Senior Faculty Members' Attitudes in Jordanian Universities towards Using Information and Communication Technology

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Abstract: *The purpose of this study is to identify the main factors affecting the attitude of the seniors of faculty members towards using technology especially in their teaching activities. The study addresses the following questions: (1) Do senior instructors at Jordan universities have enough knowledge and skill to practice using ICTs in their teaching activities? (2) What is the degree of senior instructors' attitudes towards ICTs? And (3) Is there a significant difference in attitudes towards ICTs with instructors grouped by gender, college type, teaching experience, university type, and country of Ph.D.? A purposive sample of 251 faculty members who are seniors; that represents the population was chosen. In response to the survey, 226 responses were received, 167 male and 59 female responses.To answer the first question of this study: We found that senior instructors do have the basic necessary knowledge and skills, but focused training on ICTs in instruction should be considered here. As we mentioned, the seniors' attitude towards this matter is clearly positive and most of them willing to be trained to practice that. Results indicated no significant differences in senior faculty members attitudes toward ICTs related to their gender, college, experience, university, and country of PhD.*

Keywords: *e-learning, Senior Faculty Members, Attitudes, Information and Communication Technology, Jordanian Universities*

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1. Introduction

The biggest growth in the Internet use and the modern achievements in the field of information and communication technologies (ICT) have offered tremendous opportunities for different sectors of our life. The main challenge in terms of keeping things fresh, especially in teaching has been getting a hold of new technology and mastering new technological things [18]. Education can't afford to be isolated from the rest of society activities. Use of ICTs for the learning teaching activities becomes a widely acceptable way of knowledge transfer [20] because of the flexibility and standardization of the overall educational process they offer. The e-learning concept is described in many literature sources. The basic definition of e-learning is combination and implementation of learning teaching activities via different electronic media. It is the use of ICTs to deliver life-long education from anywhere and on anytime. The use of these technologies in learning is seen as a mean to improve accessibility, quality and efficiency of learning by facilitating collaboration, exchange of information and access to resources. The scientific concept of learning has been changed. It has been shifted from teacher-centered to learner-centered approach, from teaching to guidance, from individual to collaborative learning and from instantaneous to life-long learning.

The use of modern technology, computers and networks have been increasing in Jordan public and private Universities. It becomes a must and it is supported with the royal vision. It acknowledges the potential of e-learning to impact on learning outcomes for all students and the work habits of all university staff.

"we have followed a path that will allows the technological revolution to harness our available talent into productive sectors that can fuel and sustain economic growth." H.M. King Abdullah II, the World Economic Forum

"By empowering our youth through this education initiative, Jordan and its World Economic Forum partners can create a dynamic and practical model of public-private partnership in the area of ICT that can ignite the engines of growth for future generations in Jordan and the region." H.M. King Abdullah II, the World Economic Forum

From our survey, it seems that the issue here is not necessarily how much ICTs is used in the learning-teaching activities. It is in fact the attitude towards these technologies. How both students and faculty,

particularly the seniors, are willing to use and interact with using these technologies.

As we mentioned, e-learning or using technology in learning is considered to be attractive as a new learning paradigm in Jordan Universities, nevertheless it is still facing a lot of problems in this field. Many of them are not only technologically but also socially and culturally sensitive. The attitude toward the adoption of ICTs in education for both the students and faculty members is a very important era of research. It is more important particularly to the senior faculty members who are the rich and main source of knowledge in the university. The term senior refers to someone past the tenure decision who has typically promoted to associate professor [17]. It is clear that there is a need to focus on faculty attitudes and specific factors – motivating and inhibiting – affecting participation of them in e-learning, web-based teaching using technology in teaching-learning process [5].

The purpose of this study is to identify the main factors affecting the attitude of the seniors towards using technology especially in their teaching activities. The study addresses the following questions: Do senior instructors at Jordan universities have enough knowledge and skill to practice using ICTs in their teaching activities? Does teaching experience have an effect to the attitudes towards using ICTs among instructors at Jordan Universities?Is there a significant difference in attitudes towards ICTs with instructors who have computer knowledge compare to instructors who don't?Is there a significant difference in attitudes towards ICTs with instructors grouped by gender?

The rest of this paper is organized as follows: Section 2 surveys the literature background, Section 3 reports the problem statement and the purpose of our study, Section 4 describes the used instrument, population and data collection of the study, while Section 5 discusses the analysis of the data and reports on the findings of this study, finally Section 6 concludes this paper.

2. Literature Review

Most of the research about (ICT) had been conducted at the school level. There is a lack of research in this era at the university level, particularly, studies highlighting the e-learning issues of the senior faculty attitude towards using technologies in the Jordanian universities. But, the following studies contained similar purpose statements and tended to focus on identifying factors that either motivated or discouraged faculty participation in using technology in teaching activities. Faculty note their interest in getting more of their students involved with technology, as they realize the importance of technology in all areas of today's world. They consider that it is an opportunity to use technology more innovatively and to enhance course quality [2, 3, 6, 14, 19, 21]. In addition, technology can lead to the development of new ideas and diversification of academic programming.

Haaparanta [9] has studied teachers' experiences meaningfulness and exhaustion in their work compared to their technology attitudes. Lehtonen [13] and Enkenberg [7] find that to succeed in utilizing technology in a pedagogically meaningful way there must be reorganizations in all the following levels: individual actions, attitudes and pedagogical levels.

Snoeyink and Ertmer [23] concentrated on the importance of previous computer experience to the attitude towards using technology. They showed that negative experiences make lecturers less confident and more anxious – anxiety about change and fear of embarrassment when using computers. Faculty outline the support issues that would motivate them to use technology, the support issue most noted is that of administrative recognition and encouragement for faculty efforts. Lee [11] indicates that when faculty members feel there is an institutional support, their levels of motivation and dedication are increased. Faculty indicate that this support can be demonstrated with credit towards permanent status and promotion [2, 3, 19, 21].

Technological support is also a major issue in motivation towards using technology such as providing training [3], instructional design and development support [3], [6]. Faculty are concerned about developing effective technology skills and mention lack of training. In addition, faculty worries about depending on developers and programmers in developing material and they are also concerned about security issues.

The essential factors that do discourage faculty of using technology include resistance to change [1, 16] and fear of technology [16]. The issue of faculty workload seems to be an additional barrier [1, 2, 21, 15]. According to [3], 62% of faculty respondents indicated that "the main obstacle to using the web in teaching was the preparation time required".

Of all of the barriers cited by faculty and administrators, the one mentioned most frequently is the lack of technical support [1, 2, 3 , 4 , 10, 11, 19, 21 , 24]. This includes concerns about the lack of systems reliability as well as inadequate infrastructure, hardware, and software.

Another type of administrative support is financial incentives. In [22] study, faculty 60 years old and over indicated more concern over financial factors than did faculty of any other age category. Faculty, both current participants and non-participants, and administrators indicate that financial support, either in the form of stipends, continuing education or overload pay, or increased salaries would motivate faculty to use technology [2, 10, 19, 21 , 22].

3. Problem Statement and Study Purpose

The use of e-learning initiatives in the academic and training institutions has been increasing in last few years. E-learning concept has been implemented by academic institution in Jordan Universities, private and public sectors, and becomes a must in order to support their teaching-learning activities. There is a lack of research on the main factors contribute to success of e-learning and using technology in education, particularly, studying the awareness and attitude of the academic staff towards using technology.

There are many factors that affect adoption of technologies by the faculty members related to social-cultural issues, pedagogical issues and technologies and infrastructure issues. In this study, we focus on studying the factors related to the attitude of senior faculty members towards using technology in instruction. The findings of this study will contribute to technology adoption by Jordan Universities and help in implementing successful frameworks of embedding e-learning in Universities' educational system.

The primary purpose of this research is to identify the attitudes of senior faculty members towards using technology in education in Jordan universities. The main questions addressed in this study are:

- Do senior instructors at Jordan universities have enough knowledge and skill to practice using ICTs in their teaching activities?
- What is the degree of senior instructors' attitudes towards ICTs?
- Is there a significant difference in attitudes towards ICTs with senior instructors grouped by gender, college type, teaching experience, university type, and country of Ph.D.?

4. Methodology

4.3. Population and sample of the research

Selections of current early career faculty were from two public universities, and two private universities located in Jordan as a sample of Jordanian Universities. The population of this study included all senior faculty members at four public and private universities in Jordan that selected randomly for this study among 22 universities (10 public and 12 private universities). The selected universities provided the researchers with a list of senior faculty members names who have experiences 10 years and more in higher education. This includes two public ones with (134 senior faculty members), and two private ones with (117 senior faculty members).

A purposive sample of 251 faculty members who are senior; that represents the population was chosen. In response to the survey, 226 responses were received. Of these 167 male responses and 59 female responses. The responses were diverse, representing different colleges, source of Ph.D., and teaching experience.

4.2. Instrumentation

Since surveys are typically evaluative rather than generative, and provide broad results that can projected to the total population, the researchers determined that a focused survey was the best method for gathering data. The survey includes two parts for a total of 60 questions. Part one consists four questions that sought demographical data. The demographic survey of variables related to the senior faculty members attitudes at public and private universities in Jordan were included. Participants were asked to respond to these questions in order to determine if a relationship existing between the senior faculty members' attitudes and the following factors:

- Gender of faculty member
- Teaching experience
- Country you receive your doctorate
- College

Part two consists of 56 questions distributed on the factors that may affect the attitudes of senior faculty members towards using technology, such as: availability of the infrastructure, computer skills, productivity and the psychological factors.

4.3. Data Analysis

The collected data from the research instrument scored, analyzed, and statistically evaluated as they related to the research questions of this study. A two-tailed t-test used to determine any differences on the mean scores of senior career faculty concerns in Jordanian public and private universities. Means and standard deviation were used to answer question two of the study. An analysis of the variance comparing senior faculty members attitudes toward using information technology mean scores for each of the demographic variables used to test whether there are significant differences between concern levels among senior faculty members' attitudes toward using information technology as perceived by them for each of the demographic variables.

5. Findings and Analysis

This study was conducted in order to find out the attitude of the seniors of faculty members in Jordan universities towards using technology especially in their teaching activities in addition to find out if they have difference in attitudes towards ICTs in education. In this section, we will present our findings and analysis of the collected survey data that led to answer the study questions.

5.1. Infrastructure

The survey shows that 79% of the respondents agreed that the needed infrastructure for using technology is available in the university environment, which is a positive trend. 99.7% of the respondents have computers and all of them connected to the internet. Regarding the support provided from the university, 72.3 of the respondents agreed that they have every kind of support (technical, hardware or software) from the university. Figure 1 depicts the findings regarding the availability of the infrastructure for the senior faculty.

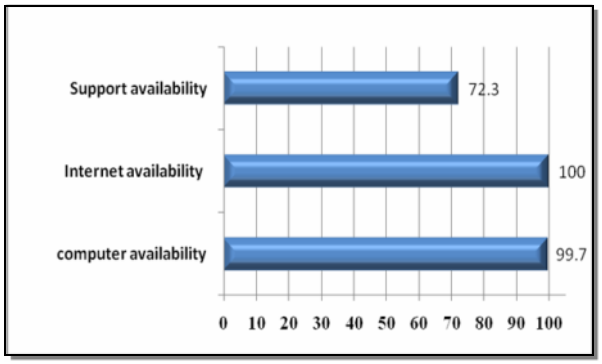

Figure 1. The availability of the infrastructure.

5.2. Knowledge and Skills

The other important issue that we want to find in this study is the level of technological skills the seniors have in order to practice using ICTs in their instruction. The survey shows that 96.4% of the respondents have been using computers for years see figure 2. 92.4% of the respondents have the skill and know how to use word processors, presentations software and 93.6% know how to browse the internet. This is a positive trend. However, only 39.5% of the respondents have the skill to use the educational technologies like Learning Management Systems (LMS), interactive and synchronous collaboration tools, asynchronous tools and e-content authoring tools see figure 3.

Regarding the source of this knowledge and skills, the survey shows that 78.4% of the respondents have received computer training. We found that 51.8% got it through self-taught training, and 23.9% outside the university and other resources. Only 24.3% got their skills through the university training sessions and workshops, even though 76% of the respondents agreed that the university provides training.

It seems that there is a problem regarding the attendance of these sessions. Perhaps the time is not scheduled properly to suit the instructors or the workload prevents them from joining these sessions. There is a lack of information and guidance regarding the needed skills for adopting technology in instruction since 65% of the respondents does not know the required knowledge and skills. The positive trend that we want to highlight regarding the knowledge and skill issue is that 89% of the respondents are really willing to have any training on technology, which is a positive attitude towards ICTs as shown figure 4.

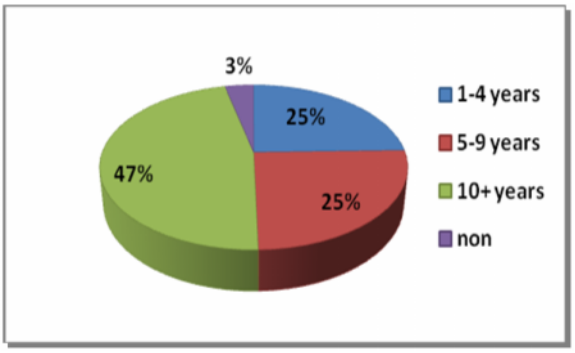

Figure 2. Result for experience of using technology.

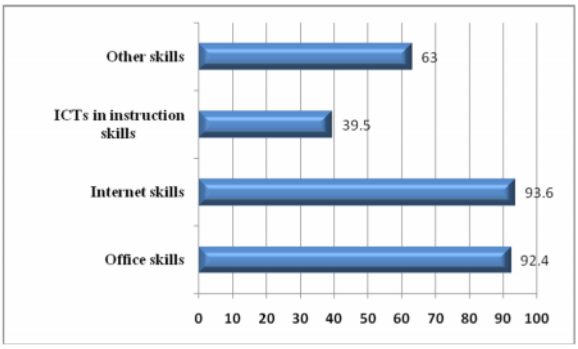

Figure 3. Skills of using educational technologies and other computer skills.

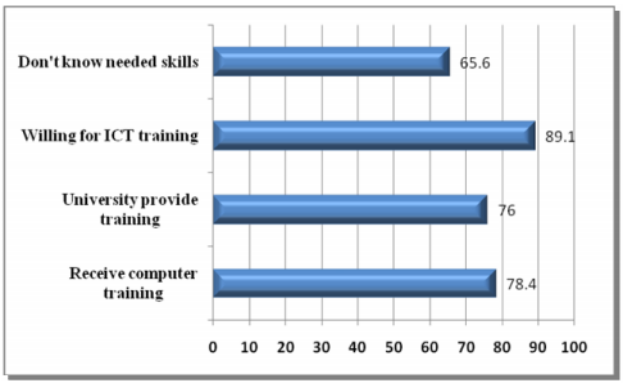

Figure 4. Training and attitude towards training.

5.3. Productivity

The survey shows that most of the respondents (about 87%) use their computers daily for email and internet browsing. However, when the respondents were asked about their productivity in using technology in instruction, only 47% of them really practice this. The reason is that most of the respondents do not have the necessary skills and more than half of them even do not know the needed skills.

To answer the first question of this study:

(1) Do senior instructors at Jordan universities have enough knowledge and skill to practice using ICTs in their teaching activities?

We can say that senior instructors do have the basic necessary knowledge and skills, but focused training on ICTs in instruction should be considered here. As we mentioned, the seniors' attitude towards this matter is clearly positive and most of them willing to be trained to practice that.

(2) What is the degree of senior instructors' attitudes towards ICTs?

Table 1 shows means and standard deviations of the psychological factors For each item, Table 1 reveals that the total mean scores of senior faculty members' attitudes toward using iformation and communication technology was (M=3.06). Related to interrepretd scores, attitudes of senior faculty members toward Using Information and Communication Technology were in high level.

Table 1. Means and Standard deviation of Psychological factors items.

No.	Items	Mean	SD
1	I think that working with computers would be enjoyable and stimulating	3.49	.90
2	I want to learn a lot about computers	3.49	.83
3	A job using computers would be very interesting	3.41	.81
4	I will use a computer as soon as possible	3.40	.87
14	Teacher training should include instructional applications of computers.	3.40	.73
21	More courses should use computer technology to disseminate class information and assignments.	3.40	.72
16	Computers would help me organize my work	3.37	.78
15	Computers would significantly improve the overall quality of my students' education.	3.32	.82
10	Computers could enhance remedial instruction	3.32	.82
17	Computers would increase my productivity	3.27	.89
12	Computers can be used successfully with courses which demand creative activities	3.25	.816
18	Computers solve more problems than they cause	3.24	.82
22	The use of communication technologies creates more interaction between student and instructor.	3.22	.80
11	Computers will relieve teachers of routine duties	3.18	.903
20	The use of e-mail helps provide a better learning experience and more interesting.	3.19	.75
23	I prefer communication technologies to traditional class handouts as an information disseminator	3.19	.85
8	I have a lot of self-confidence when it comes to working with computers	3.02	1.01
6	Computer lessons are a favorite subject for me	2.99	.86
13	Use of computers in education almost always reduces the personal treatment of students	2.85	1.05
5	Figuring out computer problems does not appeal to me	2.71	1.09
19	I see the computer as something I will rarely use in my daily life as a senior.	1.89	1.18
7	Working with a computer makes me feel tense and uncomfortable	1.88	1.07
9	A computer test would scare me	1.88	.97
	Total mean	3.06	

Out of 23 items of the instrument, 17 items had high level of attitudes toward using information and communication technology among senior faculty members. 3 items had moderate level of attitudes, and 3 items had low level of attitudes toward using information and communication technology among senior faculty members.

For example, item (1) "I think that working with computers would be enjoyable and stimulating" and item (2) "I want to learn a lot about computers" had the highest mean (3.49). Whereas item (7) "Working with a computer makes me feel tense and uncomfortable" and item (9) "A computer test would scare me" had the lowest mean (1.88).

(2) Is there a significant difference in attitudes towards ICTs with instructors grouped by gender, college type, teaching experience, university type, and country of Ph.D.?

Table 2 presents Five Way ANOVA results that indicated no significant differences in senior faculty members attitudes toward ICTs related to their gender, college, experience, university, and country of PhD**.**

Table 2: Five Way ANOVA analysis of difference in attitudes towards ICTs with instructors grouped by gender, college, experience, university, and country of PhD difference in attitudes towards ICTs

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Sex	0.001	1	0.001	0.006	0.936
College	0.019	1	0.019	0.130	0.719
Exp	0.120	2	0.060	0.411	0.664
Country	0.466	2	0.233	1.603	0.204
University	0.210	1	0.210	1.441	0.232

5. Conclusion

Our results identified several institutional and personal barriers to the use of technology that have been referred to elsewhere; resistance to change fear of technology workload seems to be an additional barrier. However, several interesting subject differences have emerged. The senior faculty members participated in this study ranged from those who regularly used computers to those, who did not use technology to such a great extent.

The attitudes among senior faculty members were positive and high related to their thinking that working with computers would be enjoyable and stimulating, and their want to learn a lot about computers. The attitudes among senior faculty members regarding to their gender, college, experience, university, and country of Ph.D. indicated no differences, this may partly reflect awareness of what tools are available and the pedagogical benefits of them. [13, 7].

Our research revealed possible subject differences to the attitudes of senior faculty members that have not been identified by previous research. Such differences will have practical implications for university and departmental strategies aiming to promote ICTs among senior faculty members. Strategies may be needed to

increase senior faculty members' awareness of what new technology tools are available, and what the pedagogical benefits would be to different subjects and disciplines. Research findings suggest that faculty development strategies such as the following would be useful to senior faculty [17, 18]. The lack of time and support are continuing problems, and senior faculty members felt the need for more incentives to dedicate time to training and for the development of resources.

This research was limited to the universities that participated in this study, but has raised several interesting questions that might be subject of future studies. Does ICTs using provide educational value over and above traditional way without using ICTs? Which subjects benefit most from using ICTs? Do the Science subjects need ICTs using more than the Arts subjects? Do learning styles and lecturer's own learning experiences influence the uptake of ICTs tools?

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