Teachers' Attitudes and Levels of Technology Use in Classrooms: The Case of Jordan Schools

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Abstract

Throughout the world there is awareness of the fundamental role of new Information and Communication Technologies (ICTs) in the field of education. Theoretical and empirical studies have considered the importance of ICTs in the process of teaching and learning. This current paper investigates the level of ICT use for educational purposes by teachers in Jordanian rural secondary schools. The paper will contribute to the body of knowledge regarding the level of ICT use and also, concerning the importance of teachers' attitudes towards the use of ICT for educational purposes. The data for the study were collected through the use of quantitative data. In October 2008, a questionnaire was distributed to 650 teachers in Jordan, randomly selected. Four hundred sixty teachers responded to the questionnaire. The survey included questions concerning the level of ICT use as well as questions related to the attitudes of teachers towards the use of ICT. The findings of the study, which were obtained by analyzing the data collected from the teachers revealed that, teachers had a low level of ICT use for educational purpose, teachers hold positive attitudes towards the use of ICT, and a significant positive correlation between teachers' level of ICT use and their attitudes towards ICT was found. The findings suggest that ICTs use for educational purposes should be given greater consideration than it currently receives. In general, the results were consistent with those previously reported in studies related to the use of ICT in the educational settings.

Keywords: Teachers, Level of ICT Use, Attitudes, Educational Purposes, Relationships, Demographic Variables.

1. Introduction

The purpose of this article is to share with the readers the findings of a study conducted to investigate the level of ICT use among teachers. Also, this study seeks to investigate the attitudes of teachers towards the use of ICT for educational purposes. Technology is now at the threshold of its maturity within all the sectors. An overview of the research in the value of using ICTs in teaching and learning process proved that the utilization of ICT has had a major influence on the teaching and learning process. On other words, ICTs had proved to be an effective tools for educational purposes, although it has extend and transformed the way students learn and teachers teach.

2. Background and Objectives of the Present Study

Education is not only limited teaching the students according to prescribed syllabus as a specific school level. It has much border objectives, goals and other concepts. Thus, education is becoming an increasingly important tool to combat poverty and to establish a modern nation. Feature of modern society is the penetration of information technologies in all spheres of life, including schooling. In general, the new technologies have been recognized to play a valuable role in developing and improving the teaching and learning situations.

Jordan is a developing country with small population. It's the country where is a scarcity of natural resources. Since the establishment of Jordan in 1921, education for all has become the mission of different governments in Jordanian. Starting from the early 1980s, the Hashemite Kingdom of Jordan has made tremendous progress in the field of education by introducing technologies in schools. The philosophy of the Ministry of Education in

Jordan regarding the use of technologies in schools comes from the common believe that technologies would make education and learning scientific, understandable, efficient, effective, and interesting. In Jordan, during the past 30 years the governments have spent large amounts of money in order to integrate the new technologies in Jordanian schools. Governments have also worked hard and effectively to introduce appropriate technologies to improve and enhance the quality of education in Jordan. With the development of ICT in the field of education, many countries include Jordan invested a large amount of money to integrate technology in the field of education by providing teachers' with the good opportunities to develop their skills and knowledge related to the use of ICT (Al-Zaidiyeen, et.al 2008). In one hand, the majority of schools in Jordan are provided with the necessary ICTs infrastructure. On the other hand, various universities in the country offering courses related to the use of ICTs in the process of teaching and learning to the pre-service teachers. Such courses focus on developing pre-service teachers ICT skills, knowledge and competence. As a result, Jordan educational system becomes one of the best in the Middle East.

Despite the expansion of ICT in Jordanian schools, the body of empirical research investigating the level of ICT use for educational purposes is still relatively small. The use of technology in education and in English language education in particular remains an emerging field of study, largely because technological advances introduce new instructional possibilities (Murray, 2007). The major research questions the study seeks to explore were as follows:

1) What is the level of ICT use for educational purposes for educational purposes by teachers'?
2) What are the attitudes among teachers' towards the use of ICT for educational purposes?
3) Is there a significant relationship between EFL teachers' level of ICT use and their attitudes towards ICT?

3. Related Literature review

The world is changing. The last few decades have seen a dramatic rise of technologies within the field of education, and it was known by terms such as teaching or/and instructional aids. Teaching and instructional aids include the use of slide projector, television, radio, audio and video cassettes, etc, in the teaching and learning situations. The integration of technology in the process of teaching and learning is thought by many researchers and to increase student and teacher productivity as well as to make vast amounts of information available. Bena and James (2001) claim that there are three reasons for investing in technology: (1) to increase students ability and interest in applying authentic settings, what district and states have identified as learning and tasks that students should know and able to do; (2) to prepare students for success in a technology centered world of work, and; (3) to prepare students to manage and use information so they can be productive life long learners and responsible citizens. Furthermore, integrating technologies in learning classrooms has been shown to promote teachers and students' performance and motivation.

3.1 The Use of ICT for Educational Purposes

Plomp et.al (1996) identify three objectives which distinguished for the use of ICT in education such as, the use of ICT as object of study, the use of ICT as aspect of a discipline or profession; and the use of ICT as medium for teaching and learning. Peck and Domcott (1994) outlined ten reasons that technologies should be used in schools: (1) Technology enables teachers to individualize instruction, which allows students to learn and develop at their own pace in a non-threatening environment; (2) Students need to be proficient at accessing, evaluating and communicating, and information; (3) Technology can increase the quantity and quality of students' thinking and writing through the use of word processors; (4) Technology can develop students' critical thinking and allowing them to organize, analyze, interpret, develop, and evaluate their own work; (5) Technology can encourage students' artistic expression; (6) Technology enables students to access resources outside the school; (7) Technology can bring new and exciting learning experiences to students; (8) Students need to feel comfortable using computer, since they will become an increasingly important part of students' world; (9) Technology creates opportunities for students to do meaningful work, and; (10) Schools need to increase their productivity and efficiency. Thus, teachers are expected to make good use of modem teaching technology and develop effective teaching resources. Morgan (1997) claimed that when computers are used, there are many learning processes are engaged such as: (1) gather information; (2) teacher as facilitator; (3) involvement in experiential learning; (4) face-to-face communication; (5) expanded creativity, and (6) testing of new knowledge.

Murphy (1995) summarizes the learning outcomes that result from the use of technology in classroom as following: (1) social growth, (2) problem solving, (3) peer teaching, (4) independent work, and (5) exploration. Technologies have played a dictating role in the field of education. Researchers have shown technology integrated into mainstream classrooms support higher-level learning and thinking skills among students. It's

proved to have positive effects in language learning and it becomes as an integral part of education and contributed as teaching tools in the language classroom (Tsou, Wang & Tzeng, 2006). There is a great deal of interest to learn more about the potential use of ICT in schools. Pelgrum (2001) identified several reasons why technologies in general and computers in particular might be important to schools. These included rationales relating to social and economic interests, such as reducing the costs of education, supporting the computer industry, preparing students for work and for living in a society permeated with technology, and making the school more attractive to its potential clients. Public initiatives have intended to spread the use of computer technology in schools by implementing computer laboratories and embedding actual classrooms with digital technologies to assist and support current classroom learning (Kozma, 2003).

3.2 Teachers' attitudes towards the use of ICT

Achieving a meaningful use of computer technology in the field of education can be influenced by many factors. One of these factors is teachers' attitudes towards the use of technology in teaching and learning process. Research shows that the success of technology use in the educational settings largely depends on teachers attitudes toward technology use (Albirini, 2006, Baylor & Ritchie, 2002). Teachers' attitudes are considered as a major predictor of the use of new technologies in the educational settings (Albirini, 2006). Thus, their attitudes toward computer can play an important role in the acceptance and actual use of computers. The successful utilization of technologies in the classroom depends mainly on the teachers' attitudes toward these tools (Kluever, Lam, Hoffman, Green & Swearinges, 1994). Thus, it can be concluded that the attitude further related to the usage frequency of technology and usage amount of the technology.

Thus, an attitude plays an important role in determining people reactions to situations. A review of the psychological literature reveals diverse definitions of attitudes. Allport (1935) defined it as "a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related" (p.810). Other researchers define attitude as a positive or negative emotional reaction toward a specific situation. Moreover, Fishbein (1967) defined attitude as "a learned predisposition to respond to an object or class of objects in a consistently favorable or unfavorable way".

Attitudes are key factors in whether teachers accept computer as a teaching tool in their teaching practices. Correspondingly, a number of studies were carried out to determine teacher attitudes toward computer use. Harrison and Rainer (1992) conducted their research using data compiled from a 1990 survey of 776 knowledge and information workers from a large university in the southern United States. They found that participants with negative computer attitudes were less skilled in computer use and were therefore less likely to accept and adapt to technology than those with positive attitudes. Albirini (2004) conducted a study to investigate the attitudes of EFL teachers in Syrian high schools toward technology in education, both quantitative and qualitative methods were employed to collect data. He found that the results from both quantitative and qualitative data indicated that teachers had positive attitudes toward technology use in education.

4. Materials and Methods

In this study, a survey was employed to collect data. Two separate questionnaires were used in this study, namely Technology Level of Use developed by Isleem (2003) and Teacher Attitudes towards ICT Scale developed by Albirini (2006). The firs questionnaire included 13 items used to measure teachers' level of ICT use for educational purposes. A five Likert scale format was used to assessing teachers' level of ICT use for educational purposes (1=never use, 2=rarely use, 3=sometimes use, 4=often use, 5=very often use). The second questionnaire contains 15 items adopted from Albirini (2006) questionnaire. The questionnaire is designed as 5-point Likert's scale, where 1=strongly disagree to the concept, 2=disagree to the concept, 3=undecided to the concept, 4=agree to the concept, and 5=strongly strongly favorable to the concept. The data collection was limited to public secondary schools teachers in Jordan. The intended population for this questionnaire research was 465 in-service teachers.

4.1 Analysis Procedures

Teachers received a survey questionnaire, and the usable response rate was 70%. The data collected was processed by using Statistical Package for Social Science (SPSS) program. It was used to analyze data as follows:

1). The descriptive statistics was used in summing the data included frequency percentages, means, and standard deviations.

2). Pearson's correlation coefficients were used to identify the relationships between the level of ICT use and the selected factors.

4.1.1 Results Related to Question One

For the purpose of answering question number one respondents were asked to respond to 13 Likert-scale items measuring their level of ICT use for educational purposes in rural secondary schools. The results of descriptive analysis (Means, Std. Deviations, and Percentages) were presented in Table 1. Examination of the Means, Std. Deviations and Percentages in Table 4.5, confirms that the highest Percentages of scores in the use of ICT tool for educational purposes by rural secondary school teachers were, "using Internet" (51.8% of the participants answered that they either use the internet "often" or "very often"), with Mean score (M=3.34), and Std. Deviation (SD=1.34), "using CD-Rom" (49.9% of the participants answered that they either use the CD-Rom "often" or "very often"), with Mean score (M= 3.14), and Std. Deviation (SD=1.46), "using presentation" (47.3% of the participants answered that they either use the presentation "often" or "very often"), with Mean score (M=3.12), and Std. Deviation (SD=1.43), and "using word process" (26.4% of the participants answered that they either use the word process "often" or "very often"), with Mean score (M=2.55), and Std. Deviation (SD=1.25).

The lowest Percentages of ICT use by rural secondary school teachers were scored: for the items "using simulations and games" (46.7% of the participants answered that they "never" simulations and games), with Mean score (M=2.03), and Std. Deviation (SD=0.87), "using Electronic mail" (40.0% of the participants answered that they "never" use Electronic mail), with Mean score (M=2.45), and Std. Deviation (SD=1.14), "using authoring" (39.1% of the participants answered that they "never" use authoring), with Mean score (M=2.16), and Std. Deviation (SD=1.00), and "using spreadsheet program" (37.6% of the participants answered that they "never" use spreadsheet program) with Mean score (M=2.09), and Std. Deviation (SD=1.14). As shown in Table 1, the percentages of the level of ICT use show that rural secondary schools teachers highly use some ICT tools for educational purposes such as the Internet, CD-Rom, presentation and word processing. On the other hand, the findings show that rural secondary schools teachers have lowest levels of ICT tools such as, simulations and games, electronic mail, authoring, as well as spreadsheet applications. Results also indicated that the overall percentages of the use of ICT tools for educational purposes were reported as low levels. As for using ICTs for educational purposes, the participants' distribution was as follows 28.6% from the total sample reported that they never used the ICT tools for educational purposes, and 26.3% of the respondents reported that they rarely used ICT tools for educational purposes, while 25.1% from the total respondents reported that they often and very often used ICT for educational purposes. The overall average of the Mean scores of the use of ICT tools for educational purposes by rural secondary school teachers was (M=2.52) and the Std. Deviation (SD=1.19) confirming the results of the Percentages and indicated that the level of ICT use for educational purposes by rural secondary schools teachers found to be a low level.

4.1.2 Results Related to Question Two

Respondents were asked to answer the questionnaire items that related to their attitudes towards the use of ICT for educational purposes. Negative statements were reverse-coded before analysis was carried out. Table 4.9 reports the results of descriptive statistics (Percentages, Means, and Std. Deviations) of teachers' attitudes towards the use of ICT. . Table 2 presents the results of descriptive statistics (Percentages, Means, and Std. Deviations) of teachers' attitudes towards the use of ICT.

As illustrated in Table 2, teachers responded to 15 items related to their level of attitudes towards ICT. However, the most frequent positive attitudes towards computer were that, "Computers would help me organize my work" (72.2% of the participants answered that they "agree or strongly agree" with that statement), with Mean score (M=3.76) and Std. Deviation (SD=1.27), "Computers are a fast means of getting information" (65.6% of the participants answered that they "agree or strongly agree" with that statement), with Mean score (M=3.70) and Std. Deviation (SD=1.38), "Computers save time and effort" (67.8% of the participants answered that they "agree or strongly agree" with that statement), with man score (M=3.65) and Std. Deviation (SD=1.37), and "Teaching with computers offers real advantages" (64.0% of the participants answered that they "agree or strongly agree" with that statement) with Mean score (M=3.63) and Std. Deviation (SD=1.26).

On the other hand, the most percent negative attitudes toward computer were, computers can enhance students' learning (37.2% of the participants answered that they "strongly disagree or disagree" with that statement), with Mean score (M=2.68) and Std. Deviation (SD=1.48), "Using computer would make subject matter more interesting" (39.1% of the participants answered that they "agree or strongly agree" with that statement) with Mean score (M=2.79) and Std. Deviation (SD=1.50), and I would rather do things by hand than with a computer

(41.9% of the participants answered that they "agree or strongly agree" with that statement) with Mean score (M=2.80) and Std. Deviation (SD=1.48). The overall average for the Means of rural secondary schools teachers' attitudes towards the use of computer was (M=3.19) and the Std. Deviation (SD=1.43) indicating that the rural secondary schools teachers' have positive attitudes towards the use of ICT for educational purposes.

4.1.3 Results Related to Question Three

Pearson's correlation coefficients were used to assess relationships between the level of ICT use for educational purposes and teachers' attitudes towards the use of ICT. Table 3 presented the correlations results between the research variables. A positive correlation was found between the level of ICT use for educational purposes and teachers' attitudes towards the use of ICT. Results revealed that, there was a substantial significant relationship ($r = 0.50$; $p < 0.05$) between the level of ICT use for educational purposes and teachers' attitudes towards the use of ICT, which indicated that as rural secondary school teachers have positive attitudes towards the use of ICT for educational purposes, the more they used ICT for educational purposes.

5. Discussion

Research question one was aimed to investigate the levels of ICT use by rural secondary schools teachers. The overall mean for this category is low (2.52) suggesting that ICT are only rarely used for educational purposes by teachers. The findings revealed that the level of ICT use varies by the research participants, and the majority of participants had very low level of ICT use for educational purposes. Mostly, teachers in rural schools tended to use ICT applications and resources for educational purposes, such as the Internet, CD-Rom, presentation, and word process. Meanwhile, simulations and games, Email, authoring, and spreadsheet program appear to be rarely used by rural secondary schools teachers for educational purposes. This result is in compliance with the findings of Pelgrum and Plomp (1993) who conducted a survey on how computers are used by teachers, the extent and availability of computers in schools, the nature of instruction about computers, estimates of the effects that computers have on students, the curriculum, and the school as an institution. Pelgrum and Plomp (1993) in their research found only a small number of teachers were using ICT as an integral part of teaching process. These findings were supported by Rogers' theory of diffusion (1995) in terms of relative advantage being prevented the ICT use. Teachers are more likely to incorporate ICT use in their classroom if they see its relevance to their instruction and are convinced that the design of education software is compatible with educational goals and the individual learning needs of students (Williams, Boone & Kinsley, 2004).

Teachers play an important role in the implementation of ICT into schools and their attitudes have proved to be significant predictors of technology use in other words, teachers' attitude towards the use of ICT for educational purposes is one key factor for the success of the ICT utilization in schools. Researchers from different parts of the world believe that the use of ICT tools for educational purposes depends upon the attitudes of teachers toward the technology (Albirini, 2004; Teo, 2008; Huang & Liaw, 2005). Teachers' attitudes toward ICTs can determine the extent to which technologies are used in the process of teaching and learning. The attitude towards computer use is generated by an individual's salient beliefs about the consequences of continued use and his evaluation of these consequences. According to Summers (1990), the teachers' existing attitudes, skills, and working habits will have great influence on their acceptance, style of implementation, and outcome of using computers for teaching. The quantitative results for this question definitively indicated that the majority of the teachers have a positive attitude towards the use of ICT in teaching and learning process.

The analysis of data shows that 32.5% from the total respondents reported that they either strongly disagree or disagree with the statements reflected their attitudes towards ICT, and 9.5% of the respondents reported undecided, while 54.0% of the total respondents reported that they agree or strongly agree with the statements measured their level of attitudes towards the use ICT for educational purposes. The results revealed that most teachers possess positive attitudes towards the use of ICT for educational purposes. This finding is consistent with other research (Albirini, 2004; Abdullah, et.al 2006; Abu-samak, 2006) showing the importance of teachers attitudes as a crucial factor related to ICT use. Developing teachers' favorable attitudes toward the use of ICT for educational purposes might be a result of the usefulness of ICT in the field of education. Thus, in order to enhance the utilization of ICT for educational purposes teachers should use ICT more frequently, use ICT for various educational tasks, and should believe that ICT makes a difference in their students' education and in the quality of their work.

The findings of this study indicated that the teachers' attitudes levels towards the use of ICT had a direct relation with the use of ICT for educational purposes. In other words, the correlation findings revealed that there was significant positive correlation between teachers' level of ICT use and their attitudes levels. A similar finding was reported by Albirini (2004) and Isleem (2003). Results of their research indicate that there is a significant

relationship between users' attitudes towards computers and the actual level of computer use. This indicated that teachers holds negative attitudes towards the use of ICT, as a result they are less likely to contribute effectively to the utilization of ICT for educational purposes.

6. Summary

This study examines the level of ICT use in and the attitudes of teachers towards the use of ICT for the educational purposes. The current study has contributed to the research about the use of information and communication technology in the process of teaching and learning studies in Jordanian schools. The findings of this research have given more attention to the level of ICT use in order to increase and encourage the use of ICT tools in Jordanian schools in general and rural secondary schools in particular. The study contributed to the existing body of research regarding the utilization of ICT for educational purposes in developing countries. The study recommends that future researchers need to consider the in-depth qualitative studies such as classroom observations and in-depth interviews to investigate the level of ICT use by teachers.

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Table 1. Means, Std. Deviations and Percentages of the Level of ICT Use

Items	Percent (%)						
	Never	Rarely	Sometimes	Often	Very Often	Mean	Std
1. Computer	18.5	41.1	17.0	18.5	4.9	2.50	1.13
2. Spreadsheet program	37.6	33.3	16.8	6.5	5.8	2.09	1.14
3. Drill and practice	29.0	36.8	16.6	12.7	4.9	2.27	1.15
4. Graphics	26.7	3.5	20.4	13.1	4.3	2.32	1.13
5. Word process	24.7	29.7	19.1	18.7	7.7	2.55	1.25
6. Desktop publishing	25.4	33.3	16.3	14.0	11.0	2.51	1.30
7. Authoring	39.1	28.6	20.4	10.3	1.5	2.16	1.00
8. CD-ROM, DVD	20.9	16.3	12.9	27.5	22.4	3.14	1.46
9. Electronic mail	40.0	20.4	18.5	15.5	5.6	2.45	1.14
10. Other Communication	32.3	34.0	17.8	9.5	6.5	2.23	1.18
11. Simulations and games	46.7	28.2	19.4	4.7	1.1	2.03	0.87
12. Presentation	19.1	18.1	15.5	25.6	21.7	3.12	1.43
13. Internet	11.8	18.1	18.3	27.1	24.7	3.34	1.34
Overall results	28.6	26.3	17.6	15.7	9.4	2.52	1.19

Table 2. Means, Std. Deviations and Percentages of Teachers' Attitudes

Items	Percent (%) SD	D	UN	A SA	Mean	Std
1. Computers would help me organize my work	9.9	9.2	8.6	38.7	33.5	3.76	1.27
2. Using computer would make subject matter more interesting	28.6	20.9	11.4	20.4	18.7	2.79	1.50
3. Computers save time and effort	12.3	11.6	8.4	33.8	34.0	3.65	1.37
4.Using computers is enjoyable	18.1	17.4	11.0	31.0	22.6	3.22	1.43
5. Computers make me much more productive	23.2	17.8	12.9	29.0	17.0	2.98	1.44
6. Teaching with computers offers real advantages	9.0	11.2	16.8	32.9	30.1	3.63	1.26
7. Computers have proved to be effective learning tools	24.7	16.3	13.3	29.2	16.3	2.96	1.44
8.Computers can enhance students' learning	28.2	24.9	9.7	24.7	12.5	2.68	1.42
9. I would rather do things by hand than with a computer	28.0	21.3	8.8	26.0	15.9	2.80	1.48
10.Computers will improve education	16.6	13.1	7.3	39.4	23.7	3.40	1.40
11. Computer do not scare me at all	24.3	19.4	11.6	27.7	17.0	2.93	1.45
12. I do not like talking with others about computers	24.9	18.3	10.1	24.1	22.6	3.01	1.52
13. I like to use computers in teaching	21.7	24.5	12.5	20.9	20.4	2.93	1.46
14. Computers are a fast means of getting information	14.0	8.8	11.6	31.4	34.2	3.70	1.38
15. I would like to learn more about computers	26.5	8.0	6.0	32.3	32.3	3.26	1.57
Overall results	20.3	16.2	9.5	30.6	23.4	3.19	1.43

Table 3. Summary of the Pearson's correlation coefficients

		ICT Use	Attitudes
ICT Use	r	1	
	Sig.		
Attitude	r	.499**	1
	Sig.	.000	