

THE DEFINITIONS AND PREFERENCES OF SCIENCE TEACHER CANDIDATES CONCERNING WEB 2.0 TOOLS: A PHENOMENOLOGICAL RESEARCH STUDY

Assist.Prof.Dr. Fatime Balkan KIYICI
Sakarya University
Faculty of Education
fbalkan@sakarya.edu.tr

ABSTRACT

Web 2.0 tools are becoming more popular day by day and various Web 2.0 applications are encountered in both daily life and educational environments. Since Web 2.0 tools do not require any technical knowledge in terms of either usage facilities or content development, they are preferred by both professional and novice computer users. With the help of facilities like the access to the content in any time and place; reading, regulating and changing the content with any web browser; Web 2.0 applications have taken a lodge in educational environments. The current study investigates how senior students at a science teaching department in a university define Web 2.0 tools. Phenomenological research method has been adopted and the data related to Web 2.0 tools which were obtained through the definitions of teacher candidates have been analyzed. Results indicated that while the participants defined forum, wiki, blog and social web applications easily, they had difficulty in defining the social bookmarking and RSS (Really Simple Syndication) applications.

INTRODUCTION

The recent changes on the Internet world have been illustrated by different writers in different ways. With the emergence of interactive IT capabilities such as the Internet and WWW, business and knowledge exchange have become very strongly interrelated (Shaohua & Peilin, 2008). Web 2.0 tools, Web 2.0 environment, Web 2.0 technologies or Library 2.0, Health 2.0, Education 2.0 are the names developed for various applications that provide the possibility of interaction with site and content for the users of Internet technologies. Web 2.0 is not a uniform concept, but a generic term or metaphor for new internet technologies and applications (Kool & Wamelen, 2008). The read / write web, encompassing weblog's, social bookmarking, wiki's and other technologies are often seen as key aspects of what is understood by Web 2.0, marking a distinctive shift from earlier, supposedly less participatory, web technologies (Roberts, 2009). Together with Web 2.0 tools, Internet users' relationships with the Internet and the usage patterns have significantly changed. Web 2.0 is a term used to herald the second wave of the World Wide Web, one that allows individuals to publish, collaborate and share experiences with other like-minded individuals or groups (Shaohua & Peilin, 2008). "Web 2.0" is not a technical noun but more suitable to be a collective concept describing the technical features and social behaviors of some of the famous Web 2.0 websites (Hsieh, Kao & Yuan, 2008).

Considering the first days of the Internet, while software specialists produce and upload the web sites to server computers and Internet users access information by visiting the sites they are familiar, even the most inexperienced users of Internet can upload content to web sites and share them through Web 2.0 applications. There are a number of web services or applications which are considered as the key concepts in Web 2.0 (Aharony, 2009). The followings can be counted among those concepts; Blogs, Wikis, Social Networking Tools, Social Bookmarking, Web Office Tools, Online Photo Sharing, Podcasting, RSS (Really Simple Syndication) and Online Hosted Video and Mashups and API's web 2.0 (Rethlefsen, Mary & Prince, 2009; Lai & Turban, 2008).

The main characteristic of these tools called Web 2.0, is users' active participation in the content creation process (Koçak-Usluel & Mazman, 2009). With the spread of Web 2.0 tools on the Internet, the Internet users have the opportunity to interfere with any content and write their opinions about the content. As the Web 2.0 tools take part in a broad portfolio, various applications present various facilities to users.

As an umbrella term for an emerging core of technologies, trends, and principles, Web 2.0 is not only changing what's on the Web, but also how the Web works (Lai & Turban, 2008). Being attached to the Web 2.0 tool used, the users have a variety of rights about interacting with the content. While the users have no right to interfere with the content in blog applications, the content is completely formed by the site users in wiki and Social Bookmarking applications.

Web 2.0 environments include social and business networks, and it is influencing what people do on the Web and intranets, individually and in groups (Lai & Turban, 2008). Central to Web 2.0 is the concept of social environments that have been breaking down barriers for sharing information efficiently (Shao, Daley, & Vaughan 2007).

With Web 2.0 tools, the users are freed from the obligation of reading the content passively or communicating with the content producer by e-mail. Whoever the content may be developed by, the users are able to make direct interference to the content with the proceedings like deleting, changing or adding. On the other hand, they can add interpretation to the content and alter the content into some other form. Rather than focusing on the introduction of the new technology, Web 2.0 aims to facilitate sharing and collaboration among users (Shao, Daley, & Vaughan 2007). Web 2.0 has become popular in a short time because it enables the information sharing and web broadcasting without requiring technical skills. The usage of Web 2.0 is not popular only among Internet users, but also among academicians and they have become the most frequently used tools.

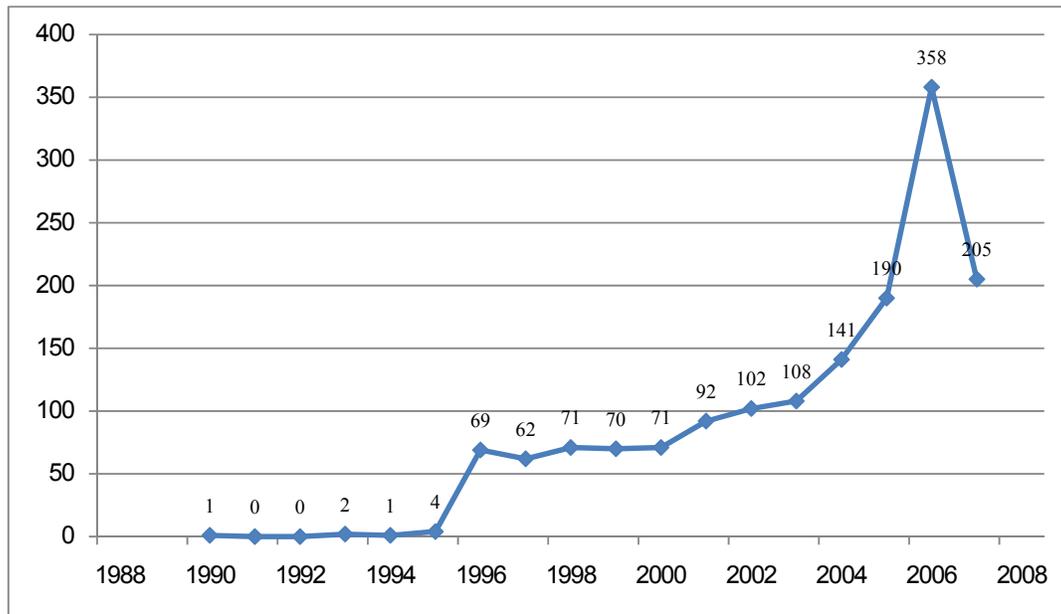


Figure 1. The annual distribution of Web 2.0 publication numbers (Reference: Chu & Xu, 2009)

As it can be seen from the researches of Chu and Xu (2009) concerning Web 2.0, the academic studies about Web 2.0 tools have been seen in literature since the mid 90s and have risen through mid 2000s. Web 2.0 tools find place in a broad area from informatics to medicine, from library research to educational sciences. Web 2.0-based tools provide convenience for learners' participation and interaction (Tan, 2008). Some of the Web 2.0 tools are defined below.

Forum technology is generally the technology, which is configured as subjects and their sub-questions and gives the opportunity to the users to write messages in the determined subjects and sub-questions and respond to the messages written. Forum technology is the technology, which is constructed in a way to show the messages according to the entrance order. Forum users can not only configure the messages on their own but also by the quotations from the former messages while they respond to a message.

A blog or weblog is a web site that works in the same way as a diary, with the exception that the other users who visit it can give their opinions on what the blog owner writes, who may accompany his/her comments with photos, links and videos (Rubio, Martin & Moran, 2007). Blog technologies are configured in a way to show the last entered blog post firstly. While blog entries can be depicted in the opposite order in accordance with the date order depending on the blog owner's adjustment, the entries which are categorized under different categories can be depicted with the help of category choice. While blogs can only be updated by their owners, blog visitors can contribute to the development of the blog by writing comments on the blog entries. For instance, a blog tool with RSS feeds can be used as a replacement for a mailing list and allow more effective communication between students and teachers (Orehovacki, Bubas & Konecki, 2009).

Wikis are also popular tools of Web 2.0, which are suitable for reference and information services in medical library and information centers. The collaborative nature of wiki provides opportunity for instantaneous revision as well as to develop an efficient repository of new information (Gavgani & Mohan, 2008). In sites where Wiki substructure is used, the users do not only read the content. They also can contribute to the processes of examining and rearranging the content. Additionally, since the sites that use Wiki substructure provides the

opportunity to its users to reach the content, read the content and arrange it without requiring any extra program, they can be used easily by any users regardless of their Internet experience. Wikis are websites that can be edited by anyone who has access to them, while blogs are online multimedia personal logs that can be commented on by other users (Kaldoudi, Bamidis, Papaioakeim & Vargemezis, 2008).

Social networking sites are set up to provide individuals with a means for communicating and interacting with one another (Timm & Duven, 2008). After becoming member to social networking sites, the users can message to other users of the site, write messages on their walls and share objects like voice, video and picture. A social network is a configuration of people connected to one another through interpersonal means, such as friendship, common interests, or ideas (Coyle & Vaughn, 2008). Social networking websites enable not only the users who are familiar with each other, but also the ones who have similar fields of interest although they do not know each other, to meet and communicate by the constitution of different groups.

Social bookmarking is another Web 2.0 application. It allows users to create common lists of 'favourites' and to store them on a remote server, so that the list can be shared with other users of the system (Aharony, 2009). With social bookmarking applications, users can easily see the addresses on the sites entered by other users who have similar fields of interest and they can easily go to the sites. Social bookmarking services – provide a way for users to store, categorize, and share their Internet bookmarks. Bookmarks can be either public or private (usually public by default) and users are encouraged to 'tag' them with keywords, of their choosing, to facilitate their cataloguing and retrieval by themselves for other users (Kennedy et al., 2007).

RSS, as originally conceived, is a method for publishing timely and concise information on the Internet, for example, about the main stories in a news site or the latest postings in a blog (Thelwall, Prabowo, & Fairclough, 2006). The sites like news and blog sites, which are often updated by RSS technology broadcast news summary or short information related to blog entries via RSS and Internet users can read the RSS files by RSS reading tools. Among the greatest advantages of RSS technology is that it provides the opportunity for users, who follow more than one news site and/or blog site to save the RSS addresses of the sites they read to the program by RSS reader and follow the latest news without visiting the sites.

Podcasts are repositories of audio and video materials that can be "pushed" to subscribers, even without user intervention. These audio and video files can be downloaded to portable media players that can be taken anywhere, providing the potential for "anytime, anywhere" learning experiences (mobile learning) (Boulos, Maramba, & Wheeler, 2009). Although podcast applications are perceived like video sharing together with popular applications like YouTube, podcast requires a privatized broadcast concept as content. Podcasting is a method of digital recording of audio or video files and their distribution over the web. Its main advantage is the possibility for students to download certain content of their interest from specialized web services and reproduce them with a device of their choice whenever they want (Orehovacki, Bubas, & Konecki, 2009).

Web 2.0 is widely considered one of the most important contemporary developments in the context of the World Wide Web (Ketterl, Mertens, & Vornberger, 2008). Web 2.0 aims to enhance creativity, information sharing and collaboration among users (Chakravarthy & Barde, 2008). With the rapid development of network technology, we have entered a new era of networks, our learning style and the concept of education have undergone a major transformation (Fan, Wang, & Liao, 2008). Regardless of the fact that students as members of the digital generation can adopt new technologies much faster than other groups of learners (Orehovacki, Bubas & Konecki, 2009).

PURPOSE

Since the usage of Web 2.0 tools is becoming more popular among students, teachers and academicians who use the Internet for various purposes, the aim of this study is to determine how science teacher candidates define the Web 2.0 tools they use in their educational settings and which of these tools they expect to use during their own teaching.

METHOD

Phenomenological research approach from the qualitative research methods has been adopted as the research method. Daymon and Holloway (2002, 153) stated that at the core of phenomenology is the study of people's worlds along with their subjective experience of their personal, everyday lives. They characterized phenomenological research as below (2002: 153);

- Researchers consciously suspend, or bracket, their own assumptions so they can see through the eyes of participants,
- Sample sizes are usually small,

- In phenomenological research, you try to make sense of a phenomenon according to participants’ own terms, identifying the essence or ‘real’ meaning of the phenomenon under investigation.

In phenomenology, foundational question is “What are the meaning, structure and essence of the lived experience of this phenomenon for this person or group of people” (Patton, 1990). Phenomenology as a method looks at the lived experiences of those who have experienced a certain phenomenon (Lichtman, 2006). Todres (2005) described phenomenological research through the following components:

- The researcher gathers detailed concrete descriptions of specific experience from others,
- The researcher adopts the attitude of the phenomenological reduction in order to intuit the intelligibility of what is given in the experience,
- The researcher seeks the most invariant meanings for a context.

Working Group

As the purpose of this study was to determine how science teacher candidates defined the Web 2.0 tools, science teacher candidates at Sakarya University, Faculty of Education, Department of Science Teaching in the 2009 Fall and 2010 Spring were foreknowledgeed about the research, and they were asked whether they would like to join the study voluntarily. Sixty teacher candidates responded to this request and they were selected as the research group.

Data Collection and Analysis

Research data were obtained through the semi-structured form developed by the researcher. Web 2.0 applications stood in the forefront were searched through a literature review and six Web 2.0 tools were determined: Forum, Wiki, Blog, Social Network applications, RSS and Social bookmarking. Within the context of the research, the participants were asked to define those six Web 2.0 tools. Additionally, with the seventh question in the research, the participants were asked to write which one/s of those tools they were expecting to use when they became teachers along with the reasons to use them. The semi-structured form was given to teachers to be filled and they were asked to make the definitions about Web 2.0 tools.

No informed meeting or education was performed with the students as they tried to define the status in the research. The students were asked to write their knowledge about Web 2.0 tools on the form. Descriptive analysis was applied to the data. During the analysis, as Yıldırım and Şimşek (2008) indicated, a frame was constituted in the light of the participants’ definitions. Then, the data were processed in accordance with the thematic frame, the findings were defined and interpreted.

Although the digitization of the data in the qualitative research is not much preferred, the number of the people writing answers like “I have no information”, “I have no idea”, “I have no opinion about this subject” concerning Web 2.0 tools in the form was very high. The questions, required to be defined in the form and yet being left unanswered with the statements indicated above and the participants who did not answer those questions are given as numbers.

Findings

The number of the unanswered questions regarding Web 2.0 tools or the number of participants who gave responses like “I have no information”, “I have no idea”, “I have no opinion about this subject” or who did not state an opinion are given in Table 1.

Table 1. The number of participants who did not provide a definition for Web 2.0 tools

Question	Unanswered number	response
How do you define the concept of forum?	9	
How do you define the concept of blog?	30	
How do you define the concept of Wiki?	21	
How do you define the concept of Social Network?	1	
How do you define the concept of Social Bookmarking?	56	
How do you define the concept of RSS?	51	
Which one/s of these tools defined above would you use when you become a teacher?	7	

Examining the Table 1, it is indicated that the participants could write definitions more easily to Web 2.0 tools they used in their daily lives and that they could not define the tools that they did not use very often. It is seen that the fewest responses were for the question regarding Social Network. Since the majority of the participants used sites like Facebook and MySpace, the participants did not have difficulty in defining the concept of Social

Network. Web 2.0 tools which are left unanswered most by the participants were the concepts of Social Bookmarking and RSS. Since Social Bookmarking is a concept which is not generally used in Turkey, it is left unanswered; the concept of RSS is considered to be left unanswered since it evokes the estimation that it requires technical knowledge by the users although it is commonly used on the Internet.

Table 2. The themes regarding the definition of the Forum concept

Information sharing	32
Other sharing	18
Discussion, Conversation	18

The first research question, directed at the participants within the context of the research was “How do you define the concept of Forum?” The themes revealed are given in Table 2. It is seen that the subject of sharing is intensively emphasized. The subject of sharing is separated into two themes as information sharing and other sharing in accordance with the answers of the participants.

The participants indicated the concept of Forum more as a tool used for the purpose of sharing some certain opinions of the individuals without focusing on a definite subject. The direct quotations are as follows:

- “Where everyone writes their opinions on a definite subject...”*
- “Forums are Internet sites, where personal opinions are exhibited. Personal opinions about a subject are presented. People help each other about the subjects, they are interested in. They share information. ...”*
- “They are the sharing sites, where various topics are discussed and people present their own opinions. ...”*
- “It is a site, where several people integrate, share, get information, and share information in accordance with the fields of interest in the direction of a common purpose. ...”*
- “...certain Sharings made...”*

Participants specified the concept of forum as an environment used for sharing facts and objects other than knowledge. The direct quotations are as follows.

- “Forums are places where pictures, videos, writings, etc. are shared by people amateurish. ...”*
- “There are forum web sites... sharings like picture, video, etc. happen. ...”*
- “... They are online environments where sharings like information, photograph and video are made and where comments could be made via sharing’s. ...”*
- “It is a site ... which is founded on a definite subject with sharings. In this site, there could be topics like information sharing, video, discussion related to the subject.”*

Participants indicated that the forums are established and used for the purposes of sharing information and other facts and objects, as well as for conversation. The direct quotations from the definitions are as follows.

- “Forum is a web database that generally gives the opportunity for discussion and conversation in various areas of network base usages. Although its purpose of use is generally communication via net...”*
- “... The purpose of use is; to apply to various views about the subject.”*
- “...The purpose of use is; to share the knowledge, ideas and emotions of different people.”*
- “... The purpose is to create an environment about a common subject.”*
- “They are the Internet web sites where everyone expresses an opinion about a subject.”*

Table 3. The themes regarding the definition of the blog concept

Personal Web Site	17
Sharing	6

When the definitions of the participants regarding the blogs are examined, it is seen that they defragment the concept of blog with two facts. The first of these facts is the “Personal Web Site”. This fact also constitutes the first theme for the answer to this question. The participants indicated that blogs and weblogs were used to find personal web sites and share information and experiences. The direct quotations are as follows.

- “Blogs share the writings that reflect the lives of individuals or their humors’ on the Internet. They form their own sentences freely. ...”*
- “They are the sites that belong to one person, whose content is formed by them. ...”*

“The concepts like blog, weblog and web diary are the personal web sites on the Internet, as well. People share the elements like picture, writing and music, etc. that they like here.”
“It is where emotions and opinions that are used daily by the people are shared and that are seen by everyone on the Internet environment.”
“... For example, one person can exhibit her/his writings, poems, songs in her/his blog...”

The second theme related to the definition of the blog concept is sharing. Participants indicated that the blogs were founded by individuals or groups for the purpose of sharing. The direct quotations are as follows.

“Video, music, forum room are the Internet sites where files are shared.”
“...They are the concepts used –again- in terms of sharing information.”
“It is used for information sharing.”
“With presentation of personal writings, sharings, studies in the virtual environment...”

Table 4. The themes regarding the definition of the Wiki concept

Information sharing	14
Encyclopedia	12
Dictionary	7

The themes related to the definitions of the wiki concept are given in Table 4. It is seen that the themes are Encyclopedia, Dictionary and Information sharing. While defining the Wikis, the participants mentioned about information sharing, and defined the Wiki sites as the supporter tools concerning information and view sharing. The direct quotations from the definitions are as follows:

“it is the easier access to the exact information”
“they are the sites with more exact and more valid knowledge.”
“The virtual environment in which a great amount of information is shared and can be accessed by everyone in Wiki Internet environment”
“...In these sites, more serious scientific sharings and explanations exist.”
“The sites where the information, constituted by the people gather.”
“The sites where information is shared...”
“Where people write what they know and share their information...”

Participants define the concept of wiki as open encyclopedia sites to be used for research and that would help people search and learn the subjects they do not know. The direct quotations are as follows:

“Wikis are the web applications which are similar to the open source encyclopedias constituted by the people for the purpose of information. ...”
“With its general name, wikis are the encyclopedias open to people. In other words, wikis are the encyclopedias that enable people to define each term. ...”
“The concept of wiki could be the universal encyclopedia. ...”
“... It is the kind of encyclopedia in which everyone makes comment and sharing.”

Participants used the concept of dictionary after the concept of encyclopedia while defining Wiki. The direct quotations are as follows:

“... the dictionary about the subject.”
“Wiki; in the meaning of dictionary... in my research homework’s... I use its site the most.”
“... it is something like dictionary...”
“... I can say it is dictionary”
“We can define the concept of Wiki as dictionary...”

While wiki applications are becoming more popular each day, some participants stated that they were not familiar with the application. Fourteen participants stated that they were familiar with the concept of wiki because of Wikipedia as they used it. The direct quotations are as follows.

“The concept of wiki sounds familiar to me from Wikipedia site. ...”
“I only know Wikipedia.”
“When wiki is pronounced, only Wikipedia comes to my mind.”
“Wiki is generally the research site which we use as Wikipedia. There is a pile of information.”
“Wikipedia is the dictionary in which information exist.”

Table 5. The themes regarding the definition of the social network concept

Friendship	21
Communication	16
Sharing	31

The most frequently cited Web 2.0 application seems to be social network sites in the current study. Themes like Friendship, Communication and Sharing were revealed. While the participants define the concept of social network, they define it as the tool to make friends from both distant places and their current environments through communicating on the Internet. The direct quotations are as follows:

- “...designed basically for people, who know one another to find each other in the Internet environment... It aims find friends by predicating on the common friends of the users.”*
- “... it performs events like chatting and sharing picture, video on the Internet... .”*
- “...they are dating sites. They are sites ... that enable to meet old and new friends and share information and photograph. ...”*
- “Social network sites are the sites that enable social friendship and socialization of people. ...”*
- “The Internet web, in which people interact with one another is the site of sharing picture, video where old friends find each other. ...”*
- “It is a social sharing site that activates the conversation among friends. ...”*
- “It is the site, in which people share emotions and opinions at the moment by building the environment of friendship and social sharing in the virtual environment.”*

Another approach that is put forward by the participants was the communication channel. The participants indicated that with the help of social network sites, they could be aware of the activities, communicate with their old friends, get in touch with specialists and people oriented to fields of interest and increase the interaction among people. The direct quotations are as follows:

- “It is a site that enables the foundation of the relationship between the people and to always be informed of the social environment.”*
- “They are the sites... that increase the interaction of the people with one another and that include chatting.”*
- “They are the sites with communication purposes in which mutual activities could be shared. ...”*
- “It is the environment in which the social environment gets in touch with each other although the locations of the people have been altered.”*
- “A way of communication. It is the electronic environment in which friends find each other and then communicate. ...”*
- “Social network sites are the social sites in which people share (declare to other people) the activities that provide commingling and communication of people with other people concerning the fields of interest, and they find their friends, give information.”*

Participants indicated that with the help of social network sites, objects like pictures, videos, music and games could be shared among people easily. The direct quotations regarding this issue are as follows:

- “...they are the sites which are used in order to send, share, watch and find something with people... I use facebook generally to find friends, share video, picture and chat. ...”*
- “Facebook is a social sharing environment in which we can connect with our old or current friends; share activities like video, picture and play games. ...”*
- “According to me, facebook is a video sharing site. By means of facebook, I talk to my friends. I watch video. ...”*
- “They are where people add and share their photographs and videos and chat.”*
- “Generally used for the purpose of finding friends and sharing video and picture...”*
- “Facebook is the site in which people share everything in every respect.”*
- “...Pictures, videos, music are shared with their friends. The friends may visit the page and make sharings.”*

The number of participants who did not respond to the question “How do you define the concept of Social bookmarking?” was 56. Examining the answer of four remaining participants, it can be suggested that there was nobody to correctly define the concept.

Another question which was left unanswered by the majority of the participants (51 participants) was the question “How do you define the concept of RSS?”. Examining the answers of the questions, it was indicated as a tool used to follow the current news and used generally in news sites. The direct quotations are as follows:

“RSS is usually used in news sites. It is sort of resource. The information in this resource is published by the receiver by means of various programs or web software’s. Forums can use the news RSS. The news, arriving from the news site is published automatically on the forum.”
“...they are the applications that enable to get news immediately. ...”
“A continuation having been used by the news sites. ...”
“An attachment used to get the current news on the scanners”

Table 6. The themes related to Web 2.0 tools which are supposed to be used by the participants during their own teaching

Forum	19
Blog	10
Wiki	10
Social Networks	16
Rss	1

Web 2.0 tools, which are expected to be used by the participants, are given in Table 6 along with the frequencies. It is seen that participants prefer to use the substructure of the forum most, followed by social Networks, blog and wiki tools. Only one participant expected to use RSS tools whereas nobody mentioned social bookmarking sites.

Some of the participants stated that when they become teachers, their students may benefit from the forums since they are easy to access and can be used for discussions with their teachers and friends. In addition, they stated that other teachers can also refresh their occupational and teaching knowledge by affiliating to their forums.

“Forums can be used for science and technology course. If forum registrations are made with the administrator’s approval, a special environment can be prepared only for the individuals in the classroom. It can be made only in a school. Separate titles can be entitled for each course and the teachers of the courses can be chosen by the moderators. The students can benefit from the multimedia activities by constituting a classroom in the Web environment.”

“Forum can be used. Because everyone can express their own opinions here. The subjects can be shared and a platform can be constituted. The questions can be solved.”

“... are used in forums to spread the information”

“I can use the forum sites. Of course it is one of the reliable sites since information, concerning my department are shared...”

“The forum areas can be used from the points of information sharing, constant and easy access to all of the students and material sharing. This usage decreases the cost as well. ...”

Participants stated that as well as forums, the social network sites could also be commonly used, since the majority of the students may have accounts, and social network sites could be used not only for educational purposes, but also for entertainment, games and communication. The direct quotations are as follows:

“I think of using the social network sites for educational purpose. It is the technology which is absolutely used by everyone... It could be visualized by various videos, pictures and animations...”

“I would use the social network sites, so that the interaction among students would increase.”

“Since facebook is a site which is used even by the grandfathers and everyone is familiar with now, various sharings and information environments could be formed by founding groups...”

“I would like to use facebook. With the help of facebook, I would share materials and information with my students. I would communicate with my students and learn their problems with the help of facebook.”

“I can use facebook or twitter. Because such sites, which have a common use enable to reach out to the students although they are not old enough? On the other hand, blogs can be used in order to share documents.”

Participants stated that blogs could be founded and controlled by the teachers. In addition, since picture, voice and video sharing could be easier with blogs, they indicated that they could effectively be used in educational environments. The direct quotations are as follows:

“... Although scientific, useful information are shared in the Web diaries, these could be recommended and used in the course environments.”

“I would consider to use the blogs. Because blogs are controlled by me (controlled by the teacher) and students are informed.”

“... I can use blogs and the sites in which school subjects are added.”
“in blogs... things like information concerning education, pictures and videos, etc. are shared.”

Participants claimed that wiki sites can be used as a resource and that the students can easily use the wiki sites. The direct quotations are as follows:

“I can use wiki. It is a site that channels teachers and students into research. From this aspect, it could be useful.”
“... We can use wiki for the purpose of enabling students to learn the concepts they do not know.”
“I use... wiki sites.”
“... as far as I know wiki, I can use it ...”

There is a participant who states that s/he can use the RSS technology in her/his teaching. S/he stated that s/he could use the RSS tool in order to follow the current events and developments and in order to inform the students.

“I can use RSS in informing the students following the current events...”

DISCUSSION, CONCLUSION AND SUGGESTIONS

The current study, which investigated how science teacher candidates defined the Web 2.0 tools along with their expectations regarding the technologies to use in their own teaching, poses several implications and evaluations based on the findings. Examining the definitions of Web 2.0 tools, it is seen that participants defined social network sites the most, as tools used to enable the communication with friends, communication in general, meeting with new people, and sharing some objects. It is also observed that they defined the forum technology as a tool used to share and discuss. While they defined the blog technology as the technology used to found personal web sites and share information and experiences, it is seen that they defined the concept of Wiki as the technology used as encyclopedia and dictionary sites in which they would get information about what they did not know. While there is no teacher candidate defining the concept of social bookmarking among these tools, it is determined that the concept of RSS is defined as the tool used in news sites.

According to the results, it is observed that while the science teacher candidates had the skills to define Web 2.0 technologies they frequently used, whereas they had difficulty in defining the tools (social bookmarking, RSS) they did not use actively. According to another finding, the teacher candidates stated that they expected to use forum, blog, wiki and social network sites in their own teaching. As a reason of using these tools, they specified that since those tools were more familiar to them, they expected to use them more in their teaching experiences. Since some of the Web 2.0 tools are used by the teacher candidates in their daily lives, it will be easier to use them in educational environments. However, before using the Web 2.0 tools in the educational environments, teaching plans should be made well; student activities and what students shall do while using the Web 2.0 tools should be planned carefully. For instance, for a wiki to work well as a learning space, one which is characterized by genuinely collaborative writing and collective meaning-making, it is perhaps necessary to nurture among students a sense in which it is acceptable to be ruthless – to edit, amend and challenge each other via the direct manipulation of each other’s text (Hemmi, Bayne, & Land, 2009). Since students can change the writings of each other in wiki applications, the students should be warned about this and should also be recommended to think one more time before they change or delete another person’s writing.

Web 2.0 provides an excellent platform for collaboration, which can be invaluable in solving problems and making better decisions (He et al., 2009). With the help of Web 2.0 tools, the real world problems could be presented to students and they could be provided to solve the real world problems and share their contributions via the same platform. Web 2.0 technologies could provide methods to stimulate user participation, facilitate case adaptation, and help invigorate these repositories (He et al., 2009). The teachers desiring to perform web-reinforced teaching and yet having no learning management system shall enable the participation of the students to the site by the different Web 2.0 applications that they shall found in the web sites. The applications developed with Web 2.0 applications render the passive Internet users into the users building the content. Web 2.0 implies a new era that liberates Web users from linear, context-binding, and goal-directed information seeking and instead opens doors to easy creation, collaboration, sharing, and remixing of content on the Web for ordinary users (Chiang, Huang, & Huang, 2009). Web 2.0 tools’ serving as a model in the process of educating teacher candidates together with caring shall encourage the teacher candidates to use these tools in their teaching experiences as well.

REFERENCES

- Aharony, N. (2009) The influence of LIS students' personality characteristics on their perceptions towards Web 2.0 use. *Journal of Librarianship and Information Science*, 41(4), 227 – 242.
- Boulos M. N. K., I. Maramba & S. Wheeler. (2009). Wikis, blogs and podcasts: a new generation of Web-based tools for virtual collaborative clinical practice and education. *BMC Medical Education*, 6(41). Retrieved: <http://www.biomedcentral.com/content/pdf/1472-6920-6-41.pdf> 24.12.2009
- Chakravarthy, G.S. & R. R. Barde. (2008). Web 2.0 Applications – An Approach to Testing. *International Conference on Innovations in Information Technology, IIT 2008*. Pp: 195 – 198. DOI: 10.1109/INNOVATIONS.2008.4781705
- Chiang, I., C. Y. Huang & C. W. Huang. (2009). Characterizing web users' degree of web 2.0-ness. *Journal Of The American Society For Information Science And Technology*, 60(7), 1349–1357.
- Chu, H. & C. XU. (2009). Web 2.0 and its dimensions in the scholarly world. *Scientometrics*, 80(3), 719–731.
- Coyle, C. L. and H. Vaughn. (2008). Social networking: Communication revolution or evolution?. *Bell Labs Technical Journal*, 13(2), 13 – 17.
- Daymon C. & I. Holloway. (2002). *Qualitative Research Methods in Public Relations and Marketing Communications*. Routledge. ISBN: 0-415-22273-7.
- Fan, X., Z. Wang & L. Liao. (2008). Web 2.0 environment's support to the Web Learning Community. *International Symposium on Knowledge Acquisition and Modeling*. Pp: 530 – 533. DOI: International Symposium on Knowledge Acquisition and Modeling
- Gavagni V. Z. & V. V. Mohan. (2008). Application of web 2.0 tools in medical librarianship to support medicine 2.0 *Webology*, 5(1). Retrieved: <http://www.webology.ir/2008/v5n1/a53.html> 22.12.2009
- He, W., L. D. Xu, T. Means & P. Wang. (2009). Integrating web 2.0 with the case-based reasoning cycle: A systems approach. *Systems Research and Behavioral Science*, 26, 717- 728.
- Hemmi, A., S. Bayne & R. Land. (2009). The appropriation and repurposing of social technologies in higher education. *Journal of Computer Assisted Learning*, 25(1), 19-30.
- Hsieh, M.C., Y.W. Kao & S.M. Yuan. (2008). Web 2.0 Toolbar: Providing Web 2.0 Services for Existence Web Pages. *2008 IEEE Asia-Pacific Services Computing Conference*. Pp: 507 – 512. DOI: 10.1109/APSCC.2008.137
- Kaldoudi, E., P. Bamidis, M. Papaioakeim & V. Vargemezis. (2008). Problem-Based Learning via Web 2.0 Technologies. *21st IEEE International Symposium on Computer-Based Medical Systems*. Pp: 391 – 396. DOI: 10.1109/CBMS.2008.136
- Kennedy, G., Dalgarno, B., Gray, K., Judd, T., Waycott, J., Bennett, S., Maton, K., Krause, K.L., Bishop, A., Chang, R. & Churchward A. (2007). The net generation are not big users of web 2.0 technologies: Preliminary findings. In ICT: Providing choices for learners and learning. *Proceedings ascilite Singapore*. (<http://www.ascilite.org.au/conferences/singapore07/procs/kennedy.pdf>)
- Ketterl, M., R. Mertens & O. Vornberger. (2008). Web Lectures and Web 2.0 Proceedings of the 2008 Tenth IEEE International Symposium on Multimedia. Pp: 720-725. DOI: 10.1109/ISM.2008.43
- Koçak-Usluel, Y. & Mazman, S. G. (2009). Adoption of Web 2.0 tools in distance education. *International Journal of Human Sciences*, 6(2). Retrieved: <http://www.insanbilimleri.com/en>
- Kool, D. & J. Wamelen. (2008). Web 2.0: A New Basis for E-Government?. *3rd International Conference on Information and Communication Technologies: From Theory to Applications*, 2008. ICTTA 2008.. 7-11 April 2008. Pp: 1- 7. DOI: 10.1109/ICTTA.2008.4529946
- Lai, L.S.L. & Turban, E. (2008), Groups formation and operations in the Web 2.0 environment and social Networks. *Group Decision and Negotiation*, 17(5), 387-402.
- Lichtman, M. (2006). *Qualitative research in education: A user's guide*, Sage Publications, USA
- Orehovacki, T., G. Bubas & M. Konecki. (2009). Web 2.0 in Education and Potential Factors of Web 2.0 Use by Students of Information Systems. *31st International Conference on Information Technology Interfaces, 2009. ITI '09*. Proceedings of the ITI 2009. pp: 443 – 448 DOI: 10.1109/ITI.2009.5196124
- Patton, M.Q. (1990). *Qualitative Research & Evaluation Methods*. 3rd Edition. Sage Publications. USA
- Rethlefsen M. L., M. Piorun & J. D. Prince. (2009) Teaching web 2.0 technologies using web 2.0 technologies. *Journal of the Medical Library Associatio*, 97(4), 253-260.
- Roberts, B. (2009). Beyond the 'networked public sphere': Politics, participation and technics in web 2.0. *Fibreculture*. Issue: 14. Retrieved: http://journal.fibreculture.org/issue14/issue14_roberts.html: 22.12.2009
- Rubio, R, S. Martín & S. Morán (2007). Collaborative web learning tools: Wikis and blogs. *Computer Applications in Engineering Education*. (DOI: 10.1002/cae.20218)
- Shao, Y., Daley, L. & Vaughan, L. (2007). Exploring Web 2.0 for virtual design studio teaching. In ICT: Providing choices for learners and learning. *Proceedings ascilite Singapore*. <http://www.ascilite.org.au/conferences/perth07/procs/shao.pdf>

- Shaohua, H., & W. Peilin (2008). Web 2.0 and social learning in a digital economy. *IEEE International Symposium on Knowledge Acquisition and Modeling Workshop*, 2008. KAM Workshop 2008. Pp: 1121 – 1124. DOI: 10.1109/KAMW.2008.4810691
- Tan, Zhi-Jun. (2008). The Construction of Web 2.0-based Learning Community. *IEEE International Symposium on Knowledge Acquisition and Modeling Workshop*, 2008. KAM Workshop 2008. pp: 1018 – 1021. DOI: 10.1109/KAMW.2008.4810665
- Thelwall, M., R. Prabowo, & R. Fairclough. (2006). Are Raw RSS Feeds Suitable for Broad Issue Scanning? A Science Concern Case Study. *Journal of the American Society for Information Science and Technology*, 57(12), 1644-1654.
- Timm, D. M. & C. J. Duven. (2008). Privacy and social networking sites. *New Directions for Student Services*, 124, 89 – 101.
- Todres, L. (2005). Clarifying the life-world: Descriptive phenomenology. In Immy Holloway (Ed.). *Qualitative Research in Health Care*. (pp: 104 – 125). Open University Press. UK
- Yıldırım, A. & H. Şimşek. (2008). *Sosyal Bilimlerde Nitel Araştırma Yöntemleri*. Seçkin Yayıncılık, Ankara.