of web 2.0 tools you use in general?

I use It's Learning within the university system, as well as social networking systems like Facebook. I also have kept blogs for several years, and have photos on Flickr photo sharing site.

Q: What is your opinion about using web 2.0 tools for collaborative learning?

I think web 2.0 has been an influential tool for collaborative learning for several reasons. I like using them, and feel more connected to the professors and other students in the class.

Q: How web 2.0 tools can help you in the context of collaborative learning?

First, the participants have a different opportunity to craft their statements before sharing them. These appeal to different types of learner who may not be comfortable speaking during class. Second, the web 2.0 systems make information sharing not just a classroom activity. Whereas we used to have to wait for the next class to hear announcements or ideas from students, now it can be done anytime.

Q: What type of web 2.0 tool are you using for education?

It's learning is the system used at Malmo. We have used it as a library for resources, the platform for testing, and a place to turn in assignments.

Q: How does web 2.0 tool help your department or institute?

I'm just assuming that the tools help professors communicate with us when needed. There is less photocopying (they post it online) and it lets them alert the students of what to prepare before the class, instead of during.

Q: Comparing to the traditional education system, what are the possible advantage of using web 2.0 tools in collaborative learning from your point of view?

The education can keep up with technological advances. For example, most employees use computers to email, upload, or share information. We are more prepared for these types of jobs with the web 2.0.

Q: What do you think about the affect of using web 2.0 tools in global learning (such as language learning, short course etc.)?

I have little experience with how it may help global learning, but I think the social networks in general bring people together. It is much easier to keep in contact with friends abroad with the services.

Q: What problem did you experience regarding using web 2.0 tools?

I had a terrible experience with an examination held online through the It's learning site. I wanted personal contact (to ask questions etc.) and the stress of following the instructions

plus the actual stress of the exam was more than I wanted. Also, there have been issues with formatting the groups correctly. For example, there are restrictions on posting in certain areas—only professors may post there. There are times where I think the communication could work better if there was more freedom to edit.

Q: What do you think if educational institution adopt web 2.0 in learning practice, they will face any barriers?

I think the generation of teachers using web 2.0 may not be as comfortable as the students. Several professors don't even like to use email and powerpoint, let alone a web 2.0 system in the classroom. There will be a slow start to it, based on the fact that most teachers are a bit out of touch with new technology.

Q: What is the main essence of web 2.0, when student realize this is best application to practice in collaborative learning?

It is communication tool that will just grow—it gets better with more use. The main idea is that the more we post and participate, the more information is available to us.

What do you think about the importance of web 2.0 tools for educational practice?

I think the world is moving towards more internet based learning (just Wikipedia has changed the face of information sharing) and web 2.0 is the application of information sharing to educational opportunities. I think it will just grow.

Appendix F

Interview Transcript B

Interviewee Name: Petter Ellgard

Question 1:

Respondent: I would say the e- mail and web mail account that I am using like hotmail. I have used blogs and sometimes just look in Wikipedia but haven't used to with it. But blogs I would say in HCI (human computer interaction design course) used for my education purpose. Every person in the class has to have individual blogs. We were required to use into our educational activity that was an example.

Can you tell us how have you used blogs according to your HCI design course?

Respondent: For example we had specific task to do and enter into blog, specific like a group process, sometimes some specific points for example provide your link that how did we proceed our work, and also we were getting points for the blog at the end of the course.

That means your teacher evaluate your activities according to your blogs.

Respondent: If you have a good activity, like if you can use properly web 2.0 you will get the high grade. And also you can look each other blogs and also you can get some tips. We were supposed to create initially but that was cancelled and only it was personal blogs. And we were supposed to collaborate tools as web 2.0 but it was cancelled due to log in problem, so just only personal blogs. If I have a project in my mind and I can share my comments through my personal blog and any one can read my blog and get the idea, overall the collaborative way.

Question: what is your opinion of web 2.0 tools for collaborative learning in the class room?

Respondent: I don't think it is useful in the classroom. I think it's more or less distance learning, I mean when you are not present in the class or any discussion meeting. I cann't see any benefit inside the classroom.

Question: So why it is useful for distance learning?

Respondent: I think distance learning it is useful for meeting, is it good to store in information. For example blog its always share anyone opinion. I can say, please look my blogs and give your opinion, I think meeting is the best definition for collaborative learning.

Question: How web 2.0 tools in the context of collaborative learning in respect of distance education?

Respondent: I think its dependent on the instructor, for example the HCI course, students have to create their own blogs, and additionally it depends on the assignment, the structuring the course. I think Skype, msn also useful tools for distance collaborative learning.

So you are suggesting the messaging system could be useful when you are involved with distance learning. Not very useful in direct or classroom learning.

Question 4:

Respondent: blogs and the web mail. For assignment I have used Microsoft work space to collaboration upload my assignment and you can let other see documents.

Question: How does web 2.0 tools like blogs, wikis, rss used in you are departments or you are institute? What do you think basically?

Respondent: I used for example the webmail to send documents, I am not blogging apart for the course, and it was required for the course.

Question: Do you think it could be helpful for the students for the information sharing or information gathering for their goals or their research work? Is it useful to gather data from using web 2.0 tools instead of using traditional library system?

Respondent: I think ELLN library system could be useful, whether it is web 2.0 or not. I think first class could be more useful. Some features of first class I never be used but it could be useful, Just only for logging and checking only information from the teachers. But there are lots of tools in FC but lots of people used this.

Question: So your opinion is if the administration possible ad some user guide using this type of tools then it will be available or easy for the students., So your point of view what is the possible advantage to use web 2.0 tools for specific education not for the institutional education, like language learning or some other research learning?

Respondent: I think the main advantages of this distance, collaboration and also for storing information so many people can access to documents whatever they need. For example like language learning, like translate, also online dictionary. It could be like wikis, for example students can develop their own wikis, and everybody collaborate with wikis that could be useful. I think the interest also the people way of using. The main mean is the people start to use and start to think about. Besides if it useful people can take otherwise they can avoid it. Like e-mail. When e mail came out, it was very fast progress to use e – mail.

Question: what problem regarding in your experience using web 2.0 tools. For your own education practice?

Respondent: Specific problem, for example blog, I found some difficulty to use blogs, one persons specific blog. If I want to look for some specific task , I had to go some menu, I mean the navigation structure could be problematic. The problem highlighted the navigation structure is not well designed. If its use for collaborative purpose it should be intuitive.

Question: What do you think if the educational institute adopt web 2.0 for the learning practice they will face any barriers? What type of drawbacks they will face?

Respondent: I think the one drawback, if they think they can replace the classroom their own place or might be their work place and education process would be lazy and using web 2.0 tools and having some problem.

Question: What is the main essence of web 2.0, when student realize this is best application

to practice in collaborative learning?

Respondent: I think it is distance collaboration and information storing the two main essential point, for example information sharing for specific courses like, it depends on the very efficient , online document , that system has to be well developed people can look , and sharing, like wikis, lots of people use simultaneously, store and update the data. People can the change the old version to new version. . Its lots of administrating change when collaborating with people knowledge. Sometimes it would be mess when people get into with

new people and share important knowledge. Even though people don't know others strength or effort. For example collaboration might be risky when you don't know the people that you already collaborate with.

Question: What do you think about the importance of web 2.0 tools for educational practice?

Respondent: I think it's very important for distance learning and more or less limited for classroom education practice. The distance learning more suitable for web 2.0 tools it's cheaper. I don't have so much experience about distance learning. During class it wouldn't be effective specially when student doing any project or group learning, especially after class meeting. Then it could be helpful to use web 2.0 tools.

Appendix G

Interview Transcript C

Interviewee name: Mikael Mallander

Question: What different type of web 2.0 tools you use in general?

Answer: Myspace, GoogleGroup, wikis, Facebook earlier. Not so much blogs.

Question: What is your opinion about using web 2.0 tools for collaborative learning?

Answer: Haven't thought much about it. It might be useful when in some part combined with "education by distance".

Question: How web 2.0 tools can help you in the context of collaborative learning?

Answer: I've used Google Doc and Google Groups during writing of thesis, and some other school-assignments. I've been using its learning and other distance-education-platforms during some courses I've taken.

Question: What type of web 2.0 tool are you using for education?

Answer: When you have an assignment then you have to do together as a group it is good if you easily can access the same files and documents. Wikis like the official Wikipedia and others are also very helpful, regardless if you are on your own on a assignment, of if it's a group assignment.

Question: Comparing to the traditional education system, what are the possible advantage of using web 2.0 tools in collaborative learning from your point of view?

Answer: I haven't seen any examples of it, although I'm sure appropriate web applications could enhance this kind of things.

Question: What problem did you experience regarding using web 2.0 tools?

Answer: An example is the many bugs in Google Doc. Otherwise I haven't seen any problems really.

Question: What do you think if educational institution adopt web 2.0 in learning practice, they will face any barriers?

Answer: I think creating applications for the web, although we see more complex web applications all the time, is somewhat more tricky (technically) than developing applications for the desktop. Therefore it might require more effort in development, but I can't see any definitive barriers.

Question: What do you think about the importance of Web 2.0 tools for educational practice?

Answer: Difficult to say, generally speaking depends on the nature of your project.

Question: How does Web 2.0 tools impact learning and teaching from your viewpoint?

Answer: Big potential, specially, but not limited to learning by distance. I think generally that we will see a big growth in applications (web and non-web) for collaboration.

Appendix H

Interview Transcript D

Interviewee Name: Johan Winndahn

Question: What different type of web 2.0 tools you use in general?

Answer: tools mean Slates, I use face book, Google docs, RSS, especially Google docs for example to attachment my files like a personalise to make some shortcuts, that I am do it.

Question: Why do you RSS in your daily life?
Answer: It's easy to use to up-to-date like social events.

Question: Does it help you to gather some information?
Answer: Its saves our time, I don't like visit all of the websites, just follow my gadgets.

Question: Do you use RSS for your educational purpose?
Answer: No, not really, I just use, so you used this gathering newspapers, the latest news the latest software related articles.

Question: What is your opinion about using web 2.0 tools for collaborative learning in the classrooms? As a teacher suggest you incorporate with blogs , wikis, such web 2.0 tools for students which tools really helpful for students to their projects to do their assignments

Answer: Definitely I used with FC account to incorporate with students or collaborate with my project, and it only like getting information or distributing. It's really helpful for students to encourage and give greater support.

Question: How web 2.0 tools can help you in the context of collaborative learning?

Answer: Relate with 2nd question answers.

Question: What type of web 2.0 tool are you using for education?

Answer: It's like a FC account for my education learning.

Question: How does web 2.0 tool are helping your department or institute?

Answer: It is connect with social thinking like networking google, facebook or new events posted on any blogs or wikis.

Question: Comparing to the traditional education system, what are the possible advantage of using web 2.0 tools in collaborative learning from your point of view?

Answer: Sharing information I think, like cross borders, discuss things, its easier to connect with people. So I would say it's a practical thing. People can connect and interact with better way.

Question: What do you think about the affect of using web 2.0 tools in global learning (such as language learning, short course etc.)?

Answer: More flexible to take course in abroad in the context of web 2.0 tools.

Question: Do you think it can help us for the distance learning?

Answer: definitely students collaborate with lots of information.

Question: What is the impact of in the case of distance learning? So how we can get benefit?

Answer: just taking the course in abroad like cross border education like india, south America, online education and give detailed information, then it would be useful.

Question: What problem did you experience regarding using web 2.0 tools?

Answer: not really, if you use for education in RSS, it may be some problem, otherwise I don't have any idea.

Question: Have you ever been used Wikipedia?

Answer: it not proved for scientific tools, its very short explanation. I just read it.

Question: What do you think about share knowledge, what is your opinion, if yours use blogs or wikis to share your idea with them , what do you think about, might be its save your bills,

Answer: its database knowledge, its generating knowledge, to share, also very quick to get information.

Question: What do you think if educational institution adopt web 2.0 in learning practice, they will face any barriers?

Answer: it depends, the basic level of students is not used to through this technology, and it could be scary to dependant of this system. If you are advance user you should used to or adopt it.

Question: How do web 2.0 tools impact in general?

Answer: Like distance learning, practical learning, cross border education etc.

Question: What factors assist or hinder to your teacher using web 2.0 tools?

Answer: it depends on the system; the teacher can prompt students to the institution.

Appendix I

Representation of Interview Material

From the four interview transcripts, we have to choose significant statements and represent formulated meaning of those statements because of choosing Colizzi's (1978) method for collected data analysis.

Significant statements and formulated meanings from Interview transcripts.

Significant Statements	Formulated meanings
I use social networking sites like Facebook. I also have kept blogs for several years, and have photos on Flickr photo sharing site.	Web 2.0 sites have been used for several issues.
I think Web 2.0 tools has been an influential tool for collaborative learning for several reasons. I like to use them, and feel more connected to the professors and other students in the class.	Web 2.0 tools are useful for collaborative learning.
First, the participants have a different opportunity to craft their statements before sharing them. These appeals to different types of learners who may not be comfortable speaking during class. Second, the Web 2.0 tools make information sharing not just a classroom activity. Whereas we used to have to wait for the next class to hear announcements or ideas from students, now it can be done anytime.	Technology helps student to get rid off form every kind of confusion and works like acknowledgement system.
I'm just assuming that the tools help professors communicate with us when needed. There is less photocopying (they post it online) and it lets them alert the students of what to prepare before the class, instead of during.	It helps to minimize the cost and make quicker contact between teachers and students.
I have little experience with how it may help global learning, but I think the social networks in general bring people together. It is much easier to keep in contact with friends abroad with the services.	Social networking removes the physical distance among people.
I think the world is moving towards more internet based learning (just Wikipedia has changed the face of information sharing) and web 2.0 is the application of information sharing to educational opportunities. I think it will just grow.	Web 2.0 tools increase educational opportunities through information sharing.

I have used blogs and off course the Wikipedia to look for information but haven't collaborated with it.	Blogs and Wikipedia are used for information gathering.
I don't think it is useful in the classroom. I think its more or less distance learning, I mean when u r not present. I can't see any benefit inside the classroom.	Web 2.0 tools are more useful in distance learning rather classroom.
I think the main advantage of this is mainly collaboration and also for storing information so many people can access to documents whatever they need.	Collaboration and information storing is main advantage of web 2.0 tools from educational point of view.
I found some difficulty to use blogs, one person's specific blog. If I want to look for some specific task, I had to go some menu; I mean the navigation structure could be problematic.	Some web 2.0 tools usability does not reach user satisfaction.
I think it's very important for distance learning and more or less limited for classroom education practice.	Distance learning could be helpful.
I use facebook, Google docs, RSS, especially Google docs for example to attachment my files like personalise to make some shortcuts, that I am do it.	Facebook, Google Docs and RSS are used in general.
Definitely I used with FC account to incorporate with students or collaborate with my project, and it only like getting information or distributing. It's really helpful for students to encourage and give greater support.	Collaborative learning through technology encourages student to do project work.
Sharing information I think, like cross borders, discuss things, it's easier to connect with people. So I would say it's a practical thing. People can connect and interact with better way.	Increase interaction between people.
It depends, the basic level of students is not used to through this technology, and it could be scary to dependant of this system. If you are advance user you should used to or adopt it.	Sometimes student get confused to adopt new technology.
I use MySpace, Google Docs, and Wiki. Facebook earlier. Not so much blogs.	Wiki and Google docs are much more familiar than blogs.
Haven't thought much about it. It might be useful when in some part combined with "education by distance".	Distance education could be beneficial by Web 2.0 tools.

I've used Google Docs and Google Groups during writing of thesis, and some other school-assignments. I've been using its learning and other distance-education-platforms during some courses I've taken.	Student use Web 2.0 tools for writing thesis or group project works.
When you have an assignment then you have to do together as a group it is good if you easily can access the same files and documents. Wikis like the official Wikipedia and others are also very helpful, regardless if you are on your own on an assignment, of if it's a group assignment.	Wiki is enormously useful tool for collaborative writing and learning.
An example is I found many bugs in Google Docs. Otherwise I haven't seen any problems really.	Software bugs decline student attention for adoption new technology.
I think creating applications for the web, although we see more complex web applications all the time, is somewhat more tricky (technically) than developing applications for the desktop. Therefore it might require more effort in development, but I can't see any definitive barriers.	More attention in the development of interactive web site could maximize user involvement and hype.
Big potential, specially, but not limited to learning by distance. I think generally that we will see a big growth in applications (web and non-web) for collaboration.	Web 2.0 tools are very much potential for collaborative learning and not limited to distance learning.

References

Allen, J. P., Rosenbaum, H., & Shachaf, P. (2007), Web 2.0: A Social Informatics View. [Electronic version]. Proceedings of the Thirteen Americas Conference on Information Systems, Keystone, CO, August 9th-12th, 2007.

Anderson, P. (2007), What is Web 2.0? Ideas, technologies and implications for education, *JISC Tech Watch*, available at: www.jisc.ac.uk/media/documents/techwatch/tsw0701b.pdf (accessed March 28, 2009).

Andersson, B.-E. (1994), *Som man frågar får man svar*. Rabén Prisma, Stockholm

Alexander, B. (2006), Web 2.0: A new wave of innovation for teaching and learning? *Educause review*, 41 (2):33–44, March - April. URL http://www.educause.edu/ir/library/pdf/erm0621.pdf.

Benamati, J., Serva, M.A., Galletta, D., Harris, A., and Niederman, N.(2007), "The Slippery Slope of MIS Academia: A Discussion of the Quest for Relevance in Our Discipline," *Communications of the Association for Information Systems*, (18), pp. 657-675.

Berg, B. L. (2004), *Qualitative Research Methods for the social sciences*, 5th ed Pearson Education, Boston, USA.

Blood, R. (2004), How blogging software reshapes the online community. *Communications of the ACM*, 47 (12):53–55.

Bonk C. J., & Cunningham. J. (1998), Searching for learner-centered, constructivist and sociocultural components of collaborative educational learning tools. In Bonk, C. J., & King, K. S. (Eds.). *Electronic collaborators*: *Learner centered technilogies for literacy, apprenticeship and discourse*. Mahwah, NJ: Lawrence Erlbaum Associates.

Boulos M, Moramba I, Wheeler S. (2006) Wikis, blogs and podcasts: a new generation of web-based tools for virtual collaborative clinical practice and education. *BMC Med Educ*, 6: 41.

Brelle V. (2007), *Web 2.0 and Consumer Generated Media: Analysis of Their Current and Potential Impact on the Way Companies are Doing Business*, Master Thesis, Faculty of Business and Economics of Lausanne University.

Bruns, A. (2005), Wikis in teaching and assessment: the M/Cyclopedia project, Sal Humphreys, Proceedings of the 2005 international symposium on Wikis, San Diego, California, Pages: 25 - 32, ISBN: 1-59593-111-2

Chatti, M.A., Klamma, R., Jarke, M., & Naeve, A. (2007), The Web 2.0 driven SECI model based learning process. Proceedings of the 7th International Conference on Advanced Learning Technologies.

Chickering, A. W., Gamson, Z. F., (1987), Seven principles for good practice, *AAHE Bulletin*, 39, 3-7.

Colen, K., Petelin, R. (2004), Challenges in collaborative writing in the contemporary corporation. *Corporate Communications: An International Journal*, 9(2):136–145.

Connor, A. (2005), Rewriting the rule books. [http://news.bbc.co.uk/2/hi/uk_news/magazine/4152860.stm]. (15 August 2008)

Creswell, J. (2007), *Qualitative inquiry and research design: choosing among five traditions*. 2nd ed., Sage, Thousand Oaks, Calif.

Doctorow, C. (2002). My Blog, My Outboard Brain. O'Reilly Network Web Development DevCenter. Available at: http://www.oreillynet.com/pub/a/javascript/2002/01/01/cory.html [Accessed March 5th 2009]

Downes, S. (2004), Educational Blogging, *Educause Review*, September/October.

Downes, S. (2005), E-learning 2.0, *ACM eLearn Magazine*. [Accessed 19th January 2009] http://www.elearnmag.org/subpage.cfm?section=articles&article=29-1.

Duffy P., Bruns A. (2006), The Use of Blogs, Wikis and RSS in Education: A Conversation of Possibilities, in Proceedings Online Learning and Teaching Conference 2006, pp 31-38, Brisbane.

Ehrlinger, J., Gilovich, T. & Ross, L. (2005), Peering into the Bias Blind Spot: People's Assessments of Bias in Themselves and Others. *Personality and Social Psychology Bulletin*. Vol. 31, No. 5, p. 680-692.

Eshet-Alkalai, Y. (2004), Digital literacy: A conceptual framework for survival skills in the digital era. *Journal of Educational Multimedia and Hypermedia, 13(*1), 93–106.

Eshet-Alkalai, Y. (2005), Thinking skills in the digital era. In C. Haward, J. V. Bottcher, L. Justice, K. Schenk, P. L. Rogers, & G. A. Berg (Eds.), *Encyclopaedia of distance learning* (Vol. I). London: Idea Group.

Ewing, M, (2007), *Changing with the times: Leveraging the Web to enhance your employee communications program*, Tactics.

Gilster, P. (1997), *Digital literacy.* New York: Wiley Computer Publishing.

Golder, S. A. and Huberman, B. A. (2006), The structure of collaborative tagging systems. HewlettPackard, LabsHP, URL http://www.hpl.hp.com/research/idl/papers/tags/tags.pdf.

Guy, M. and Tonkin, E. (2006), Folksonomies - tidying up tags? *D-Lib Magazine*, 12(1), January. URL http://dlib.org/dlib/january06/guy/01guy.html. ISSN 1082-9873.

Hammersley, M., Gomm, R. (1997), Bias in Social Research. *Sociological Research Online* 2(1)

Harrsch, M. (2003), RSS: The next killer app for education. The Technology Source Archives

IBM developer Works (2006), Scott Laningham, Podcast Editor at IBM developerWorks, interviews Tim Berners-Lee. Audio file and full transcript available online.

Inoue, H., Naito, E., & Koshizuka, M. (1997), Mediacy: What it is? Where to go? *International Information & Library Review, 29*(3–4), 403–413.

Israel, M., Hay, L. (2006*), Research Ethics for Social Scientists*. Sage, Thousand Oaks, Calif.

Jesdanun, A. (2004), 'wikis' offer knowledge-sharing online. phillyBurbs.com - The Associated Press,September27. URL: http://www.phillyburbs.com/pb-dyn/news/95-09262004-372281.html. Accessed May 11 2009.

Jenkins, H. et al., (2007), *Confronting the challenges of participatory culture*, Conference program media literacy conference, Cambridge MA.

Kelleher, T. and Miller, B.M. (2006), Organizational blogs and the human voice: Relational strategies and relational outcomes. *Journal of Computer-Mediated Communication,* 11(2):1–18.

Kling, R., Rosenbaum, H., and Sawyer. S. (2005), *Understanding and Communicating Social Informatics: A Framework for Studying and Teaching the Human contexts of Information and Communication Technologies,* Medford, NJ, Information Today.

Kloos, M. (2006), *Communities of practice 2.0, How blogs, wikis, and social bookmarking offer facilities that support learning in practice in communities of practice*, Master thesis, Programme of Business Information Systems, Universiteit van Amsterdam, 10th august.

Kolbitsch, J. and Maurer, H. (2006), The transformation of the web: How emerging communities shape the information we consume. *Journal of Universal Computer Science*, 12(2):187–213.

Kvale, S. (1996), *Interviews - An Introduction to Qualitative Research Interviewing*. Sage, London.

Lamb, B. (2004), Wide open spaces: Wikis ready or not. *Educause review*, 39(5):36–48.

Leuf, B., Cunningham, W. (2001), *The Wiki Way: Collaboration and Sharing on the Internet*. Addison-Wesley Professional, Boston, USA.

Levy, P. (1997), *Collective intelligence: mankind's emerging world in cyberspace*. New York: Basic Books.

Lincoln, Y., Guba, E. (1985), *Naturalistic inquiry*. Beverly Hills, CA: Sage.

Lingard, M. (2006), Using Blogs in education [Online], URL: http://elearning.lse.ac.uk/blogs/clt/?p=128 [Accessed 9 June, 2009].

Marhan, A. M. (2006), Connectivism: Concepts and Principles for Emerging Learning Networks.The 1st International Conference on Virtual Learning, ICVL 2006. Retrieved: March 13, 2009
From: http://fmi.unibuc.ro/cniv/2006/disc/icvl/documente/pdf/met/19_marhan.pdf

Mattison, D. (2003), Quickiwiki, swiki, twiki, zwiki, and the plone wars: Wiki as PIM and collaborative content tool. *Searcher: the magazine for database professionals,* 11(4):32–48.

Miles, M. B. and Huberman, A. M. (1994), *Qualitative Data Analysis: An Expanded Sourcebook*, 2nd ed, Sage, London.

Millen, D., Feinberg, J., and Kerr, B. (2005), Social bookmarking in the enterprise. *ACM Queue*, pages 28–35, November. URL http://portal.acm.org/citation.cfm?id=1105664.1105676.

Noel, S. & Robert, J-M. (2003), How the web is used to support collaborative writing. *Behaviour and Information Technology*, 22(4):245–262.

Noel, S. & Robert, J-M. (2004), Empirical study on collaborative writing: What do co-authors do, use, and like? *Computer Supported Cooperative Work*, 13:63–89.

Norris, N. (1997), Error, Bias and Validity in Qualitative Research. *Educational Action Research*. Vol. 5, No. 1, p.172-176.

Ocker, R. (2001), Collaborative Learning Environments: Exploring Student Attitudes and Satisfaction in Face-to-Face and Asynchronous Computer Conferencing Settings, *Journal of Interactive Learning Research*, 12 (4), pp. 427-448. Chesapeake, VA: AACE.

O'Reilly, T. (2005), *What Is Web 2.0?* [Accessed 1st November 2007] Available from World Wide Web: http://www.oreilly.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html

Paavola, S., Lipponen, L., and K. Hakkarainen (2002), Epistemological Foundations for CSCL, *Proceedings of CSCL 2002*, pp. 24-32.

Patel, R. & Davidson, B. (1994), *Forskningsmetodikens grunder*, Studentlitteratur, Lund

Polovina, S. (2006), About the learning pyramid [Online], Goldsmiths (University of London) Available from http://homepages.gold.ac.uk/polovina/learnpyramid/index.html [Accessed at 9 June 2009]

Pool, C. R. (1997), A new digital literacy: A conversation with Paul Gilster. *Educational Leadership, 55*(3), 6–11.

Poortman, S. and Sloep, P. (2005) Weblogs in het onderwijs. OnderwijsInnovatie, pages 17–25, March. URL http://www.ou.nl/Docs/TijdschriftOI/OI_1_05.pdf.

Richardson, W. (2007), *Blogs, Wikis, Podcasts and Other Powerful Web Tools for Classrooms*, Corwin.

Rhoades E. B., Friedel C. R., Morgan A. C. (2009), Can web 2.0 improve our collaboration? Retrieved from: http://www.thefreelibrary.com/Can+Web+2.0+improve+our+collaboration %3F-a0191263965

Rumelhart, D. E., Mcclelland, J. L., and the PDP research group (1986). *Parallel distributed processing: Explorations in the microstructure of cognition. Volume I.* Cambridge, MA: MIT Press.

Shaw, R. (2005), Web 2.0? It doesn't exist. Blog entry at ZDnet.com, December. URL: http://blogs.zdnet.com/ip-telephony/?p=805 [March 2009]

Safran, C.; Helic, D.; Gutl, C. (2007), E-Learning Practices and web 2.0, Conference ICL, 2007 Villach, Austria.

Seale, C. (1999), *The quality of qualitative research*. Sage, Thousand Oaks, Calif.

Shtm Teacher's Wiki, 2009. Using Wiki's For your subjects [online] (updated march, 2009). Available at: http://shtmteacherswiki.pbworks.com/Using-wikis-for-your-subjects.[Accessed at 9 june 2009].

Sieber, J. (2001), Protecting Research Subjects, Employees and Researchers: Implications for Software Engineering. *Empirical Software Engineering*. Vol. 6, No. 4, p. 329-341.

Singer, J., Vinson, N. (2002), Ethical issues in empirical studies of software engineering. *IEEE Transactions on Software Engineering*. Vol. 28, No. 12, p. 1171-1180.

Simões, L; Borges Gouveia, L. (2008), "Web 2.0 and Higher Education: Pedagogical Implications". *Proceedings of the 4th International Barcelona Conference on Higher Education, Vol. 2. Knowledge technologies for social transformation*. Barcelona: GUNI. Available at: http://www.guni-rmies.net.

Stahl, G., Koschmann, T., & Suthers, D. (2006), Computer-supported collaborative learning. In K. Sawyer (Eds.), *Cambridge handbook of the learning sciences* (pp. 409 - 426). New York: Cambridge University Press.

Strijker A., Collis B. (2002), New Pedagogies and Re-Usable Learning Objects: Toward a Different Role for an LMS. In Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2002 (pp. 334-339). Chesapeake, VA: AACE.

Styles, C. (2006), How Web 2.0 will change history. Retrieved: March 17, 2009 From: http://maeg.textdriven.com/wpontent/uploads/2006/09/Web2+history.pdf

Suarez, L. (2006), Web 2.0 in search of better definition or just moving on. Retrieved February 27, 2009 From http//it.toolbox.com/blogs/elsua/web-20-in-search-of-better-defination-or-just-moving-on-11539

Tapscott, D. (1998), *Growing up digital: The rise of the net generation*. New York: McGraw-Hill.

Verschuren, P. and Doorewaard (2000), *Het ontwerpen van een onderzoek.* Lemma, Utrecht, the Netherlands. (according to Kloos, 2006)

Vygotsky, L. S. (1978), *Mind in society: the development of higher psychological processes*. Cambridge, MA: Harvard University Press.

Ward, J, (2007). RSS Feeds: Sweating the Really Simple Stuff, *Toxicological Pathology*, 35:846–847.

Werf, F. V. D. (2007), A scalable web 2.0 Platform, Master thesis in computer science, Delft University of technology.

Wheeler S, Kelly P and Gale K (2005), The Influence of Online Problem Based Learning on Teachers' Professional Practice Styles. *ALT-J: Research in Learning Technology,* 13 (2), 125-137.

Yin, R. K. (2002), *Case Study Research: design and methods*. 3rd ed, Sage, London.