

Exploring the Relationship between Web 2.0 Tools Self-Efficacy and Teachers' Use of These Tools in Their Teaching

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Received: July 9, 2017

Accepted: July 17, 2017

Online Published: July 19, 2017

doi:10.5539/jel.v6n4p217

URL: <http://doi.org/10.5539/jel.v6n4p217>

Abstract

The purpose of this study was to examine the relationship between teachers' self-efficacy in using of Web 2.0 tools and some demographic variables, and their use of those tools in their teaching. The study data was collected from a random sample of public school teachers in Riyadh, Saudi Arabia. The results showed a strong positive relationship between teachers' Web 2.0 self-efficacy beliefs and their actual use of Web 2.0 tools in classroom teaching. Moreover, the study found that in-service training, age of teachers, and access to Web 2.0 tools at school had a strong relationship with teachers' use of Web 2.0 tools in teaching. The study recommended the need to intensify in-service training for teachers in the use of modern Internet tools in teaching.

Keywords: web 2.0, self-efficacy, in-service training, computer skills

1. Introduction

Over the past few years, many educators have begun to explore some of the problems in educational institutions, especially in terms of preparing a generation of educated learners to meet the technological challenges of the 21st century (DoBell, 2013). The experiences required by the labor market during the present century are different from those of the previous centuries, especially with the growth of the globalized and technology based economy. Many current educational systems do not provide learners with adequate preparation of the use of technology in all aspects of life. Therefore, there is an urgent need to educate the new generation of learners about technologies that may contribute to their smooth integration into the labor market and the highly technologically dependent society (ISTE, 2011).

The best practices in integrating technology into education, to familiarize students with the use of technology in their daily lives, depends on the development and use of Web 2.0 tools (Cindy, 2015; Al-Freih, 2015). Web 2.0 technologies are among the latest technologies that allow interaction between Internet users and greater participation in enriching Internet content. Web 2.0-based teaching methods involve learners in learning environments that are based on a realistic assessment of their performance (DoBell, 2013). However, the effective use of these technologies depends primarily on teachers' proficiency to use them. According to Ahmed (2015), in order to successfully integrate modern web technologies into the curriculum and classroom, traditional teaching methods need to be redesigned so that a teacher becomes a facilitator for students' learning rather than being the only source of information. This requires a teacher's commitment to develop him or herself in the use of Web 2.0 tools in the classroom environment. In addition, teachers of this century must make Web 2.0 tools an integral part of their everyday life, conveying the experiences they have acquired to their students. The activation of Web 2.0 tools in education requires a change in both the teaching process and practices and the learning environment (Dabour, 2013; Usoro & Echeng, 2015).

A review of previous literature showed that there is a gap in scientific studies that explored the factors that may affect the integration of Web 2.0 technologies into the learning process. This type of studies should be distinguished from those that investigate factors that influence the overall integration of technology into the learning process. That is because the integration of Web 2.0 tools into learning and teaching has specific requirements and conditions that differ from the requirements of the use of instructional technologies as a whole. The present study sought to bridge this gap in the scientific literature in the use of Web 2.0 technologies (blogs, wikis, social networking tools), and to explore the actual use of these tools among teachers in the classroom teaching environment.

1.1 Problem of the Study

The educational technologies that have been used over the past century are outdated and are no longer sufficient to meet the new requirements to prepare learners in this century dominated by globalization and information technology. Local educational institutions should adopt new teaching methods and modern technologies that have permeated the society, such as the use of social media, blogs, wikis, and podcasts, in the classroom environment. Learning to use these tools will help students achieve some of the most important educational requirements of this century, that learning is a lifelong process in various cognitive fields. This requires that a teacher changes his/her role to be a facilitator in the learning process (Al-Baz, 2013; Al-Ghamdi, 2013).

Legault, Green-Demmers, and Pelletier (2006) assert that students' motivation decreases markedly as they precede in school. This is attributed to the fact that students' motivation is declining as they do not feel connected to the courses offered to them during the academic study. Most students feel they learn skills and knowledge they will never use in their lives. Students' sense of attachment to the scientific material offered to them will increase when they feel that what they are taught serves them in their lives. By changing the instructional methods, teachers' role to a facilitator in the learning process, and using Web 2.0 tools in classrooms to help interact with others, will lead students to understand, assimilate, and relate more closely to the subjectmatter content presented to them. Therefore, the present study sought to identify the relationship between the subjective factors of teachers and the extent to which they activate these tools of the Web 2.0 in their teaching, in order to identify and strengthen the factors that help to increase the activation of these tools in classrooms. Identifying these factors can help decision-makers take the right decision to ensure the effective use of modern web tools in classrooms.

1.2 Purpose of the Study

The aim of this study was to investigate the relationship between teachers' Web 2.0 tools self-efficacy and the extent of integration of these tools in their classroom teaching. In addition, the study aimed to explore the relationship between some demographic variables, and the use of Web 2.0 tools in teaching. The findings of the current study may help in identifying and reinforcing the factors that encourage and help teachers use these tools in classroom teaching, thus making teaching and learning more interesting to students, and feeling that what they learn in classrooms is more relevant to their daily lives.

1.3 Study Questions

To achieve the objective of this study, the following questions were set:

- 1) To what extent do teachers use Web 2.0 tools in their classroom teaching?
- 2) What is the relationship between the self-efficacy of teachers in the field of using Web 2.0 tools, and a number of demographic variables, and their use of these tools in teaching?

1.4 Significance of the Study

The current teaching methods are in need for a significant shift to meet the needs and requirements of the current century. One of the most critical changes required is the active participation of students in the classroom environment. Students of this century need to use the latest technology in order to better invest their abilities. Several studies have shown that students are more aware of modern technologies than their predecessors (Al-Tabakh, 2014; Hamada & Ismail, 2014). When constantly integrating Web 2.0 tools into traditional teaching methods, the role of the teacher is transformed from a mere provider of information and knowledge to a facilitator and guide of the students' learning. Similarly, the role of the student also changes from a short-term learner, to become a lifelong learner. The tools and technologies of Web 2.0 that can be employed in the field of teaching are updated and renewed continuously, which requires continuing studies that seek to identify the actual use of these tools in education, and identify the variables that may affect the integration of these tools in the educational environment.

2. Theoretical Framework

2.1 Web 2.0

The Internet emerged in the early 1990s when the dissemination of content and multimedia required a high degree of technical knowledge. The Internet was used by individuals to obtain information from multiple sources (Albion, 2008). Some technologies have evolved over a decade so that teachers can put some learning materials on the Internet for students to learn without interacting with them. However, early in the first decade of the 21st century, modern technologies were introduced that enabled Internet users to interact with the content displayed.

The term “Web 2.0” emerged to distinguish these technologies from older ones that do not enable users to interact with content (Buffington, 2008; Okello-Obura & Ssekitto, 2015).

Web 2.0 can be defined as a technical framework that enables Internet users to use many technology tools to create and disseminate knowledge and content, interact through social networks, collaborate in performing tasks with other individuals, revise existing content and share data (Jonassen et al., 2008). Web 2.0 refers to the use of the Internet as an intermediary for interaction among individuals through tools and technologies such as blogs, wikis, or podcasts, rather than using the internet merely as an information provider (Kostoula-Christina, 2016). In this study, Web 2.0 tools are defined as the use of the aforementioned tools in the classroom environment as a means of modern teaching. In the Web 2.0 world, all members of an organization can participate in content creation (Solomon & Schrum, 2007). According to O’Reilly (2005), users of Web 2.0 technologies can control the content they build and share that content with individuals of common interest. One example is Google’s Web 2.0 services, where one can share and edit documents, or share with other members. In addition to sharing information with others, individuals can subscribe to services that enable them to be notified of updates to information someone adds to their previously created content, such as adding an update to their blog or adding a new video to their channel.

2.1.1 Using Web 2.0 Tools in Teaching

The use of Web 2.0 tools in classrooms gives teachers and students the ability to see and interact with teaching content that is highly relevant to their needs (Lemarke et al., 2009). These tools facilitate interaction and discussion among students inside and outside classrooms. A number of studies have shown that the widespread use of Web 2.0 tools among teachers and students has helped to build an electronic dialogue between them. This has contributed to the development of students’ persuasive abilities and supported their arguments with documented information. Specifically, the use of blogs has helped to promote online discussion in order to teach students to expand learning beyond school boundaries. Thus, students are able to discuss and debate what they have learned beyond the classroom environment (Lemke et al., 2009; Solomon & Schrum, 2007).

2.2 Blogs

In the educational context, a blog is seen as a means by which students and teachers share their interaction. It can give students an opportunity to express their views and observations on the scientific material provided by their teacher. Educational blogging is useful for both students and teachers as an electronic communication tool through which a teacher can identify a student’s point of view on a given topic (Avci Yuce, 2017). The blog is a website or personal page on the Internet, where users record personal opinions and links of other websites periodically (Schrum & Levin, 2009). Students can also comment on the information, add to it, enrich it, and relate it to other ideas. Students can also create hyperlinks to serve the subject they write; thus, benefiting the teacher and the rest of the students in the class from this blog. Another feature of blogging is that other students can put their comments and opinions (Abu-Anaga, 2014).

One of the educational benefits of using blogs is that it helps to enhance the motivation of students to participate, especially those students who are too shy to participate in the classroom. It also gives students a greater opportunity to practice reading and writing skills and is an effective way to collaborate and engage a group of students on an issue or learning activity. It also facilitates guidance between teacher and student (Ahmad, 2015).

According to Dabour (2013), blogs can be used to disseminate research and assignments. They can also be used to create an atmosphere of cooperation and positive engagement among students, creating an environment for constructive dialogue among them by following and commenting on their colleagues’ blogs. It can be used by teachers as a comprehensive reference to the course in which the supplemental material is not provided by the course book. It can be considered as a type of electronic completion files, so that a student puts his work and achievements through the semester for reference later when needed, and used by the teacher to assess the progress of the student.

2.3 Wiki

A wiki is a type of web page that allows users to share, add and edit content without many restrictions. The wiki in its simplest form is a website that can be read like any other website. It is important to work cooperatively and create content without having to use any sophisticated technical tools. Wiki websites have gained importance in education as an effective tool for collaborative action, and as a promising Web 2.0 tool for teachers and students alike (Al-Fareeh, 2015). The importance of wiki in the field of teaching in this century is that most websites that offer wiki service are free. Their pages are easy to build and do not require the learning of technical tools to edit them. A user or a student can edit a page and this edition appears directly to the rest of users without having to be

approved. Studies have shown that wiki pages have a user-friendly interface. One of the greatest benefit of the wikis service is that it eliminates geographical boundaries as students from all over the world can participate in its editing (Cook, 2014).

2.4 Podcast

A podcast is a series of episodes, whether audio or video, recorded and placed on a website. When a student is enrolled in this series, the last episodes are automatically downloaded to his computer or smartphone, provided he is connected to the Internet. This technology is portable, where you can hear or watch audio or video with any laptop or smartphone anywhere, anytime. It is also easy to control as the user is free to subscribe or unsubscribe from a particular series. One of the main advantages of this technology is that it is always available. Content can always be accessed or produced at any time. It benefits learners who have busy schedules and want to learn in their own free time (Dabour, 2013).

As a revision tool, this technology enables learners and students to run podcasts and repeat them to review lessons. Students can retrieve the smallest details in the lessons, which may not be noticed when listening at the first time. The podcast also gives students the advantage of learning at a pace that suits their own abilities. It also frees them from manually taking notes (Al-Ghamdi, 2013).

There are several types of podcasts (DeBell, 2014): The first one is the audio podcast. This type is the most prevalent one because it is playable on most smart phones and has no high storage requirements. The second type is the video podcast which requires high storage space. The third one is the enhanced podcast which is the most common podcast used in education. It is a slide show with built-in audio with, pictures, texts, and sound that appear simultaneously. The fourth type is screen capturing, a video recording of what appears on the screen of the computer using screen recording software with a voice explaining what is happening on the screen. This type is used to explain software for learners and new software users.

Podcasting is used in education for the purpose of recording and broadcasting lessons, to be received by the student at any time and place. There are many language institutes that rely on podcast technology to train students to pronounce words. It can also be used for in-service training, where trainees can access the training material at any time or place (Al-Baz, 2013).

2.5 Social Media

Social Media is a term used to refer to the use of applications or websites called social networks for informal communication between individuals, collectively or individually (Solomon & Schrum, 2007). Several studies (Al-Kharousi, Jabur, Bouazza, & Al-Harrasi, 2016) suggest that social media helps students interact with their colleagues and with the scientific material through sharing views and knowledge, which may help increase motivation towards learning. Teachers in some countries have begun using these networks to connect with students to create an interactive learning environment in which students are active participants, and not just recipients of information in classrooms (Sindy, 2015).

One of the educational services offered by social media (Al-Freih, 2015) is that a teacher can create a page on a social site that is shared with students. Teachers can also develop supplemental materials that serve the curriculum in the social website. Interactive discussions on the topics covered in classrooms can be conducted. Messages can also be sent to a student or group of students when needed. These websites enable teachers and students to deliver and receive assignments.

2.6 Preparing and Training Teachers on Web 2.0 Tools

This era is characterized by the fact that information is available on demand with just a few clicks; thus, the educational systems should keep pace with this radical change in access to information, and use these innovations to serve the educational process (DoBell, 2013). Many educational institutions have sought to produce standards for the technologies that teachers must acquire in this century. For example, the International Society of Technology in Education has issued several technological standards that must be acquired by teachers (ISTE, 2008). Over time, there is an urgent need for qualified teachers who possess skills in using modern technologies, including Web 2.0 tools (Miners & Pascopella, 2007). Consequently, there is an urgent need to train in-service teachers to use Web 2.0 technologies to help their students optimize their use (Heun, 2006).

In Saudi Arabia, where this study was conducted, public education authorities sought to provide free courses for teachers in the use of Web 2.0 tools in education (Ahmed, 2015). However, there is still a shortage of teachers who can effectively use these tools, especially in classroom teaching. Despite the apparent increase in student

awareness of the use of Web 2.0 tools, current training for in-service teachers stands unable to fill the gap in qualifying enough teachers to use these tools (Al-Baz, 2013).

Studies have shown that in-service teacher training in the use of Web 2.0 tools has had a positive impact on their performance (Hao & Lee, 2015) and has used these tools to give students extra-curricular activities, encouraging cooperative work among students, which is an essential skill, and a requirement of the labor market, especially since most schools are technically qualified to use Web 2.0 tools with Internet-related computer labs or learning resource centers (Wells & Lewis, 2006).

In general, for the integration of modern Web 2.0 tools into the curriculum and classroom, this requires a professional development of in-service teachers (Lemke et al., 2009). Teacher training on traditional instructional technologies should not be confused with training in the use and integration of Web 2.0 technologies into the curriculum. Web 2.0 training requires the identification of a large number of technologies, and the ways in which students use these technologies in their daily lives, to make them an integral part of the tools that students rely on lifelong learning (DoBell, 2013). Training teachers to use these tools requires a change in teachers' teaching methods.

2.7 Web 2.0 Self-Efficacy

Self-efficacy in the use of Web 2.0 tools is one of the intrinsic characteristics of teachers that can be used to predict if they are capable of using them in their work (Niederhauser & Perkmen, 2008). Self-efficacy refers to the individual's belief in his or her ability to perform a specific skill. According to the theory of self-efficacy, training teachers to use Web 2.0 technologies and preparing them with the skills and knowledge that enable them to use these technologies effectively affect the amount of time and effort they spend using these tools in classrooms (Pajares, 2002). Without professional development of in-service teachers, many may think the integration of Web 2.0 tools into education is difficult. However, according to the theory of self-efficacy, training on these skills may increase their self-efficacy and thus their potential use of the skills they have gained from Web 2.0 on in-service training in classrooms (DoBell, 2013).

3. Methods

This study followed a descriptive quantitative methodology for collecting self-efficacy data in the use of Web 2.0 technologies, and the extent to which teachers use these tools. A questionnaire was used to collect the study data from Riyadh city teachers. Qualitative data from teachers was also collected through interviews with teachers who agreed to conduct interviews in order to gain a deeper understanding of the nature of their use of Web 2.0 tools and the factors that helped them adopt Web 2.0 technologies for use in teaching.

3.1 Population and Sample

The number of teachers in public schools in the city of Riyadh was 33,414 teachers (General Education Administration in Riyadh Region, 2016) and are distributed among 11 supervisory offices of the Department of Education in Riyadh. Each office represents a geographical area of Riyadh city. To ensure an acceptable representation of all teachers in the study sample, a random sample of primary, middle and secondary schools was selected from each of the supervisory office. The study tools were applied to all teachers in those randomly chosen schools with the assistance of research assistants. One research assistant was assigned to follow up the delivery of the study tools for every selected school from the eleven supervisory offices and to help in the coding process. The number of questionnaires retrieved from teachers (participants) from all the schools was 661 (both tools of study) with a response rate of 76%. Thirty-three participants (tools) were excluded due to lack of clarity in some of their data. Thus, the total number of the analyzed questionnaires was 628.

The ages of the sample ranged from 25 to 50 years, with an average age of 41 years. The average years of experience of the teachers was 16.3 years, and the average number of years in which technology was generally used in classroom teaching was 10.6 years. Eighty-eight (88%) percent of the sample held bachelor degree, 11% of them held a master's degree, and 1% of them held different degrees. Ninety-seven 97% of the teachers said that they use computers at home, and 78% said they use computers at school for various educational and non-educational tasks.

3.2 Tools of the Study

The data of this study was gathered using two main tools, adopted from previous studies (Pan, 2011) in the use of Web 2.0 tools in education, after an appropriate adaptation of these tools to include the recent advancement in the Web 2.0. The first tool was a questionnaire to identify the integration of Web 2.0 tools into education, and the second was the Web 2.0 Self-efficacy scale. In addition to these tools, demographic data was collected from

teachers (age, educational level, access to Web 2.0 tools at school and home, Internet access at school, hours of in-service training, years of service in teaching, years of use of technology in teaching, etc.) to study the relationship between these variables and the use of Web 2.0 tools by teachers, and their own effectiveness in the use of Web 2.0 tools. These tools were put in one questionnaire provided to teachers in order to reduce the effort in filling out and collecting questionnaires.

The use of Web 2.0 Tools for Education tool addressed six key areas for using Web 2.0 tools in a learning environment. The level of teachers's integration of these tools in their teaching was obtained serving as a basis for measuring other variables. The self-efficacy tool in the use of Web 2.0 tools in education consisted of 30 items. It was used to measure self-efficacy in the use of Web 2.0 tools. Teachers responded to the questionnaires' items on a five-point Likert scale to show how much they use Web 2.0 tools, ranging from: daily (5), at least once a week (4), at least once a month (3), at least once a year (2), Never used (1).

The researcher translated the tools into Arabic and used common terms used in Saudi society for Web 2.0 tools so that teachers could easily identify those tools. After translating into Arabic, the tools were checked by an Arabic language editor to ensure that they were free of errors. In order to verify the facial validity of the tools, they were checked against their English version by three faculty members with experience in Web 2.0 tools and fluent in English, to ensure the clarity of the phrases, and the names of the Arabic tools. The tools were then applied to a sample of 20 teachers from outside the study sample to identify the tools' readability, and the suitability of its expressions and the names of the web 2.0 tools for teachers in general. Based on the feedback from the previous steps, some modifications have been made to the tools. The coefficient of reliability (Cronbach Alpha) of the use of Web 2.0 Tools for Education Tool in general and for the self-efficacy tool in the use of Web 2.0 tools in education were 0.75, 0.81 respectively, which are considered acceptable parameters for the use of the tools.

3.3 Data Analysis

Multiple regression analysis was used to identify the factors affecting the use of Web 2.0 tools in learning, and the amount and strength of the relationship between these factors. The independent variables in the statistical analysis were: self-efficacy in the use of Web 2.0 tools in learning, the number of hours of in-service training received by the teacher in the use of Web 2.0 tools, and the availability of Web 2.0 tools for teachers in school and at home, learner age and years of experience, the years of use of the educational technology. The dependent variable in this study was the amount of teacher use of Web 2.0 tools in education and classroom.

A multi-regression equation has been constructed with the following dependent variables: teachers' age, years of teaching, access to Web 2.0 tools in schools, general use of technology in education, access to Web 2.0 tools at home. The dependent variables are the: use of Web 2.0 tools in teaching to answer study questions, and to identify the strength of the relationship and the impact of the factors that were collected on the use of Web 2.0 tools in education.

4. Results

4.1 The Use of Web 2.0 Tools in Teaching

In order to answer the first question—What is teachers' actual use of Web 2.0 tools in their teaching?, the frequencies and percentages of responses of the participating sample about the use of each of the Web 2.0 tools were calculated. Table 1 shows participants' responses to their use of various Web 2.0 tools (blogs, wikis, podcasts, social media, multimedia sharing, and content management websites).

Table 1. Frequency and percentage of sample's use of web 2.0 tools

Response	Blogs	Wikis	Podcasts	Social media	Multimedia sharing	Content management websites
Daily	2 (%0.32)	1 (%0.16)	0 (%0.00)	85 (%13.54)	160 (%25.48)	1 (%0.16)
Once a week	69 (%10.99)	200 (%31.85)	2 (%0.32)	221 (%35.19)	231 (%36.78)	12 (%1.91)
Once monthly	52 (%8.28)	321 (%51.11)	15 (%2.39)	107 (17.04)	158 (%25.16)	35 (%5.57)

Once a year	138 (21.97)	12 (%1.91)	35 (%5.57)	95 (%15.13)	23 (%3.66)	40 (%6.37)
Never	367 (%58.44)	94 (%14.97)	576 (%91.72)	94 (%14.97)	367 (%58.44)	540 (%85.99)
Total	628 (%100)	628 (%100)	628 (%100)	628 (%100)	628 (%100)	628 (%100)

Table 1 shows a relatively average use of Web 2.0 tools by teachers in their classroom teaching in general. However, a quite large number of teachers use video and image sharing websites, most notably YouTube. Some of the teachers justified this, during their interviews, to the widespread use of this website among students, its ease of use, and the availability of a large amount of content that can be integrated into courses. The teachers' use of wikis, which many consider a source of enriching information for the curriculum, is also noted. These findings support previous studies on teachers' belief that video sharing sites, such as YouTube, and wikis such as Wikipedia, are important tools for enriching academic content (Alawneh & Makhoul, 2014). With the widespread use of social media among students, a large number of teachers, as shown in Table 1, seek to employ these media in maintaining contact with their students and encouraging their students to work cooperatively and collaboratively.

It can be noticed that there is a lack of use by teachers of some Web 2.0 tools such as podcasts and content management and editing tools because they are not common among students, and due to the difficulty in preparing and publishing podcast content in particular. A number of teachers also believe, as they pointed out in the interviews, that using Youtube resembles the use of podcast technology, which may indicate the ambiguity in the benefits of podcast technology among teachers.

Based on the above discussion, there is an urgent need for a more in-depth teacher training on the use of Web 2.0 tools, so that they can use these tools effectively, and enable them to convey effectively to their students the benefits of using Web 2.0 tools, especially wikis, podcasts, and blogs. These tools are platforms for students to express themselves to the world outside the walls of the school and are effective means of the process of education. It could be seen from the data collected that teachers showed that they had computer training in learning, included the use of some Web 2.0 tools with an average of 8.4 hours last year, and equivalent to one day for every year of work. Thus, it can be said that teachers have received relatively little training in the use of computers and Web 2.0 tools in education and that their current use of Web 2.0 tools depends on their own experiences and personal knowledge of these tools, using only what they know.

Interestingly, most teachers have scored above the average in self-efficacy in most Web 2.0 tools, yet they use these tools less frequent than expected. A group of teachers indicated that they were comfortable using Web 2.0 tools (average to high self-efficacy) but pointed to a number of factors that prevented them from being effectively used in classrooms. Some of the most crucial factors mentioned by teachers were the high number of students in classrooms, the need to move to the computer lab when computers are needed, which is usually busy teaching computer courses in middle and high schools, and the limited number of computers available at the school's learning center.

4.2 Multiple Regression Analysis

In order to answer the second question in this study—What is the relationship between the self-efficacy of teachers in the use of Web 2.0 tools, and a number of demographic variables, and their use of these tools in teaching?, a multiple regression analysis was conducted to determine the relationship between the dependent variable: the use of Web 2.0 tools in teaching and independent variables in the study.

Table 2. The relationship between self-efficacy in the use of Web 2.0 tools and the use of these tools by teachers in their classroom teaching

Self-efficacy: Regression Coefficient	2.41
Correlation Coefficient (<i>r</i>)	0.65
Level of Significance (<i>p</i>)	0.000

The results of the multiple regression analysis, as shown in Table 2, showed a statistically significant positive correlation between the teachers' self-efficacy in the use of Web 2.0 tools and their use of these tools in their classrooms with a regression factor of 2.41. This finding indicates that the teacher's self-efficacy variable in the use of Web 2.0 tools can be used as a predictor for the use of these tools in classrooms ($r = 0.65$) and that the more the teacher's self-efficacy increases in Web 2.0 tools, the more likely they are to use them in the classroom.

Table 3. The relationship between the amount of in-service training received by teachers and the teachers' integration of those tools in their classroom teaching

In-service training: Regression Coefficient	1.85
Correlation Coefficient (r)	- 0.72
Level of Significance (p)	0.000

As shown in Table 3, there is a statistically significant positive correlation between the number of in-service training hours and the extent to which they use Web 2.0 tools with a regression coefficient of 1.85. This finding indicates that the variable of hours spent in professional training by teachers can be used as a predictor of the use of these tools in classrooms ($r = 0.72$).

Table 4. The relationship between the age of the teacher and the use of Web 2.0 tools in teaching

Teachers' age: Regression Coefficient	-0.77
Correlation Coefficient (r)	-00.43
Level of Significance (p)	0.00

On the other hand, the results of regression analysis as presented in Table 4 showed a statistically significant negative relationship between teachers' ages and their use of Web 2.0 tools ($r = -0.77$). This result shows that a teacher's age variable can be used to predict the use of Web 2.0 tools ($r = 0.43$) and that the older the teacher is, the less use of Web 2.0 tools in classrooms.

Table 5. The relationship between years of teaching experience, and the use of Web 2.0 tools in teaching

Teaching Experience: Regression Coefficient	0.21
Correlation Coefficient (r)	0.33
Level of Significance (p)	0.00

In terms of the relationship between years of teaching experience and the use of Web 2.0 tools in teaching, the multiple regression analysis (Table 5) shows that there is a positive but weak relationship between the two variables. The regression coefficient is 0.02. It could be concluded that teaching experience does not greatly serve to predict the extent to which Web 2.0 tools are used in teaching.

Table 6. The relationship between the availability of Web 2.0 tools in school and at home, and the use of Web 2.0 tools in teaching

	Availability at school	Availability at home
Regression Coefficient	0.43	0.32
Correlation Coefficient (r)	0.32	0.24
Level of Significance (p)	0.00	0.00

As could be seen in Table 6, the multiple regression analysis showed that there was a positive and statistically significant relationship between the availability of Web 2.0 tools in school and at home and the use of Web 2.0

tools in teaching. The regression coefficients were 0.43 and 0.32 respectively. This finding suggests that the availability of web tools at school and at home can greatly serve to predict the use of Web 2.0 tools in teaching and that as these tools become more available at schools or at homes, teachers will seek to use them more in classrooms.

Table 7. The relationship between the use of technologies in teaching and the use of Web 2.0 tools in teaching

Use of Technologies: Regression Coefficient	0.92
Correlation Coefficient (<i>r</i>)	0.51
Level of Significance (<i>p</i>)	0.00

Table 7 presents the regression coefficient and the relationship between the variables of the use of the technologies in the field of teaching (e.g., multimedia projector, computer, etc.) and the use of Web 2.0 tools in teaching. Multivariate regression analysis showed that there is a positive strong and statistically significant relationship between the two variables. The regression coefficient was 0.92. This suggests that teachers' use of technologies in general in their teaching could be used to predict how much they use Web 2.0 tools in teaching. It can be said that a teacher who uses teaching technologies in his teaching will potentially use Web 2.0 technologies in his classroom.

Overall, the results of this study showed that the most predictive personal variable for teachers' use of Web 2.0 tools in teaching was their Web 2.0 self-efficacy. The study also showed that the greater the self-efficacy of teachers in the sample, the greater their use of Web 2.0 tools in teaching. The results indicated that the increase in the amount of teachers' use of learning technologies, in general, was positively and strongly related to their use of Web 2.0 tools in classroom teaching. The extent to which teachers use teaching technologies in general in their teaching comes in the second place as a predictive variable of the students' use of Web 2.0 tools.

5. Discussion

With regard to the first question, this study showed mixed results with respect to teachers' use of Web 2.0 tools in education. In terms of blogs, a large percentage of teachers (58%) showed that they never used them in their teaching whereas a small percentage (18%) indicated that they use blogs weekly or monthly. In their interviews, some teachers indicated that they do not prefer to use blogs as a source of knowledge and skills for students as they view blogs as personal pages of individuals who are not subject to scientific scrutiny. A study by Richardson (2006) indicates that there is a fear of the information provided by blogs as teachers perceive blogs as an unreliable source of supplemental materials for the course. However, teachers miss the other goal of blogging, which is to motivate students to interact with peers and accept the views of others (Ahmed, 2015; Al-Ghamdi, 2013). Consequently, the topics that teachers receive during their in-service training should cover this great benefit of blogs in education.

On the other hand, the results of the study showed that a large percentage of teachers (82%) use wikis weekly or monthly in their teaching and they refer students to wikis, especially the Wikipedia website, to increase knowledge about curriculum subjects. During the interviews, some teachers showed that they trust the scientific material in the Wikipedia website more than the material on personal blogs. The confidence of teachers in Wikipedia stems from their awareness that the material put in the Wikipedia website is reviewed and edited by specialists in various fields. Al-Freih (2015) states that teachers often direct students to Wikipedia website to get knowledge and that they trust the website more than personal blogs; however, similarly, teachers have overlooked the use of wikis as a means of sharing and collaborating in building new content, and scrutinizing existing content. Therefore, in-service teacher's development programs should instruct teachers to this field of use.

In terms of the teachers' use of social media of different types, a large number of teachers (65% of the sample) showed that they use media periodically to stay in contact with students or to encourage students to use these media to connect with community figures or experts in a particular area of interest. This is consistent with the pattern of social media use stated in previous studies (Cindy, 2015; Wasp, 2013). However, a large number of teachers during the interviews warned against using these media with young students. Some teachers also indicated that they had been instructed by the school administration not to use social media with students. Despite this caution, however, a large number of teachers have shown that they use media in one way or another in the instruction process.

The most widely used Web 2.0 tool by teachers was multimedia sharing websites, especially video sharing sites, such as YouTube. Eighty-seven percent (87%) of the teachers indicated that they direct their students to these websites for more knowledge, or offer them some video clips from those websites in classrooms when circumstances permit, such as the availability of the computer, the projector, and a fast connection to the Internet. Many studies (Alawneh & Makhoul, 2014; Abu Bakr, Maged, & Al-Dasouki, 2013; Hassan & Muhammad, 2013) have indicated that many teachers prefer to use YouTube to show videos about the content of the course, and students prefer to view videos from YouTube rather than to read the lesson, or listen to the teacher.

The least common Web 2.0 tools among teachers were podcasts, content management and editing websites (e.g., Google Docs). When asked why they are reluctant to use these tools, some teachers reported that they have not been trained and do not know them at all. Podcasting is a relatively unknown technique used very little in the society, unlike some Western societies. Al-Freih (2015) noted that the use of podcasts has become common among language teachers and non-native speakers of English. Podcast technology develops the learner's listening skills because of the ability to re-record audio multiple times so that the student can understand spoken speech. It is therefore important to train teachers to use these tools to increase their self-efficacy in their use, their willingness to use them in general, and in classrooms.

For the second question of the study on the relationship between self-efficacy and some demographic variables, regarding the extent to which teachers use the tools of the Web 2.0 in education, the results of the study showed that there is a significant strong relationship between the self-efficacy, in-service training, the previous use of the teacher of educational technologies in general, and the teachers' age with the teachers' use of Web 2.0 tools in teaching. These results demonstrate that there is a valuable of continuous in-service training in the use of modern educational technologies, particularly Web 2.0 tools. This finding is consistent with DoBell's (2013) results as one of the most important factors influences teachers' use of Web 2.0 tools in their teaching was their in-service training to use these tools. Most of the in-service teachers did not receive training during their academic preparation on the use of these tools as they were not available at the time.

The findings of the study also showed a strong positive relationship between the self-efficacy of teachers in the use of the tools of the Web 2.0 in education, and their actual use of these tools. Among the factors that led to a rise in the self-efficacy index of teachers, and their strong belief in their ability to use Web 2.0 tools in education, is their in-service training in using these tools. Training is one of the most important strategies that can be used to increase the self-efficacy of teachers in any field, especially in the use of new educational technologies, which some teachers may find difficult to use (Pan, 2011).

Another important factor that could lead to an increased use by teachers of Web 2.0 tools in their teaching is the access to these tools at school. If there is an insufficient access to these tools at school, such as no high-efficiency Internet service or no computers at school, teachers will not be able to use them at school, even if they are trained to use them. Several studies (Cindy, 2015; Hamada & Ismail, 2014; DoBell, 2013; Buffington, 2008) suggest that access to technology tools and the availability of good infrastructure are among the most key factors affecting the overall use of computers in education, and Web 2.0 in particular.

5.1 Recommendations

Based on the findings of the current study, the following recommendations can be made:

- 1) There is a pressing need to provide periodic maintenance of the technical infrastructure in the public education schools to get a high-efficiency Internet service, and the periodical repair of computers, and the increase of its availability in schools.
- 2) Due to the number of teachers' lack of awareness of the benefits of Web 2.0 tools, it is recommended to provide in-service training for teachers on the use of these tools, to show the benefits of these tools in the daily life of students in general, and to focus on how to harness those tools to serve the educational process.
- 3) It could be noticed that there are some concerns of several teachers about the use of social media with their students outside the school's boundaries. Thus, it is recommended to develop clear policies that show the limits of the use of social media tools between teachers and their students outside the school boundaries.
- 4) There is a necessity of intermittent review of the teaching methods and the educational technology curriculum in the faculties of education to include the use of modern Internet tools in the field of education.

5.2 Future Studies

Based on the results of this study, it is critical to suggest the following research directions:

- 1) The need to duplicate this study with a sample of female teachers. The literature indicated that there are gender differences in the use of some Web 2.0 tools, particularly social media.
- 2) Given the importance of in-service training for all teachers and the lack of training centers, it is important to explore the impact of e-training rather than face-to-face training in acquiring Web 2.0 skills in education.
- 3) The economic and social situation plays a role in the amount of access some students have to Internet services, which may be a bit expensive for some students. It is useful to identify the relationship between the economic and social situation of students and the use of Web 2.0 tools for learning.

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