

Investigating teachers' perspectives toward using computer applications and applying their ICDL skills on their teaching

Dr. Ibtesam F. AL-Mashaqbeh

College of Information Technology
AL AL-Bayt University
H.K.J

ABSTRACT

This study aims at investigating teachers' perspectives toward using computer applications and applying their ICDL skills in teaching. More specifically, this study tries to answer the following main questions: (1) Are there any differences among the teachers' usage of Microsoft Office package: Word, Internet Explorer, Microsoft Power Point, and Microsoft Excel; (2) Are there any usage differences among the items of Microsoft Office package: Microsoft Word, Internet Explorer, Microsoft Power Point, and Microsoft Excel; (3) Are there any differences among the items related to challenges facing the uses of such computer applications, and (4) Are there any significant differences, relating to statistics, in challenges facing the use of computer applications concerning the: level of education, gender, work experience, subject, ICDL certificate date, and the level of students. The numbers of participants were 212 teachers from different teaching levels. The result of the study found that: Microsoft Word was mostly used by teachers, especially for typing yearly plans and syllabuses for their subject area. It also revealed that most teachers use Power Point software in simplifying and organizing new projects, and they use Microsoft Excel to type and classify students' grades. In addition, they use Internet Explorer to look at references and collect more information that help them in their subject areas. The study found that schools face the biggest challenge of not having internet connection. The findings indicated that there were no statistically significant differences at ($\alpha=0.05$) in the challenge facing the use of computer applications due to the highest degree, gender, subject, and ICDL certificate date variables.

Finally, there were statistically significant differences at ($\alpha=0.05$) in the challenges facing using computer applications due to the work experience in favor of 5-10 years, and there are statistically significant differences at ($\alpha=0.05$) in the challenges facing using computer applications due to the level variable in favor of 'high school level' group. At the end of this study, the researcher made some recommendations. (Keywords: ICDL, educational technology, computer, instruction, and teacher training).

Introduction

Teachers and school administration must be prepared for this transition as a means to have a successful usage of technology. Teachers still have a certain degree of anxiety toward integrating computer applications in teaching. Teachers should have self-confidence, a positive approach toward using technology, and also have the ability to employ computer applications as a tool for learning in their teaching and planning (Gülseçen & Kubat 2006).

ICDL

The European Computer Driving Licence (ECDL) (2006) discussed the International Computer Driving License (ICDL) project in the Ministry of Education in Jordan. The implementation of this project lasted for a period of five years from 2001 to 2006. The amount of funding was \$7 Seven Million Dollar. It was designed to improve teachers' computer skills and how they employ technology in teaching. The goals of ICDL program in the Ministry of Education in Jordan could be summarized as follows:

- 1 - Introduce teachers to different computer applications.
- 2 - How to use computer applications and educational software in order to improve teaching and learning.
- 3 - Improve curriculum and instruction in schools.
- 4 - Encourage and help school administrations in using computer for the purpose of improving job performance.
- 5 - Prepare teachers for the use of new computer skills in teaching.

The ICDL project in Jordan is divided into four stages: (1) train 8 supervisors, 80 trainers, 1300 teachers by 2001, (2) train 1950 English or Mathematics teachers by 2006, (3) train all teachers around 2600 teachers by 2006, and (4) training for new teachers.

ICDL Asia Pacific (2004) reported that the International Computer Driving License (ICDL) provides many benefits for schools, such as defining new training processes and increasing the effectiveness in teaching and learning process. The ICDL is a commonly used program, because it is a unique program in many ways. It is an instructional, standard, and vendor-independent. Moreover, there are many approved testing centers all over the world with fully qualified staff and availability of the course materials.

ICDL-UNESCO (2004) reported that International Computer Driving License (ICDL) is an identical program to the European Computer Driving License (ECDL). In terms of syllabus, testing content, and benefits, the ICDL is considered to be a new version of the ECDL, but it is only used outside Europe. The program consists of seven models: basic IT concepts, using computers and managing files, word-processing, spreadsheets, database, power point, information and communication.

ICDL-UNESCO (2004) according to the UNESCO Cairo Office (UCO), the ICDL has many benefits for individuals, employers, and community. It improves individuals' level of competence in IT, their job prospects and productivity. It helps employers in reducing IT financial costs, encourages the employment and recruitment of human resources, improve their organizations and productivity. Finally, it introduces the community with IT skills and creates new job opportunities.

The objectives of International Computer Driving Licence (ICDL) are to promote and encourage computer literacy and ensure that all computer users understand best practices of using personal computers and increase employee productivity by using computer applications in their work (Yarmouk University <http://www.yu.edu.jo>).

Statement of the Problem

Interactive classroom in which technology is practiced should have skillful teachers. To do that, teachers need to be trained in ways that encourage them to think carefully about learners and their needs. Even though most teachers have improved their computer skills, they still need to enhance their capability of using these skills in teaching. The administration should support teachers; giving teachers sufficient time to develop their integrating interactivity as a fundamental part of teaching, and provide them with appropriate environments equipped with technical skills and knowledge related to students' needs (Sessoms, 2008).

Teachers should be considered life-long learners, who are self-confident to enable them to integrate instructional technology in their teaching. But at the same time, they demand lots of things such as funding, time, and support (Schrum, Shelley, & Miller, 2008). As a result, the researcher intends to examine teachers' efforts aimed at integrating technology into their instruction and investigate obstacles that hinder them from doing this.

Purpose of the Study

The purpose of this study is to investigate teachers' perspectives toward using computer applications and applying their ICDL skills on their teaching, focus on how teacher training programs use computer applications in teaching, and focus on barriers that face teachers during the process of using computer applications in teaching.

Research Questions:

The following research questions guide the investigation:

- 1 - Are there any differences among the teachers' usage of Microsoft Office package: Word, Internet Explorer, Microsoft Power Point, and Microsoft Excel?
- 2 - Are there any usage differences among the items of Microsoft Office package: Microsoft Word, Internet Explorer, Microsoft Power Point, and Microsoft Excel?
- 3 - Are there any differences among the items related to challenges facing the uses of such computer applications?
- 4 - Are there any statistically significant differences, in challenges facing the use of computer applications that can be attributed to the level of education, gender, work experience, subject, ICDL certificate date, and the level of students?

The Importance of the Study

The importance of the study stemmed from the following considerations:

- 1 - It aims at motivating administration to communicate with their teachers and fulfill their needs.

- 2 - It aims at encouraging teachers in helping and supporting each other during the process of technology implementation.
- 3 - It aims at encouraging the educational institutions to adopt an evaluation plan for the whole process of implementing technology in education.

Limitation of the Study

The researchers chose only one city to get information about the use of computer skills in their teaching. The researchers focused on teachers who obtained ICDL certificates, but did not get information from other teachers who use technology in their classrooms without taking the ICDL certificates.

Definitions of Terms

The following definitions stand for:

ICDL: International Computer Driving License (ICDL); an international training program aimed at improving the teachers computer skills. The goals of this training program are to increase the knowledge of information technology (IT), improve productivity at work, and encourage employers to invest more in it (ICDL Asia Pacific, 2004).

NETS: National Educational Technology Standards (NETS) are national standard, developed for providing teachers with specific technology skills in order to organize their computer use in their classrooms and transfer these skills and knowledge to their students. It also prepares teachers to integrate technology throughout the curriculum (Hayes, 2004).

Review of Related Literature

Teacher Training

Technology is the core of knowledge; & enhance individuals' capabilities for controlling and modifying the environment (Wright and Lauda 1993). The technology applications should be embodied within the academic curriculum. It is mostly used as an enhancement tool for the teaching and learning process. This goal could be reached by providing teachers with professional programs in order to help them choose the most appropriate technologies and teaching strategies. According to Gulseçen and Kubat (2006), most teachers were motivated during a training course of two weeks

which focused on the concepts of Information and Communication Technology (ICT) and have self-confidence that was observed during the assessment process. Moran (2006) stated that more effort are needed for designing teacher development training program that related to the use of technology in teaching and instruction.

During the training programs of teachers, it was found that students cannot benefit from the technology unless their teachers become highly qualified in practicing it. Accordingly, teachers should receive sufficient support that enables them to use technology effectively during the planning and implementation process.

Johnson (2006) investigated Georgia Framework effects on teachers regarding training programs of integrating technology and computer utilization into teaching. The study reveals that there was a significant relation between teachers' perspectives of the quality of the In-Tech training and teachers' computer self-efficacy (CSE). It also reveals that there was a relation between factors related to the use or non-use of computer in the classroom and teachers CSE. Burrell-Ihlow (2006) states that technology has an impact on constructivist practices of teachers. Funding expansion for teacher-development programs to improve their use of technology in education was justifiable investment in long-term benefits. The study also reveals that teacher-development programs to implement instructional technology should be supported by providing suitable resources for the training processes.

Because of the importance of designing the development programs for teachers in regular bases, Wash (2000) conducted a study to compare the traditional and alternative programs related to the teachers of technology education. The study concludes that teachers from the alternative programs have the same likely to stay updated of current practices and participate in professional development activities that are related to educational technology. Suharwoto (2006) found that non-experienced teachers showed various degrees of understanding to the four components: teachers' understanding to the purposes of teaching mathematics along with technology, their knowledge of instructional strategies, their knowledge of students' learning process, and their knowledge of choosing the right method to integrate technology. Ringstaff & Kelley (2002) stated that school administrations need to organize an ongoing, professional, and advanced training courses, not

only for purposes embodied in helping teachers to learn the method of using new technologies, but also to provide a meaningful instruction and activities by using their computer skills in their classroom.

Trilling & Hood (1999) concluded that using technology in education and other fields is not an option any more. The Technology is to provide the workers in the field of education with many options to deal with other materials, e.g., electronic documents, printed reports, magazines, e-books, web ads, internet, phone calls, voice mail, web pages, and web-TV. Selecting the correct communication method for the right purposes represented a serious challenge to the teachers. Jones and Issroff (2005) concluded that using a collaborative learning should be considered by teachers in the regular classroom teaching or on-line learning. Prensky (2005) stated that the technologies available those days in classrooms are ranged from simple tool-based applications (such as PowerPoint) to online applications of scientific data and primary historical documents, and handheld computers. Even the technology of cell phones carried by many students and teachers can be used to improve learning. A lot of technologies can be employed to serve different goals of the learning process. For example, the using of e-mail reinforces the communication skills; the using of database program strengthens the organizational skills, and the using of educational software leads to gain a full understanding of science and math concepts (Becker, 1999). Al-Asmari (2005) investigated using internet to teach English as a second Language (ESL) by college teachers in Saudi Arabia. The study indicates that most participants rarely used the internet for instructional purposes. They also report that there was more use of the internet for personal purposes. The study reveals that most participants strongly agreed about the need for in-service training programs that focus on using the internet as a tool for teaching and learning.

It has become clear that the use of technology in the classroom should increase students' learning and improve the teaching process by giving teachers more tools for designing their instructions; Albirini (2004) studied the attitude of Syrian teachers who teach English as a foreign language (EFL) toward using instructional technology in teaching. The researcher focused on the relation between teachers' attitudes and some variables, such as: cultural perspectives, competence in using computer, access of

computer, and teachers' personal characteristics. The result of the study emphasizes that the attitude toward using technology in teaching can be formed by the importance of teachers' experiences with technology.

National Technology Standards

Students can benefit from computer assisted learning by two ways; through using technology as tutors in which improved students' basic skills and knowledge, and through using technology as a tool employed to achieve many goals of learning. They can also use the technology as a resource to reach the higher level of thinking, creativity and research skills (Ringstaff & Kelley, 2002). Hayes (2004) stated that National Educational Technology Standards (NETS) were focused on six categories: technology concepts, designing learning experiences, evaluation, professional practice, social and ethical issues, teaching, learning, and curriculum.

Technology standards are considered a guide for teachers during their planning process for teaching; Loverro (2006) investigated the non-experienced teacher's needs and the methods being used in teaching technology integration courses. The first part of the study used a survey instrument to gather information about teachers' technology skills compared to National Educational Technology Standards (NETS) for teachers. The second part of the study used the interview method. Four instructors of the non-experienced program have been interviewed through the study; who integrated technology in their courses. The study developed three guidelines and recommendations for non-experienced training programs: classroom-specific teacher skills, professional development planning, applications and basic operations. The research recommended that there is a need for preparation the instructor, creating a meaningful connection between lecture and technological laboratory sections, and increasing the awareness of staff and faculty about NETS. The research conclusion is to improve technology use in the classrooms; and integrat it within programs of non-experienced teachers.

Method

Participants

The participants of this study were 212 teachers selected from different specializations, who hold ICDL certificates and teaching

elementary and secondary levels at Mafraq districts school: Al-Qasabah, Al-Shariyya, and Al-Westat. The sample frequencies and percentages according to independent variables are shown in Table (1).

Table (1)
Sample Frequencies and percentages according to independent variables

Variable	Groups	Frequency	Percent
Higher Degree	2yr college	31	14.6
	4 yr college	130	61.3
	High Diploma	30	14.2
	MA	21	9.9
Gender	Male	81	38.2
	Female	131	61.8
Work Experience	less than 5 yrs	55	25.9
	between 5-10 yrs	65	30.7
	more than 10 years	92	43.4
Subject	Mathematics	28	13.2
	Computer	24	11.3
	Languages	62	29.2
	Islamic Studies	17	8.0
	Social Studies	17	8.0
	Science	25	11.8
	Others	39	18.4
Date of obtaining the ICDL certificate	Less than 1 year	48	22.6
	Between 1-less than 3 yrs	106	50.0
	Between 3-5 yrs	51	24.1
	More than 5 yrs	7	3.3
Level of Students	Elementary level	98	46.2
	Secondary Level	52	24.5
	High School Level	62	29.2

Instrumentation and Validity of the Instrument

The 50-item was designed in the questionnaire instrument to measure teachers' perspectives toward their usage of computer skills in teaching which were acquired during the training programs of ICDL. Also, the questions were intended to gather information about teachers' difficulty and satisfactions toward the use of computer skills in teaching. The questions were divided into five areas in order to answer questions related to participant's experiences and uses of each area; 1) Microsoft PowerPoint, 2) Microsoft Word, 3) Microsoft Excel, 4) Internet, and 5) Challenges facing teachers. The questionnaire items took the form of statements to which the participants had to respond on a five-point scale that is from "strongly agree" to "strongly disagree". The instrument also included questions about major, experience, end teaching level. The participants' responses were marked directly on the survey. The study's main goal is to gather information about challenges facing teachers during technology implementations and the level of administration support during the implementation process.

To insure the validity of the research instrument, it was sent to four faculty members. The faculty members were asked to review the instrument and make any recommendations that could improve the instrument of the study. Comments were sent to ensure the validity of the instrument and some recommendations were made which were taken into consideration.

To ensure the reliability of the research instrument, the results were correlated using Cronbach Alpha formula and the score was 0.83 indicating a good reliability (Norland-Tilburg, 1990).

Procedure

The researcher took permission from the Ministry of Education to conduct this research and gained assistance from the Mafrq District Schools (Mafrq-Jordan). The study was conducted during the academic year 2006-2007. Participants were chosen randomly from three school districts at: Al-Qasabah, Al-Sharqiyya, Al-Westa. The questionnaire instrument was sent to each selected school. Teachers who had the ICDL license were asked to fill out the questionnaire. Then, the researcher started the process of analyzing the data.

Results and Discussion

Results related to the first question

To answer the first question of the study, "are there any differences of using the Microsoft Word, Internet Explorer, Microsoft Power Point, and Microsoft Excel in teaching?" means and standard deviations of participants' responses on domains and items were computed as presented in Table 2.

Table (2)
Means and standard deviations for domain, ranked in a descending order

Rank	N	Domain	Mean	Std. Deviation
1	2	Microsoft Word	3.09	1.02
2	3	Microsoft Excel	2.88	.97
3	4	The Internet Explorer	2.66	1.04
4	1	Microsoft PowerPoint	2.59	1.09

Table (2) shows that "Microsoft Word" received the highest mean (3.09) with regard to the degree of use followed by "Microsoft Excel" with mean (2.88) while "Internet Explorer" was ranked third with mean (2.66) and "Microsoft PowerPoint" occupied the last rank (mean = 2.59). Microsoft Word was used the most by teachers. It might belong to the need to type students' questions and the yearly plan. We can also notice that the MW was more practiced by teachers.

Results related to the second question

To answer the second question of the study, "Are there any differences between the items for each area (Microsoft Word, Internet Explorer, Microsoft Power Point, and Microsoft Excel)?" means and standard deviations of participants responses were computed as presented in the following Tables (3, 4, 5, 6).

A. Microsoft PowerPoint

Table (3)
Means and standard deviations for items concerning Microsoft PP,
ranked in descending order

Rank	N	Item	Mean	Std. Deviation
1	6	The use of PP software helped me in simplifying and organizing new information for students.	2.82	1.30
2	5	The use of PP software helped me in concentrating on the main objectives of lesson.	2.74	1.27
3	9	I use the slide transition animations to hold students' attention.	2.72	1.33
4	8	I use PP to save time	2.71	1.34
5	7	I use the PP software to summarize the main ideas of lessons	2.66	1.27
6	2	Sound, movement, pictures are part of the educational programs I designed.	2.62	1.27
7	10	I use tables and charts to explain the data.	2.57	1.26
8	4	I use PP software to design educational programs as a tool for learning.	2.46	1.27
9	3	I use tables as part of my PP presentations.	2.40	1.19
10	1	I use PP software to present new topics most of the time instead of the regular blackboard.	2.24	1.11
		Microsoft PowerPoint	2.59	1.09

Table (3) shows that Item 6 "The use of the PP software helped me in simplify and organizing the new information for the students" received the highest mean (2.82). The result revealed that the most important use of the PP was to organize information for presentations.

It might belong to the common practice for the PP that helps teachers to organize presentation topics, use charts pictures, and tables. This table also shows that item 1 "use the PP software to present new topics most of the time instead of the regular blackboard" occupied the last rank (mean = 2.24). The explanation for that could be the use of blackboard still considered as a very important teaching tool.

B. Microsoft Word

Table (4)
Means and standard deviations for items concerning Microsoft Word
ranked in descending order

Rank	N	Item	Mean	Std. Deviation
1	6	I use MW to type the yearly plan and syllabus for the subject I teach.	3.99	1.26
2	2	I use MW to type my monthly and final tests.	3.89	1.26
3	4	I use different fonts and colors to highlight important points.	3.26	1.39
4	5	I use past tests that were typed before to prepare a new test using MW.	3.16	1.37
5	7	I use MW to type extra information about some topics and distribute it to my students.	3.00	1.41
6	1	I use MW to type my weakly plan.	2.96	1.39
7	3	I use MW to type information and instructions related to course activities.	2.90	1.36
8	10	I use MW to type formal letters to the school district.	2.68	1.52
9	9	I use MW to type formal letters to school administration	2.53	1.43
10	8	I ask my students to use MW to type their homework	2.52	1.35
Microsoft Word			3.09	1.02

Table (4) shows that Item 6 "I use the MW to type the yearly plan and syllabus for the subject I teach" received the highest mean (3.99). It is noticed that teachers use MW as a tool to type their yearly plan and syllabus refer to administration requirement or it is easy for them to make adjustment on their plan when needed. This table also shows that item 8 "I ask my students to use MW to type their homework" occupied the last rank (mean = 2.52). It is going too early to ask students to use MW for typing their homework. It also referred that MW will not help students to improve their handwriting skills. Total mean for all items was (3.09).

C. Microsoft Excel

Table (5)
Means and standard deviations for items concerning Microsoft Excel,
ranked in descending order

Rank	N	Item	Mean	Std. Deviation
1	2	I use ME to type and process students' grades.	3.67	1.30
2	1	I use ME to type students' names.	3.60	1.33
3	7	I use ME to save time by the ability to make changes on my students' data and grades.	3.25	1.36
4	3	I use ME to calculate students' grade distributions and averages.	2.97	1.28
5	8	I use the program to evaluate my teaching by comparing students' grades and progress for a number of years.	2.75	1.24
6	4	I use ME to see the flow charts that explain students' grades and progress.	2.72	1.23
7	10	I ask my students to use ME to do a special project for their subject.	2.62	1.28
8	9	I encourage my students to use ME to do their homework	2.50	1.26

Cont/ Table (5)

Means and standard deviations for items concerning Microsoft Excel, ranked in descending order

Rank	N	Item	Mean	Std. Deviation
9	5	I use ME to inform school administration about students' grades and progress	2.47	1.18
10	6	I use ME to inform students' parents about their children's progress and problems	2.30	1.13
Microsoft Excel			2.88	.97

Table (5) shows that item 2 "I use the ME to type and process students' grades" received the highest mean (3.67) regarding the degree of use, which is reason that may stem from the requirement of administration. This table also shows that item 6 "I use the ME to inform students parents about their children progress and problems" occupied the last rank (mean = 2.30). Parents still get their children's progress report at the end of the year or directly from the schools. Total mean for all items was (2.88).

D. The Internet Explorer

Table (6)

Means and standard deviations for items concerning The Internet Explorer, ranked in descending order

Rank	N	Item	Mean	Std. Deviation
1	1	I use IE to get references and extra information for my subject area.	3.14	1.33
2	2	I use IE to find examples and pictures related to my subject area.	3.06	1.34
3	3	I direct my students to use IE to get extra information for some topics.	3.03	1.32
4	7	I use IE to find educational software that is related to my subject area.	2.92	1.40

Cont/ Table (6)
Means and standard deviations for items concerning The Internet Explorer, ranked in descending order

Rank	N	Item	Mean	Std. Deviation
5	9	I encourage my students to use IE to individual or group projects.	2.73	1.36
6	10	I use IE to learn about new information related to the best ways of teaching my subject areas.	2.72	1.37
7	8	I use IE to read journals and newspapers	2.67	1.42
8	5	I use the email to communicate with experts on my field	2.21	1.30
9	6	I encourage my students to communicate with me through email.	2.17	1.25
10	4	I use email to communicate with students' parents.	1.97	1.07
The Internet Explorer			2.66	1.04

Table (6) shows that Item 1 "I use the IE to get references and extra information for my subject area" received the highest mean (3.14) regarding the degree of use, which is the reason that may stem from using internet by most of teachers to get updated information about their teaching topics. It also helps them to provide students with new and extra-references that improve their learning. This table also shows that item 4 "I use the email to communicate with students parents" occupies the last rank (mean = 1.97). It refers that using email to communicate between teachers and students' parents was not workable, due to the problem of having internet connection at schools or less time for teachers to do so. Total mean for all items was (2.66).

Results related to the third question:

To answer the first question of the study, "are there any differences between the items included on the challenges facing the use of computer applications?" means and standard deviations of participants' responses on domains and items were computed as presented in Tables (7).

Table (7)
Means and standard deviations for items concerning challenges facing the use of computer applications ranked in a descending order.

Rank	N	Item	Mean	Std. Deviation
1	5	There is no Internet connection in my school.	3.55	1.49
2	8	Failure to provide rewards for teachers who use computer applications discouraging me to do so.	3.50	1.39
3	7	We do not have follow up or evaluation process from the school which discourages me to use computer applications in teaching	3.15	1.37
4	4	I have no time to use computer applications we learned from the ICDL training.	3.12	1.29
5	10	One of the challenges we have that there is no a specialist in computer education in our school.	3.09	1.44
6	3	We do not have computer labs to help us use our computer skills that we learned from the ICDL training.	2.96	1.45
7	6	Not having personal computers at home does not encourage me to use computer applications in my teaching.	2.92	1.57
8	9	The ICDL training does not teach us how to implement the computer skills in teaching.	2.90	1.27
9	2	There is no encouragement from the school administration to use computer applications.	2.61	1.23
10	1	I don't want to use computer applications in teaching.	2.34	1.24
Challenges facing the use of computer applications.			3.01	.90

Table (7) shows that Item 5 "There is no Internet connection in my school" received the highest mean (3.55) regarding the degree of challenges facing the use of computer applications. Not having internet connection played a big role for not motivating teachers to use computer applications on their teaching. It refers to the important role for the internet to get resources, communicate with others, motivate students, and update students' information. This table also shows that item 1 "I don't want to use the computer applications in my teaching" occupies the last rank (mean = 2.34). We can understand from this finding that teachers have an internal motivation to use computer applications in their teaching, but the thing that discourage them is not having external motivation to do so. External motivation could be internet connection, administration support, time, and good training programs. Total mean for all items was (3.01).

Results related to the fourth question:

To answer the fourth question of the study, "are there statically significant differences in challenges facing the use of computer applications with respect to the: (1) level of education, (2) gender, (3) work experience, (4) subject, (5) the ICDL certificate date, and (6) the level they teach?", means, standard deviations according to independent variables were computed as presented in table (8).

Table (8)
Means, Standard Deviations according to Independent Variables

	Variable	Groups	Mean	Std. Deviation
1	Level of Education	2yr college	2.87	.98
		4 yr college	3.08	.92
		High Diploma	2.89	.85
		MA	2.99	.77
2	Gender	Male	3.11	.83
		Female	2.95	.94

Table (8)
Means, Standard Deviations according to Independent Variables

	Variable	Groups	Mean	Std. Deviation
3	Work Experience	Less than 5 yrs	3.01	.83
		Between 5-10 yrs	3.25	.91
		More than 10 years	2.86	.91
4	Subject	Mathematics	2.89	.79
		Computer	3.04	.95
		Languages	3.15	1.02
		Islamic Study	2.60	.98
		Social Studies	3.04	.80
		Science	3.26	.71
		Others	2.88	.83
5	ICDL Certificate date	Less than 1 yr	3.05	1.00
		Between 1-less than 3 yrs	3.06	.91
		Between 3-5 yrs	2.94	.82
		More than 5 yrs	2.63	.77
6	The level I teach	Elementary level	3.00	.89
		Secondary level	2.82	.91
		High school level	3.20	.89

Table (8) shows a slight variance in the means of the challenges facing the use of computer applications according to independent variables. To find out whether there are statistically significant differences in these means, six way ANOVA was conducted and the results are shown in Table 9.

Table (9)

Six way ANOVA results of challenges facing the use of computer applications related to higher degree, gender, work experience, subject, the ICDL certificate date and The level I teach variables.

Source	Sum of Squares	df	Mean Square	F	Sig.
Higher degree	.206	3	.069	.089	.966
Gender	.321	1	.321	.415	.520
Work Experience	5.730	2	2.865	3.706	.026
Subject	8.892	6	1.482	1.917	.080
ICDL Certificate date	1.382	3	.461	.596	.618
The level I teach	6.023	2	3.011	3.895	.022
Error	149.983	194	.773		
Corrected Total	171.545	211			

Table (9) shows:

- There are no statistically significant differences at ($\alpha = 0.05$) in the challenges facing the use of computer applications due to the variable of higher degree.
- There are no statistically significant differences at ($\alpha = 0.05$) in the challenges facing the use of computer applications due to the variable of gender.
- There are statistically significant differences at ($\alpha = 0.05$) in the challenges facing the use of computer applications due to the variable of work experience, Post-hoc pair-wise comparisons are shown in Table 10.
- There are no statistically significant differences at ($\alpha = 0.05$) in the challenges facing the use of computer applications due to the variable of subject.
- There are no statistically significant differences at ($\alpha = 0.05$) in the challenges facing the use of computer applications due to the variable of Date obtaining the ICDL Certificate date.
- There are statistically significant differences at ($\alpha = 0.05$) in the

challenges facing the use of computer applications due to the variable of level they teach, Post-hoc pair-wise comparisons are shown in Table 11. Post-hoc analysis is usually concerned with finding patterns in subgroup of the sample. It is commonly performed after significant effects when there are three or more levels of factor. It also involves calculating an analysis of variance, selecting two means, and applying a method such as Turkey to adjust for multiple comparisons. (Wikipedia, 2008).

Table (10)
Post-hoc pair-wise comparisons using Turkey method
for experience effect.

Group	Means	less than 5 yrs	5-10 yrs	more than 10 years
Less than 5 yrs	3.01			
Between 5-10 yrs	3.25	0.24	.	
More than 10 years	2.86	0.15	0.39*	

Based on obvious means:

* The mean difference is significant at the 0.05 level.

Table 10 shows:

- There are statistically significant differences at ($\alpha = 0.05$) '5-10 yrs' group and more than 10 years' group in favor of '5-10 yrs' group.

Table (11)
Post-hoc pair wise comparisons using Turkey method
for the level I teach effect.

	Means	elementary level	secondary level	high school level
elementary level	3.00			
secondary level	2.82	0.19		
high school level	3.20	0.20	0.38*	

Based on obvious means:

* The mean difference is significant at the 0.05 level.

Table 11 shows:

- There are statistically significant differences at ($\alpha = 0.05$) between 'secondary level' group and high school level' group in favor of 'high school level' group.

Discussion of the Results and Recommendations

The main aim of this study is to investigate teachers' perspectives toward the use of computer applications and applying their ICDL skills in teaching. It focuses on the computer applications methods used by teachers in the teaching process. It also focuses on obstacles facing teachers during the process of using computers in teaching. Teacher training programs should be focused on several areas: using word processing to develop professional teaching plans, using Excel to report students' progress reports, and using the Internet to communicate with other teachers via e-mail in order to access teaching materials. Overall, the results of the study indicate that Microsoft Word is the most used computer applications by teachers. It has been used for different purposes but the major benefit of utilizing MW is typing the yearly plan and syllabus. According to the findings, it has been found that teachers use Power Point more frequently when they need to simplify new information to their students. The result of this study agreed with the results of the previous studies such as: (1) Jones, (2003) stated that PowerPoint is an excellent aid tool to use in the presentations providing each presentation is considered first from a pedagogical viewpoint. It provides an organization for headings and sub-headings for the presentation. (2) Jackson, (1997) who reported that the purpose of using Microsoft Excel cited in typing and process students' grades, while the purpose of using Internet Explorer embodied in getting references and more information. (3) Boettcher & Conrad, (2004) who indicated that using technology as a tool for learning required many ways for communication, e.g., e-mail, electronic bulletin boards, and chat rooms. It also helps teachers to use the internet to get resources for their teaching subject.

Furthermore, the result of this study revealed that the most challenge facing the use of computer applications in teaching are the

shortage of internet connection in schools, not giving any rewards for teachers who use computer applications, and not having a follow up plan or evaluation process from the school district. This result was also supported by previous studies such as (Mohd-Yunus, 2007) and (Fullan and Stiegelbauer, 1991). Such studies revealed that the main challenges facing the integration of technology on teaching is dependent upon few factors such as: accurate internet access, computer resources, teacher development opportunities, and onsite support. All these factors require funding, planning and administration support. It also revealed that training of teacher on using technology in the classrooms often focuses on professional development opportunities or non-experienced teachers training programs. The main obstacle is the lacking of continuous and sequential plan to support teachers' implementation process.

It is clear that the result of this study was consistent with the results of previous studies. Those studies stressed on the effectiveness of having a model to mentor teachers' progress. Such model will provide acceptance, confirmation, counseling, and friendship. Having a successful implement of computer in education, there are few factors that contributed to their accomplishments such as: cooperating, teacher encouragement, access to computers and Internet, and administration support. They include (McArthur, et al., 1995 and Devlin-Scherer, 2003).

The findings of this study indicated no statistically significant differences at ($\alpha = 0.05$) in the challenges facing the use of computer applications due to higher degree, gender, subject, and ICDL Certificate date variables. In the other side, it found that there are statistically significant differences at ($\alpha = 0.05$) in the challenges facing the use of computer applications due to work experience in favor of '5-10 yrs' and due to level variable in favor of 'high school level' group.

In conclusion, this research tends to evaluate the process of implementing the ICDL program. Evaluating the degree of success of the program can be measured by finding that teachers implementing computer skills which they learnt from the program in classrooms. Also, they made a change that help students use computers applications. It seems that teachers training programs need to concentrate more on helping teachers apply new skills in teaching and have more time and effort to give teachers a chance to practice what they learn. Also, teachers need administration follow up and encouragement to use new skills in

teaching. Darus & Luin, (2008), stated that teachers have negative attitude towards the use of computer in the classroom especially among teachers who had lower perceived abilities of handling a computer. Teachers suggested that for supporting their effort with a use of their computer skills in their teaching administration need to make sure of the availability of a full-time trained personnel who can be contacted at all times to assist the teachers when needed. Jones (2004) added that teachers are sometimes unable to make full use of technology because they lack the time needed to fully prepare and research materials for lessons. Gross (1992), summarized that motivation is considered as a contributing factors to the usage of computer applications on teaching. Hayes (2004) concluded that the most effective ways to improve teachers' uses of technology were by the workshops, mentoring, performance assessment, and college courses that focus on using the National Educational Technology Standards (NETS) in instruction.

In the light of the research result, some recommendations were suggested:

- The ICDL programs need to be focused on the integration process of the computer skills in teaching such as using the suitable educational software. Handal & Handal (2006), there were lack of information and training for teachers about evaluation the educational software. Staff development programs should consider more training programs to help teachers use computer applications in teaching.
- School administration need to have a plan to support or evaluate teachers during the integration process.
- School administrations must have a specific plan for supporting teachers to integrate computer in their teaching.
- School administration must have a specific evaluation plan for the improvement of school and teachers in the process of computer integration.
- Further research needs to be conducted to determine the evaluation process that should be used to improve teachers' computer skills and encourage them to use these skills at work.

معرفة مدى استخدام المدرسين للمهارات الحاسوبية المكتسبة من الرخصة الدولية لقيادة الحاسوب والصعوبات التي تحول دون ذلك

د. إبتسام فارس المشاقبة

كلية تكنولوجيا المعلومات - جامعة آل البيت

الأردن

الملخص

هدفت هذه الدراسة إلى معرفة وجهة نظر المدرسين تجاه استخدام المهارات الحاسوبية والمهارات المكتسبة من الرخصة الدولية للمهارات الحاسوبية في التدريس من خلال الإجابة عن الأسئلة الآتية: هل هناك اختلاف بين المدرسين في درجة استخدام البرمجيات المتضمنة في Microsoft Office Package

وهل هناك اختلاف بين المدرسين في درجة تطبيق كل برمجية على حدة؟ وهل هناك اختلاف في تطبيق المهارات الحاسوبية المكتسبة من الرخصة الدولية لقيادة الحاسوب تتعلق بالصعوبات التي تواجه المدرسين أثناء التطبيق؟ وهل هناك فروقات ذات دلالة إحصائية في نوع الصعوبات التي تواجه المدرسين تعزى إلى مستوى التعليم، الجنس، الخبرة، موضوع التدريس، المدة الزمنية على الرخصة الدولية لقيادة الحاسوب والمرحلة التدريسية؟

تكونت عينة الدراسة من ٢١٢ مدرسا، تم بناء الاستبانة الخاصة بالدراسة والتي تحتوي على اسئلة متعلقة بالبرمجيات التالية: معالج النصوص، العروض التقديمية، اكسيل، والانترنت. وبعد إجراء التحليلات الإحصائية المناسبة اظهرت النتائج ان برمجية معالج النصوص كانت اكثر استخداما من قبل المدرسين وتحديدا في طباعة الخطة الفصلية والسنوية للمادة. وكذلك كشفت النتائج ان استخدام برمجية العرض التقديمي كان في الاغلب لغرض تبسيط المادة التعليمية وبرمجية اكسيل استخدمت في الاغلب لغرض ادخال ومعالجة علامات الطلبة. وقد اظهرت نتائج الدراسة الى ان عدم وجود اتصال كاف بالانترنت في المدارس كان من اكثر الصعوبات التي واجهت المدرسين خلال استخدامهم للمهارات الحاسوبية في التدريس. وتشير النتائج الى عدم وجود فروق دالة احصائية في نوع الصعوبات التي تواجه المدرسين تعزى إلى: مستوى التعليم، الجنس، موضوع التدريس، المدة الزمنية على

الرخصة الدولية لقيادة الحاسوب. ووجد ان هناك فروقا داله احصائيا في نوع الصعوبات التي تواجه المدرسين تعزى إلى الخبرة ولصالح الفترة الزمنية من ٥ إلى ١٠ سنوات وكذلك يوجد فروقا ذات دلالة إحصائية في نوع الصعوبات التي تواجه المدرسين تعزى إلى المرحلة التي يدرس بها ولصالح مدرسي المرحلة الثانوية. وفي ضوء هذه النتائج تم التقدم بجملة من التوصيات ذات العلاقة.

REFERENCES

- 1 - Al-Asmari, A.M. (2005). **The use of the internet among EFL teachers at the colleges of technology in Saudi Arabia**. Unpublished Doctoral Dissertation, The Ohio State University.
- 2 - Albirini, A. (2004). **Cultural perceptions: the missing element in the implementation of ICT in developing countries**. International Journal of Education and Development using ICT, 2(1).
- 3 - Becker, H. J., Ravitz, J. L., & Wong, Y. (1999). **Teacher and teacher-directed student use of computers and software**. Center for Research on Information Technology and Organizations, University of California, Irvine, and University of Minnesota.
- 4 - Boettcher, J.; Conrad, R. M. (2004). **Faculty Guide for Moving Teaching and Learning to the Web**. League for Innovation in the Community College, Laguna Hills, CA, 2004.
- 5 - Burrell-Ihlow, M.M. (2006). **The impact of computer technology on constructivist practices of secondary mathematics teachers**. Unpublished Doctoral Dissertation, Walden University.
- 6 - Darus, S. & Luin, H.W. (2008). **Investigating teachers' use of computers. in teaching English: a case study**. Teaching English with Technology A Journal for Teachers of English.8(1).
- 7 - Devlin-Scherer, R. (2003). **Sources and support for pre-service English teachers as technology users**. Teaching English with Technology A Journal for Teachers of English. 3(4).
- 8 - ECDL Foundation (2006). **ICDL in Jordan receives Presidential recognition**. Retrieved from <http://www.ecdl.com/publisher/index.jsp>.
- 9 - Gross, J. (1992). **Special Educational Needs and School Improvement: Practical Strategies for Raising Standards**. London: David Fulton Publishing.
- 10 - Gulseçen, S. & Kubat, A. (2006). Teaching ICT to Teacher

Candidates Using PBL: A Qualitative and Quantitative Evaluation. Educational Technology & Society. 9(2). 96-106.

- 11 - Fullan, M. with Steigelbauer, S. (1991). **The new meaning of educational change.** New York: Teachers College Press.
- 12 - Handal, B. & Handal, P. (2006). **Training teachers to evaluate educational tutorial software: a model of intra-school professional development.** Electronic Journal for the Integration of Technology in Education. 2(1).
- 13 - Hayes, L. S. (2004). **Methods used to determine technology competence for Virginia teachers.** Unpublished Doctoral Dissertation, Virginia Polytechnic Institute and State University.
- 14 - ICDL Asia Pacific (2004). **International Computer Driving License Foundation.** Retrieved from <http://www.icdlap.com> <http://www.icdlap.com/index.jsp/index.jsp>.
- 15 - ICDL-UNESCO (2004). **International Computer Driving License In The Arab Region.** Retrieved from www.icdl-unesco.org < <http://www.icdl-unesco.org>.
- 16 - Jackson, S.F. (1997). **The use of PowerPoint in Teaching Comparative Politics.** Retrieved from <http://horizon.unc.edu/ts/featured/1997-05a.asp>.
- 17 - Johnson, I. (2006). **An investigation of the effects of the Georgia Framework for integrating technology (In-Tech) training program on teachers' computer self-efficacy and computer utilization.** Unpublished Doctoral Dissertation, Nova Southeastern University.
- 18 - Jones, A.M. (2003). **The use and abuse of PowerPoint in Teaching and Learning in the Life Sciences: A Personal Overview.** BEE-j, 2(1).
- 19 - Jones, A. (2003). **A Review of the Research Literature on Barriers to the Uptake of ICT by Teachers.** British Educational Communications and Technology Agency. Version 1. Retrieved from <http://www.becta.org.uk>.
- 20 - Jones, A., & Issroff, K. (2005). **Learning technologies: Affective**

- and social issues in computer-supported collaborative learning. Computers & Education Journal. 44(4), 395-408.**
- 21 - Loverro, L.J.(2006). **Toward a pedagogy of educational technology for teach education programs.** Unpublished Doctoral Dissertation, University of Washington.
- 22 - McArthur, C. A., Pilato, V., Kercher, M., Peterson, D., Malouf, D., & Jamison, P. (1995). **Mentoring: An approach to technology education for teachers.** Journal of Research on Computing in Education, 28(1), 46-61.
- 23 - Mohd-Yunus, M. (2007). **Malaysian ESL teachers' use of ICT in their classrooms: expectations and realities.** ReCALL, 19(1), 79-95.
- 24 - Moran, M.L. (2006). **Teacher perceptions of the effectiveness of their instructional practice in the digital classroom.** Unpublished Doctoral Dissertation, University of Hartford.
- 25 - Norland-Tilburg, E. V. (1990). **Controlling error in evaluation instruments.** Journal of Extension, [On-line], 28(2).
- 26 - Prensky, M. (2001, October). **Digital natives, digital immigrants.** On the Horizon. NCB University Press, 9(5).
- 27 - Ringstaff, C., Kelley, L. (2002). **The learning return on our educational technology investment.** San Francisco: WestEd. Available: <http://www.wested.ojr/cs/we/view/rs/619>.
- 28 - Sessoms, D. (2008). **Interactive instruction: Creating interactive learning environments through tomorrow's teachers.** International Journal of Technology in Teaching and Learning, 4(2), 86-96.
- 29 - Schrum, L., Shelley, G., & Miller, R. (2008). **Understanding tech-savvy teachers: Identifying their characteristics, motivation, and challenges.** International Journal of Technology in Teaching and Learning, 4(1), 1-20.
- 30 - Suhawoto, G. (2006). **Secondary mathematics preserves teachers' development of technology pedagogical content knowledge in subject-specific, technology-integrated teacher preparation program.** Unpublished Doctoral Dissertation, Oregon State University.
- 31 - Trilling, B., & Hood, P. (1999). **Learning, technology, and**

- education reform in the knowledge age or we are waited, webbed, and windowed, now what? Educational Technology, 39 (3), 5-18.
- 32 - Wash, S.L. (2000, Winter). **A comparison of traditionally and alternatively certified technology education teachers' professional development and receptivity to change.** Journal of Industrial Teacher Education, 37 (2).
- 33 - Wright, T. & Lauda, D. (1993, January). **Technology education-a position statement.** The Technology Teacher, 52, 3-4.
- 34 - Wikipedia (2008). **Post-hoc analysis.** Available: http://en.wikipedia.org/wiki/Post-hoc_analysis.
- 35 - Yarmouk University (2006). **The International Computer Driving Licence (ICDL), Faculty Development Center (FDC).** Available: <http://www.yu.edu.jo>.