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THE EXTENT OF EMPLOYING WEB 2.0 APPLICATIONS IN TEACHING SECONDARY STUDENTS AS PERCEIVED BY TEACHERS IN KARAK EDUCATION DIRECTORATE

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ABSTRACT: *The current study aimed to examine the extent to which teachers employing Web 2.0 applications related to course subjects. Study instrument adopts a descriptive approach as a questionnaire consisting of (41) paragraphs including the use of wikies, blogs and social media. The sample consisted (161) teachers who were randomly chosen in the first semester of the academic year (2018-2019). The results indicated that social networking sites are the most used in the educational process. The results also indicated that there were no statistically significant differences between males and females' teachers in the use of this technology, as well as for experience. However, the results showed that there were statistically significant differences regarding the number of training courses that the teacher attended in the field of web2.0 technologies.*

KEYWORDS*:* Web 2.0, Wiki, Blog, Social networking, Karak.

INTRODUCTION

It has become a fact that contemporary technologies related to the Internet contribute significantly to education process. It has also become an important and influential factor in bringing about change in various fields. The instruction, utilization and best practices that need to be adopted to take advantage of these changes need to be determined. In the education sector, teacher continue to follow up the increasing growth in education development and meet the needs of the 21st century. Therefore, it is necessary to exploit these technological tools of web 2.0, which provide an interactive environment that supports the requirements of teaching and learning.

The current trend of using web 2.0 has been growing with Information and Communications Technology (ICT) tools employed in several different ways to support the education system. Some technology designed to support administrative processes, while others are more useful in supporting teaching and learning activities. Among the ICT tools are web 2.0 tools, which are the second generation of Internet services designed to facilitate communication, secure information exchange, interoperability, collaboration and other interactive activities that were not available in the first generation of Web services. These tools include popular applications such as blogs, Wikipedia, social networks, virtual classes, and many of the tools that fall under this technology based on the principle of participatory and user interaction. These tools and applications offer opportunities that support the most challenging participation of student-led teacher (Attwell & Hughes, 2010; Juhani, 2013).

Given the importance of Web 2.0 technology in the educational process, it has been successfully integrated into the educational system of developed societies; its performance has been positively assessed and reported. However, in developing countries, the integration of second-generation tools into childhood teaching and learning remains below aspirations. Studies in educational research have shown that the current state of accessing and using ICTs in schools in developing countries is very low. Unexpectedly, the problems associated with integrating Web 2.0 tools are not due to the lack of such tools and services, but largely to the lack of supportive infrastructure needed to activate Web 2.0 tools, such as Internet connectivity and, in some cases, inadequate human resources with technical knowledge. Also, there are supporters in the pedagogical structure of the regular, teacher-centered approach on teaching rather than the learner (Carter, 2009; Attwell & Hughes 2010).

Despite these challenges, there are many opportunities that can be exploited to integrate the tools Web 2.0 in the educational process in Jordanian schools because of the increasing number of Internet users with the emerging of digital and mobile devices, especially among students and teachers as well as schools connected to the Internet. Unfortunately, the focus and purpose of using these devices on social networks and educational platforms was to entertain rather than exploit them for educational purposes (CcHub, 2014).

Based on these data, this study seeks to discover the extent to which secondary stage teachers are practicing teaching activities and strategies based on the use of Web 2.0 tools. Through the study procedures, the obstacles of effective use of Web 2.0 and ICT tools in the educational system in Karak Education Directorate will be revealed from the teachers' perception.

Related Litreture

Few previous studies have addressed the importance and role of second-generation applications and tools in e-learning in schools in the Hashemite Kingdom of Jordan. The most relevant studies can be summarized as follows:

Al-Sayed and Al-Zyoud (2018) study titled "Perceptions of Higher Basic Teachers in Jordan Towards the Importance of Using Social Media in the Educational Learning Process". The study aimed to identify the perceptions of teachers of the upper secondary stage in Jordan towards the importance of using social media in the educational process. The sample included (2133) teachers. The study found that the perceptions of teachers of the upper primary stage in Jordan on the importance of using social media in the educational process in general medium. There were no statistically significant differences at the level ($\alpha = 0.05$) for the importance of use according to the gender variable in the fields of knowledge, skill and social field, while there were statistically significant differences in the field of value in favor of female teachers. There was a statistically significant difference in the level ($\alpha = 0.05$) in relation to the importance of use according to the variable of educational qualification in each area of study and the tool in favor of those with higher academic qualifications. There were statistically significant differences at ($\alpha = 0.05$) for the importance of use according to the variable years of experience in each area of study and the tool

for those with experience of (1-5) years and more than (10-15) years. There were no statistically significant differences at ($\alpha = 0.05$) level of the school type variable in light of the results.

Ibrahim (2014) study entitled "The reality of using social networks in the process of education for educational sciences". The study aimed to identify the importance of social networks and how to activate their use in the educational process, and to reveal the reality of the use of social networks in the educational process, as well as to develop a proposal to activate the use of social networks in the educational process in universities in Upper Egypt. The study sample included 460 faculty members in universities in Upper Egypt and 900 students from those universities. The results showed that both students and faculty members of Upper Egypt universities use social networks especially as students use them in the educational process to a large extent in cooperation with their colleagues in the study, but their use in cooperation with faculty members was weak, and the study also revealed the weakness of the use of faculty members Teaching these networks in the educational process, because they suffer from administrative and other obstacles for students and the negative faculty members, and the results showed a strong desire among students and faculty to integrate the use of social networks in For the educational process

Problem Statement

The Ministry of Education in the Hashemite Kingdom of Jordan pays an increasing attention in securing and enabling Web 2.0 and ICT tools through which can be exploited in the educational process. The Ministry seeks to develop these infrastructures as well as curricula in line with the requirements of integrating Web 2.0 and ICT tools into modern teaching process and education (Ministry of Education, 2012). In line with the emergence of the services of the second generation of the Internet and to employ them in education, the researcher has attempts to employ these techniques individually to disclose the requirements, obstacles and drawbacks, if any, of exploiting these technologies. Perhaps the problem is that despite the efforts exerted by the ministry of education in providing the necessary infrastructure and equipment for these second-generation technological tools, it still suffers from difficulties in enabling and effectively employing them, which has been proved by several previous studies (Murad, 2014) and (Amayreh, 2003), who stressed that teachers' use of this technology has not reached the required level and that there are challenges and obstacles that prevent it from being used in the educational process. therefore, this study came to answer the main question about the reality and challenges of using Web 2.0 and ICT tools provided by the second-generation services in the educational process; while highlighting the courses offered to secondary stage students, which requires many interactive and participatory activities between students and teachers.

Study Questions and Hypotheses

The study attempts to answer the following questions:

1. What is the degree to which secondary stage teachers use Web 2.0 technologies in the educational process?

2. Are there any statistically significant differences in the degree of using the Web 2.0 applications due to gender, years of experience and the number of training courses?

To answer the study questions, the following hypotheses were designed:

1. There are no statistically significant differences at the level of significance ($\alpha <= 0.05$) in the degree of using Web 2.0 among teachers attributed to the gender variable.
2. There are no statistically significant differences at the level of significance ($\alpha <= 0.05$) in the degree of using Web 2.0 among teachers due to the years of experience.
3. There are no statistically significant differences at the level of significance ($\alpha <= 0.05$) in the degree of using Web 2.0 among teachers due to the number of training courses.

Study Objectives

The aim of this study is to reveal the degree of using the Web 2.0 technologies in the educational process in Karak Directorate of Education and the challenges faced the application. Therefore, current study includes the following objectives:

1. Detecting the readiness of the infrastructure that supports the tools and applications of the Web 2.0 in Karak Directorate of Education.
2. Identify the challenges that prevent the use Web 2.0 technologies.
3. Identifying the perception of the sample about the effectiveness of employing the Web 2.0 in the educational process.
4. Determining the significant of the differences, if any, in the degree of using Web 2.0 technologies in the secondary schools due to the variables of gender, experience and the number of training courses.

Study Importance

The importance of the study comes through its main objective of revealing the degree using Web 2.0 applications and tools the educational process in Karak Directorate of Education schools, especially in the teaching of secondary students. Furthermore, the importance of the study stems from the great attention and investment paid by the Ministry of Education to integrate tools Technological and communication in the learning process. Therefore, the study has a significant importance as follows:

1. Theoretical significance: This study provides a visualization of the degree of using Web 2.0 applications, which will work to enrich the National Library of its uses as well as the most important challenges faced, especially considering the scarcity of studies related to the use of Web 2.0 technologies.

2. Practical Significance: This study will help school principals as well as decision makers to know the extent to which teacher use Web 2.0 and the constraints that prevent them from

making the administrative or technical decisions necessary to ensure the optimal use of these technologies.

METHOD

The descriptive analytical approach will be adopted in order to obtain the necessary data for the purposes of analysis and discussion to achieve the objectives of the study. The descriptive analytical method provides an appropriate model for the subject of the field study by describing the phenomenon under investigation, analyzing its data, and discovering the relationship between its variables based on the following resources:

1. Theoretical literature: It relates to the treatment of the theoretical framework of the study through reference to the previous literature, which is represented in books and references of Arab and foreign periodicals, researches, reports, websites and academic articles.

2. Primary sources: The study tool will be developed in the form of a questionnaire to address the analytical aspects of the subject of the study for the purpose of collecting primary data, which will include many paragraphs that measure different variables of the study in the light of the objectives of the study and questions; and will use the Likert scale to measure teachers' perceptions Five Likert Scale. For analysis purposes, the SPSS V.22 statistical program will be used to analyze data obtained through statistical tests that fit the study questions and hypotheses.

Study population:

The study population consists of all the male and female teachers of science in the Directorate of Education in Karak Governorate \ Al-Qasaba District, with a total number (161) in all educational stages.

Study sample:

Due to the small size of the study population and limited to science teachers in the Directorate of Education in karak Governorate \ Al Qasaba District, the sample of the study will be determined by a comprehensive survey method to include (161) teachers, where (56) are male and (96) are female.

Study tool:

A survey questionnaire was developed based on relevant studies and information available in the teaching of science. It includes (41) paragraphs to measure the extent to which science teachers are using Web 2.0 technologies, in particular, Wikis, Blogs, and social Media in the light of the objectives of the study and questions. The instrument uses Likert five scale to measure teachers' perceptions. For analysis purposes, the SPSS V.22 statistical program will be used to process data obtained through statistical tests that fit the study questions and hypotheses.

Validity and Reliability of the Instrument

The validity of the study tool is defined as the extent to which the data collection tool or measurement procedures can measure what is required to be measured (Obeidat, 2001). To verify the validity of the study tool, the instrument was sent to a number of referees and experts of education / curricula and teaching methods in Jordanian universities. Referees added, deleted and modified some paragraphs, and all changes were adopted to consider the final design of the instrument.

Reliability is defined as consistency in the results of the instrument, and it means the ability of the measurement to produce the same results if the same tool is reused. To ensure the reliability of the study instrument, the internal consistency of the questionnaire aspects was validated by calculating the coefficient of "Cronbach alpha" for the individual field and for the instrument as a whole to check the consistency of each paragraph and thus the reliability of the instrument as a whole (Obeidat , 2001). Results shows that Cronbach alpha ranged from (0.85- 0.93) for all aspects and the whole instrument, which indicates a reliable level to apply the instrument on the defined sample.

Terms Definitions

The researcher adopts the following procedural definitions as follows:

- **E-Learning:**

A way to learn using modern communication technologies from computers, networks and multimedia such as voice, image, graphics, research methods, electronic libraries, as well as Internet portals, whether remotely or in the classroom (Glud & et al , 2014). The researcher defines them as the electronic techniques of communication tools and programs used by science teachers in the presentation of the curriculum and interaction with students.

- **Web 2.0:**

Small packets of information are transmitted across networks and linked to each other in a flexible way that integrates separate tools to integrate each other over the Web. They rely on tools such as wikis, blogs and other social networking programs that support the formation of online learning communities (Juhani, 2013). The researcher identifies it procedurally as the participatory and interactive services provided by modern technology in education.

- **Blogs**:

A newspaper edited by bloggers, whose topics appear in reverse chronological order from newest to oldest, and include their thoughts, opinions on specific topics, or news, topics, pictures, drawings, or videos from other sites (Johnson, 2010). Procedurally, they are pages that contain scientific content in the science curriculum and allow students to engage with them by designing teacher development.

- **Wiki:**

A page or several pages on the Internet that allows its users to create content without restriction, editing and enrichment with other elements such as pictures and videos and link to other content on the web via hyperlinks that take the reader to other pages or sites related to the subject of the home page (Amayreh, 2003). It is defined by the researcher as the pages that are continuously fed on selected topics in the science curriculum so that they provide many educational resources in an interactive and participatory manner by students.

- **Social Media:**

These are sites that offer a social networking service and allow users to meet new people in a similar way to real communities (Ibrahim, 2014). The researcher defines them procedurally as those pages or groups that are created with the aim of circulating scientific expertise on selected topics in the science curriculum.

Challenges:

Any factors that negatively affect the use of Web 2.0 techniques in Madaba Directorate of Education schools.

Results:

In this section, the results of this study were presented by answering the following questions:

Question 1: What is the degree to which secondary stage teachers use Web 2.0 technologies in the educational process??

To answer this question, means and standard deviations were analyzed the degree to which secondary stage teachers use Web 2.0 technologies in the educational process. Table (1) shows the results.

Table (1): Means and standard deviations of the degree of mathematics teachers' practice of activities related to subjects from the point of view of 10th-grade students

Web 2.0	Mean	Standard deviation	Degree
Wikies	2.68	0.73	Medium
Blogs	2.58	0.75	Medium
Social Networking	2.98	0.69	Medium
All	2.75	0.72	Medium

from Table (1), we can conclude that the degree to which secondary stage teachers use Web 2.0 technologies in the educational process is medium with a mean of (2.75) and standard deviation of (0.72). The use of Wikies achieves a mean of (2.68) and a standard deviation of (0.73), which

is a medium degree. For blogs use, it comes with a mean of (2.58) and a standard deviation of (0.75) and a medium degree. Finally, the use of social media networking ranked the first with a mean of (2.98) and slandered deviation of (0.72). The researcher attributed this to the publicity of social media and both teachers and students like to use social media frequently. Next tables 2, 3 and 4 show the results for each web 2.0 technology.

Table (2): Wikies Use.

N	Item	Mean	Std. Deviation	Importance
1.	I explain how to use the wiki editor for students.	2.79	1.133	Medium
2.	I Make sure that students use the wiki site in the subjects of teaching the curriculum.	2.39	1.195	Medium
3.	Help students overcome the challenges of wiki presentation.	2.77	1.210	Medium
4.	I direct students to trusted wiki sites that provide honest information.	2.92	1.080	Medium
5.	I follow students' reactions to the read content and interact with it.	2.53	1.127	Medium
6.	Assess the extent to which students benefit from a targeted wiki visit.	2.79	1.133	Medium
7.	Encourage students to work in groups on wiki sites.	2.39	1.195	Medium
8.	Targeted wiki allows students to share texts and various media.	2.77	1.32	Medium
9.	Targeted wiki allows editing of others' posts.	2.92	1.080	Medium
10.	Follow up on the editing processes done by the students.	2.53	1.127	Medium
	All	**2.68**	**.97441**	**Medium**

Table 2 shows a medium degree to use wikies with mean (2.68). They response higher regarding "Assess the extent to which students benefit from a targeted wiki visit."

Table (3): Blogs Use.

N	Item	Mean	Std. Deviation	Importance
11.	Make sure the blog environment is easy to use.	2.69	0.933	Medium
12.	Blogs allow students to communicate with each other.	2.29	0.995	Medium
13.	I use blogs as an important part of my work as a teacher.	2.67	1.01	Medium
14.	I encourage students to express their views on what is being posted on the blog platform.	2.82	0.88	Medium
15.	I discuss the comments and give my opinion on the content of the article in the blog.	2.43	0.927	Medium

16.	I directly correct errors or opinions resulting from the student's lack of understanding or understanding of the subject of the discussion.	2.69	0.933	Medium
17.	Use the blog as a means of communicating with students outside the school boundaries.	2.29	0.995	Medium
18.	Students' comments or comments are valued and motivated.	2.67	1.12	Medium
19.	I visit the blog frequently.	2.82	0.88	Medium
20.	The blog allows the display of some multimedia	2.43	0.927	Medium
	All	2.58	0.96	Medium

Table 2 shows a medium degree to use Blogs with mean (2.58). They response higher regarding "I visit the blog frequently."

Table (4): Social Media Use.

N	Item	Mean	Std. Deviation	Importance
	Make sure the blog environment is easy to use.	3.09	0.833	Medium
	Blogs allow students to communicate with each other.	2.69	0.895	Medium
	I use blogs as an important part of my work as a teacher.	3.07	0.91	Medium
	I encourage students to express their views on what is being posted on the blog platform.	3.22	0.78	Medium
	I discuss the comments and give my opinion on the content of the article in the blog.	2.83	0.827	Medium
	I directly correct errors or opinions resulting from the student's lack of understanding or understanding of the subject of the discussion.	3.09	0.833	Medium
	Use the blog as a means of communicating with students outside the school boundaries.	2.69	0.895	Medium
	Students' comments or comments are valued and motivated.	3.07	1.02	Medium
	I visit the blog frequently.	3.22	0.78	Medium
	The blog allows the display of some multimedia	2.83	0.827	Medium
	All	2.98	0.86	Medium

Table 4 shows a medium degree to use social media with mean (2.98). They response higher regarding "I encourage students to express their views on what is being posted on the blog platform."

Question 2: 2. Are there any statistically significant differences in the degree of using the Web 2.0 applications due to gender, years of experience and the number of training courses??

Table (5): T- test of gender

Web 2.0	Type of school	Number	Mean	Standard deviation	T value	Significance level
All	Male	56	2.01	0.92	1.761	0.256
	Female	96	2.84	0.81		

The results in Table (5) show that there are no statistically significant differences in the degree of using the Web 2.0 applications due to gender

Table 6 . Anova Test of Experience

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	159.923	2	36.36	43.854	0.236
Within Groups	416.641	159	.912		
Total	576.565	161			

The results in Table (6) show that there are no statistically significant differences in the degree of using the Web 2.0 applications due to experience.

Table 7 . Anova Test of Number of Training courses.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	136.32	2	32.326	22.362	*.002
Within Groups	326.23	159	0.236		
Total	536.32	161			

The results in Table (7) show that there are no statistically significant differences in the degree of using the Web 2.0 applications due to number of training courses.

CONCLUSION

The results showed that the degree of using Web 2.0 techniques in Madaba schools was medium. The use of Web 2.0 technologies, wikis, blogs, and social media have a closer degree among teachers. The results indicated that social networking sites are the most used in the educational

process. The results also indicated that there were no statistically significant differences between males and females' teachers in the use of this technology, as well as for experience. However, the results showed that there were statistically significant differences regarding the number of training courses that the teacher attended in the field of web technologies 2.

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