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**Analysis of the Faculty Members' Attitudes Towards  
Using IT Applications in the University Education  
and its Relation with Some Variables**

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### Abstract

This study aimed at revealing the attitudes of the faculty members in the Hashemite University towards using IT applications in the university instruction, and identifying the differences of these attitudes according to the academic rank, sex, teaching experience and experience in IT. The sample consisted of (161) faculty members who were chosen randomly. The tool was a 44-item questionnaire, developed to measure these attitudes, and was of sufficient validity and reliability. The results revealed positive attitudes on the part of the faculty members, and there weren't significant differences attributed to the academic rank, teaching experience, and experience in IT. Yet, there were such differences attributed to sex and in favour of females. Eventually, the results provided some recommendations such as: encouraging the faculty members to use IT applications in the university instruction.

**Key words:** attitude, IT application, university education.

## تحليل اتجاهات أعضاء هيئة التدريس في الجامعة الهاشمية نحو استخدام تطبيقات تكنولوجيا المعلومات في التعليم الجامعي وعلاقتها ببعض المتغيرات

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### الملخص

هدفت هذه الدراسة إلى الكشف عن اتجاهات أعضاء هيئة التدريس في الجامعة الهاشمية نحو استخدام تطبيقات تكنولوجيا المعلومات في التعليم الجامعي، وتعرف الفروق في هذه الاتجاهات وفقا لكل من: الرتبة الأكاديمية، والجنس، والخبرة في التدريس، والخبرة في مجال تكنولوجيا المعلومات، وقد تكونت عينة الدراسة من ١٦١ عضو هيئة تدريس تم اختيارهم عشوائيا واستخدمت استبانة مكونة من ٤٤ فقرة تم تطويرها لقياس هذه الاتجاهات، وكانت ذات صدق وثبات كافيين لأغراض الدراسة.. وقد كشفت نتائج الدراسة عن اتجاهات إيجابية لدى أعضاء هيئة التدريس ولم تكن هناك فروق دالة إحصائية تعزى للرتبة الأكاديمية والخبرة في التدريس، والخبرة في تكنولوجيا المعلومات. بينما كان هناك فروق دالة إحصائية تعزى للجنس ولصالح الإناث. وأسفرت النتائج عن تقديم بعض التوصيات منها تشجيع أعضاء هيئة التدريس على استخدام تكنولوجيا المعلومات في التعليم الجامعي.

الكلمات المفتاحية: اتجاهات، تطبيقات تكنولوجيا المعلومات، التعليم الجامعي.

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### **Introduction**

Information Technology (IT) and its applications are considered a revolution in the world of knowledge and communication. The influence of such a powerful technology has pervaded all aspects of the educational, business, and economic sectors of our world. Therefore, Jordanian Universities are keen to cope with recent developments of information technology in order to benefit from it in their academic programs, and to employ it to promote higher education. The technological and scientific development has added many techniques that can be used to prepare and qualify students in different fields of study to meet their academic and social needs.

Information technology provides an excellent opportunity for the development of educational methods, and paves the way for more effective and less expensive advanced methods. It also provides chances for scientists and researchers to exchange scientific ideas smoothly and economically, (Sawyer & Brian, 2001). Fallon (1997) pointed out that the use of information technology in universities had been reflected positively on all aspects of university life including instructors and students. It enabled them to acquire effective ways to meet challenges and gain successful communication techniques, and help them in enhancing education. That is in harmony with what Reid (2000) mentioned that many developed countries started to develop education by building information technological facilities and

electronic educational classes to help groups in cooperative learning to communicate electronically. Such classes were first established in the American university of Maryland.

Information technology has become an energetic tool in the “Era of information and communication” and therefore, technical education is interested in providing support in preparation for future professions. For this purpose, information technology should be integrated in the syllabus and make it effective and productive to provide persons with experiences and skills required by the working market (Bagareash & Self, 2001). In addition, Teresa (2001) suggested that the involvement of the information technology in teaching will develop the intelligence and skills of the students, and add extra confidence in their education more than that the traditional ways of teaching do.

Many researchers notice that the use of information technology in education can achieve many advantages, such as flexibility in time and place and teaching, developing programs quickly, changing the teachers’ task from imitation to counseling and guidance, gaining of knowledge smoothly, inventing “virtual classes”, and getting the scientific material at any time and place, and not adhering with instructional hours, and changing the traditional methods of teaching that will help in creating a class full of energy and activity. Al-Ashqary, (2005), Abuloum & Al-Khadash (2005), Mathew, Callaway, & Kimbell (2002); Cuckle, Clark, & Jenkins, (2000). Simson, Payane, & Munro, (2000) maintained that the integration of technology and instruction requires systematic, scientific planning by educators who have limited resources and weak background of this technology. However, Hamdi (2003) claimed that advancement in information technology did not lead to a qualitative development in the courses offered by instructors in spite of using this modern technology in their teaching and thus failed to employ it effectively to promote the educational process. This was supported by Joe (1999) who reported that the successful use and application of information technology in higher education depends on smooth access to information resources of quantitative quality, availability of motivation for learners and instructors, suitable training, and the continuous technical support.

Furthermore, enhancing the capability of university instructors in the field of information technology is considered one of the thorny topics

to tackle. In fact, one of the challenging tasks of those who are working in this field is how to attract and to encourage faculty members at universities to employ information technology in teaching and scientific research. (Russel, Finger, & Russel, 2000). Speier, Morris, & Huges (2000) pointed out that the attitudes of the instructors towards information technology influence the formation of their behaviors towards it. He claimed that positive attitudes towards IT correlates positively with excellence in its use, while fear of using IT correlates negatively with the performance skills. Furthermore, forming positive attitudes towards IT increases teachers' willingness to employ it in the university instruction, and improves their abilities and performances in the classroom situation. In addition, integrating IT in the curricula makes universities carry extra loads by seeking instructors who have experiences in using IT in the university instruction and have positive attitudes towards this technique.

Al-Najar (2001) conducted a study that aimed at identifying the reality of using IT applications in the scientific research by the teaching staff in King Faisal University. The study sample included (130) instructors. The results showed that most of the staff realized the importance of using Internet in the scientific research, and considered it to be of great importance. Furthermore, there were statistically significant differences among their opinions regarding how much of the Internet applications should be used with respect to the variables of gender and academic rank. On the other side, Weiss and Koochang (2001) conducted a study that aimed at assessing the students' attitudes towards the direct and non-concurrent electronic communication in learning, which was used as a required part of the MBA electronic web- supported curricula in the University of National Lueiss. The sample consisted of 74 students, and the results showed no high positive attitudes towards such kind of learning. Al-Shayeb (2001) conducted a study to know the reality of using the Internet by the teaching staff of the Jordanian universities and the attitudes toward it. The sample of the study consisted of (282) faculty members. The researcher used a questionnaire. The results showed that there were statistically significant differences ascribed to faculty

members, major, and computer experience, and there were positive attitudes toward using Internet in the university education

Al-Omari (2002) studied the extent to which faculty members and students in Jordan University of Science and Technology make use of the Internet in their education. The sample consisted of (124) instructors and (336) students. The results of the study showed that 50% of the instructors used the Internet daily and 45% used it weekly and 66% considered it very important. The study indicated that the use of the Internet had no relationships with the variables of gender, or major. The study recommended that it is important to make internet-training courses for the students. Al-Manna'i (2003) conducted a study with the objective of evaluating the effect of using Internet in the learning and research processes by the faculty members at Qatar University. The results showed a low internet usage with significant differences with respect to gender and academic degree.

Oreiqat (2003) conducted a study that aimed at investigating the attitudes of graduate students in Jordan University towards using internet as a tool of e-learning, and the effect of gender and computer experience on these attitudes. The sample consisted of 350 female and male students. The result showed positive attitudes by the students of the experimental group, and there were statistically significant differences attributed to gender and in favor of males. In addition, the attitudes of the scientific major were more positive than those of the art ones. Also, the existence of computer experience correlates positively with the students' attitudes towards using the Internet in learning.

Koohang (2004) conducted a study that aimed at investigating the learners' opinions about e-learning, in the University of National Lueiss and the effect of gender, age and Internet experience on their opinions. The results showed that the more experienced the students were, the more positive attitudes they had, but there weren't statistically significant differences attributed to gender, age or internet experiences. AL.Mousawi & Abdel-Rahem (2004) used web courses instruments and courseware package to evaluate the effectiveness of on line instruction (OLI) in Sultan Qaboos University students achievements and there attitudes towards it in an educational technology courses. The results showed that there were no

significant differences in the students' achievements due to the methods of instruction and gender.

Minhsein (2005) conducted a study in Taiwan about Internet learning and the attitude towards it, through a questionnaire distributed to 630 male & female students. The conclusion was that male students prefer to use the Internet for learning more than females, and they had positive attitude towards Internet learning. Upton (2005) conducted a study that aimed at designing and producing a psychological health course for the undergraduate students with the major of nutrition in Wales Institute for the bachelor degree level. The course was delivered through on line. The researcher investigated the learners' attitude towards such learning, and compared between these students' performance and that a traditional group. The results showed no statistically significant differences between the two methods yet the experimental group experienced enjoyment and exhibited positive attitudes.

Concerning the study of Al-Khadash & Abuloum (2005), the objective was to identify the effects of the variables: gender, Internet experience, and the number of times to access the course management system, on the learners' attitudes towards the e-learning. The sample consisted of 440 male and female students who studied the course entitled <Accounting Principles> in the Hashemite University. The results showed no statistically significant differences attributed to gender, but proved such differences attributed to the other two variables.

Salameh (2005) investigated the effect of introducing internet in the content of an undergraduate course (Using Computer in Teaching) on student achievement at Al-Quads Open University. The sample consisted of (2) classes, one class was assigned as an experimented group, and the other as a control group. The results showed that there were significant differences in student's achievement in favor of the group who used the internet, while concerning Gender it was in favor of females and concerning the interaction between teaching approach and gender it was also in its favor.

Jawarneh & Al-Hersh (2005) investigated ICT Skills of student teachers' at Yarmouk University and their degree of ICT use in practice schools. Data obtained via questionnaires and interview. The results showed that



the student-teachers possessed low to moderate ICT skills levels; the interviews indicated positive attitude towards ICT skills and were ardently in support of their inclusion in education provided that they are used in various teaching-learning situation

This study is an attempt to investigate the attitudes of faculty members in the Hashemite University (HU) towards the use of IT in the university education. The study also focused on studying the relation of this attitude along with some variables such as academic rank, sex, instruction experience, and experience in IT. In addition, the study is concerned about finding out the reaction of faculty members towards these variables. This study benefited from the studies listed earlier in the following aspects: building the items of the instrument of the study, the selection of the study sample, the methodology used to determine the effect of the variables of interest. Furthermore, the paper makes a useful comparison between the results of this study and the results of the above studies, and then draws some useful conclusions. The results revealed positive attitudes on the part of the faculty members, and there weren't significant differences attributed to the academic rank, teaching experience in IT experience. Yet, there were such differences attributed to sex and in favor of females. As such, encouraging the faculty members to use IT applications in the university instruction and expanding the use of IT applications in instructional syllabuses are two of important recommendations of this study.

### **Problem Statement**

Information Technology and its educational applications have become one of the main topics in education, thus HU has been concerned with this technology to improve the level of faculty members instruction and catering for the technological & scientific advances. The number of instructors who use this technology is increasing day after day. The university organizes courses for new faculty members to acquire the necessary skills required to use IT in the instructional settings, and to improve their performance and increase their competencies in this field.

The researchers noticed that in spite of the faculty members ' awareness of the importance of IT, and despite the efforts the university exerts and

the high financial cost, there is still a variance in the use of IT regarding the aptitude, training, and technical abilities towards the ideal use. Hence, it was a necessity to measure the attitudes of faculty members towards the use of IT in the university education, and their willingness and acceptance to learn and use it. Therefore, this study is an attempt to measure the attitudes of the faculty members in the Hashemite University towards the use IT in the university education, and to determine the effect of some variables on this use.

### **Objectives of the Study**

The objectives of the study were to:

- 1- Construct an instrument to measure the attitudes of the faculty members towards IT in the university education.
- 2- Reveal the attitudes of the faculty members towards the use of IT applications in the university education.
- 3- Examine some main variables: Academic rank, sex, instructional experience, experience in IT and the attitudes of the faculty members towards IT.
- 4- To provide recommendations and suggestions that should increase the use of IT applications in the university education, and to encourage other researchers to conduct similar or related research in this field.

### **Study Questions**

This study attempts to provide answers for the following questions:

- 1- What are the attitudes of the faculty members in the Hashemite University towards the use of IT applications in the university education?
- 2- Do the attitudes of faculty members vary significantly ( $\alpha= 0, 05$ ) towards the use of IT applications in the university education according to the academic rank (e.g., Professor, Associate Professor, Assistant Professor, or Lecturer)?
- 3- Do the attitudes of the faculty members vary significantly ( $\alpha= 0, 05$ ) towards the use of IT applications in the university education based on the differences in sex (Male or Female)?
- 4- Do the attitudes of the faculty members differ significantly ( $\alpha= 0, 05$ ) towards the use of IT applications in the university education based on the

difference in instructional experience (Short, moderate, long)?

5- Do the attitudes of the faculty members vary significantly ( $\alpha = 0, 05$ ) towards the use of IT applications in the university education according to experience in IT (Low, moderate, high)?

### **Significance of the Study**

1- The results of this study might provide information and data that shall contribute to develop the use of IT applications and increase its effectiveness in the H U.

2- This study may contribute by offering some suggestions and recommendations, which shall help the Directors in the university, take decisions reinforcing the faculty members' use of IT.

3- It is expected that this study will pave the way to other studies in the field of IT and its various uses, especially that the universities and higher educational institutions are giving weight to IT use in instruction; a fact that had been agreed upon through many conferences and seminars.

4- The questionnaire, which was improved and checked for validity and reliability, adds great importance to this study, which could be used in other future studies.

5- Reinforcing the positive attitudes of the faculty members and dealing with negative attitudes aiming at removal or adjustment.

### **Limitations and Delimitations**

1- The results of the study depend on the data and information accuracy and the extent of honesty at the part of the study sample in answering the questionnaire items.

2- The study was conducted only through the faculty members of the Hashemite University during the first semester of the academic year 2005/2006.

### **Operational Definitions**

The attitudes: They are the feelings, ideas and prejudices at the part of the teaching staff towards the use of IT in the university education.

Information technology: It is the science concerned with processing printed, audio, visual and video to show motion and electronic data, and

its use in computer programs, software, Internet, and their advanced applications in addition to multimedia in the instructional settings, and to promote the scientific, human and social knowledge.

The applications of information technology: It means the use of computers, its programs, software Internet and their applications in addition to the use of database and multimedia in the university education.

The lecturer: A person who instructs in the Hashemite University, and holds a Ph.D. or Master Degree in his field, and his academic rank is lecturer or higher.

## Methodology and Procedures

### Research Method

This study used a survey technique to investigate the attitudes of the subjects towards IT use in instruction and the effects of different variables on their attitudes.

## Sample and Population

The target population consisted of all faculty members (N=559) who are employed by the HU for the first semester 2005/2006, while the sample was (210) members chosen randomly and formed around (37.6%), but the returned questionnaire were only (161) formed (28.8%). Table (1) shows the distribution of the study sample according to the variables of the study.

**Table 1**  
**The Distribution of the Sample According to the Variables**

Variable	Academic Rank				Sex		Instruction experience			Experience in the field of IT		
	professor	associate	assistant	lecturer	female	male	short	moderate	long	low	moderate	high
Number	12	31	63	55	54	107	49	72	40	39	34	88
Percentage	7.5	19.3	39.1	34.1	33.5	66.5	30.4	44.8	24.8	24.2	21.2	54.6
Total	161				161		161			161		

## The Instrument

The data was collected by a questionnaire that the researchers devised for the study after examining a group of previous studies and surveyed the related literature. The instrument was divided into two parts, the first was personal data and the second included (44) items in its final form as a result of implementing the validity and reliability procedures: (19) items were negative and (25) were positive. Those items were placed on a Likert scale: strongly agree, agree, undetermined, disagree, and strongly disagree. The positive items on the scale were given the values 5, 4, 3, 2, 1, while the negative items were vice versa.

As the scale consisted of (44) items and in the light of correcting method which was built on the base of response scale, including 5 categories, the total degree lied within the range of (44-220). And the researchers will consider those who achieved 132 out of 220, the percentage of nearly 60% and above, as having a positive attitude toward IT applications in the university education because the response of (3) means undetermined, and for those who got less than 132, i.e. less than 60% as having a negative attitude.

## The Instrument Validity

The validity of the instrument was achieved in two ways:

1) Apparent validity: To support this type of validity, the instrument was submitted to (10) of the faculty members in HU, Al-Albeit, and Yarmouk Universities of Jordan and whose majors are in the fields of IT and educational psychology, measurement and evaluation, and educational technology to give their opinions about the clearness of the items and the relevance of each item to its topics, the researchers defined as the attitudes of faculty members toward the use of IT in the university education. Therefore, in the light of the judges remarks and comments, some paragraphs were deleted and some were re-worded and other paragraphs were added.

2) Discriminant validity: discriminant validity of the instrument was achieved by applying it on a pilot group of (80) faculty members. The highest and the lowest means of 25% of the responses were collected in order to find out if there were any statistically significant differences ( $\alpha=0$ ,

05). A T-test was conducted to examine the differences between the means. Table 2 shows the results.

**Table 2**  
**Means and Standard Deviations and T-test for**  
**the Responses of the Pilot Sample**

	N	Mean	Std. Deviation	T	df	Sig
High group	20	185.5	11.50	32.715	38	0.000*
Low group	20	83.5	7.87			

\*Statistically significant

Table 2 shows that there were significant differences ( $\alpha=0,05$ ) between the values of the means. This highly assures that the developed instrument was valid for the study.

### **The Instrument Reliability**

After testing the validity of the instrument, its reliability was checked through a survey study through the following steps:

1- Applying the scale on a different survey group other than the study sample, amounted to (40)

members of the teaching staff, who were chosen randomly and their names were written on these questionnaires and numbered on a special list. Two weeks later, the same instrument was applied on the chosen sample, and the correlating factor between the total score of the survey sample in the first and second applications were calculated. The correlation coefficient was (88%), which indicated a high correlation.

2- Calculating the reliability coefficient according to Cronbauth Alfa for internal consistency, as the reliability coefficient was (86%). The reliability coefficient were considered acceptable for the objective of scientific research, and that it enjoyed reliability that allowed using it with a high degree of reliance among the items in scaling the attitudes

of the faculty members towards using IT applications in the university education.

### Statistical Procedures

To answer the questions of the study, the data were computerized using the Statistical Package of Social Sciences (SPSS) in processing data that had been taken from the questionnaires and entered in the computer to be statistically processed. Numbers, percentages, means, standard deviations, analysis of variance (ANOVA), and T-tests were used to examine the attitudes of the subjects and the differences of the independent variables on their attitudes. Post comparisons were used where it necessary.

### Results and Discussion

In this section, we provide the study answers to the questions of the study in details. The results and discussions are outlined as per question.

First question: What are the attitudes of the faculty members in the Hashemite University towards the use of IT applications in the university education? To answer the previous question, the means, standard deviations and the percentages were calculated for the performance of the individuals of the study sample on the total attitudes scale. This is shown in Table (3).

**Table 3**  
**Means and Std. Deviation of the Attitudes Arranged**  
**in a Descending Order**

Desc. Order	Item no.	Items	Mean	Std deviation	%
1-	2	I think the IT and its applications are one of the basics for each university instructor to posses.	4.50	.83	90.1
2-	7	I think that the use of IT and its applications in instruction and scientific research enables me to get different experiences and useful ones in a short time.	4.48	.73	89.6

Cont. Table 3

Desc. Order	Item no.	Items	Mean	Std deviation	%
3-	35	I think the IT plays an vital role in the development of science and technology	4.47	.64	89.4
4-	5	I see that the use of IT applications in instruction helps improve the teaching- learning process.	4.46	.67	89.2
5-	34	I feel it is possible for progressing to stay up-to-date with the scientific developments through IT and its applications in the university instruction.	4.46	.64	89.2
6-	8	I see that it is possible to use IT applications to help me do many useful things in instruction and in the scientific research.	4.42	.71	88.4
7-	3	I prefer using a home internet to improve the use of IT applications and my professional and academic abilities.	4.39	.84	87.8
8-	33	I think that the use of IT in the instruction enables me to be up-to-date in the field of IT.	4.38	.72	87.6
9-	4	I think the use of IT in instruction satisfies my love of inquiry.	4.33	.78	86.6
10-	24	I do not encourage my students to employ IT in learning.	4.30	.79	86.0
11	10	I feel that the IT applications help in developing the university- related learning strategies.	4.30	.76	86.0
12	6	I feel that the use of IT and its applications in the university instruction and the scientific research encourages the students and attracts them to follow up their education.	4.29	.76	85.8
13	32	I think that the use of IT in the university instruction provides valuable knowledge and information.	4.25	.71	85.0
14	37	I feel that IT and its applications are destructive for mankind.	4.22	86.	84.4
15	9	I think the use of IT applications increases my ability to learn English language.	4.21	.96	84.2
16	17	I feel that the use of IT is a waste of time.	4.19	1.00	83.8



Cont. Table 3

Desc. Order	Item no.	Items	Mean	Std deviation	%
17	42	I fear employing IT in university instruction because some, like the internet, corrupt beliefs and values.	4.17	.86	83.4
18	39	I wish to spread IT in university instruction because it means communicating with and benefiting from other nations and their creativities.	4.11	.95	82.2
19	23	I enjoy reading articles about the use of IT in instruction.	4.11	.76	82.2
20	20	The use of IT needs planning and preparation for assimilating such techniques.	4.11	.92	82.2
21	18	I enjoy using IT in the university instruction and in the scientific research.	4.08	.84	81.6
22	38	I am bothered by employing IT and its applications in the scientific research and the university instruction because it disables the human brain and his creative thinking.	4.08	.94	81.6
23	26	I do not like to employ the use of IT in the university instruction because it requires high financial costs.	4.02	.82	80.4
24	29	I prefer that every faculty member would employ the IT applications.	4.02	.85	80.4
25	22	I feel comfort when I use IT in the university instruction.	3.96	.80	79.2
26	21	I use IT to support my performance in the instructional situations.	3.92	.79	78.4
27	12	I feel that the use of IT and its applications will marginalize the role of the faculty member.	3.89	1.01	77.8
28	27	I live up- to- date with what is said or published about the use of IT in the instruction.	3.81	.82	76.2
29	16	I include IT applications in the instructional activities, which I hold with my students.	3.76	.96	75.2
30	30	I feel that employing IT in university instruction and scientific research will create problems more than solve ones.	3.76	.92	75.2

Cont. Table 3

Desc. Order	Item no.	Items	Mean	Std deviation	%
31	11	I do not understand how some instructors can spend long times using the applications of IT in the university instruction and enjoy it.	3.70	1.16	74.0
32	15	I plan to employ IT in the in my university instruction in the future.	3.69	.91	73.8
33	40	I fear employing IT in university instruction because of some of the wrong uses like some internet uses.	3.61	1.12	72.2
34	14	The use of IT in the university instruction does not help apply effective instruction methods in the learning situations.	3.59	1.08	71.8
35	41	I fear employing IT in university instruction because some, like the internet, corrupt beliefs and values.	3.49	1.13	69.8
36	13	I feel that I can control the classroom by using IT applications.	3.47	.96	69.4
37	1	Using IT applications disables the university instruction and employing other techniques.	3.46	1.14	69.2
38	44	I feel that the use of IT causes social alienation among the faculty members.	3.37	1.07	67.4
39	28	I think there are not any instructional programs ready to be use through the techniques of IT.	3.22	.95	46.4
40	31	I think that the IT will be a substitute textbooks and references in the university instruction in the future.	3.14	1.12	62.8
41	36	I see that the problem of language limits the importance of IT to help student>s knowledge and scientific research.	3.01	1.19	60.2
42	43	I feel that the exaggeration in using IT negatively affects some human aspects between the instructor and the student.	2.88	1.11	57.6
43	19	The preparation for use of IT in the university instruction needs longer time than other techniques.	2.73	1.19	54.6

Cont. Table 3

Desc. Order	Item no.	Items	Mean	Std deviation	%
44	25	I feel that IT applications are only employable in some university courses.	2.60	1.07	52.0
Total			3.89	.95	77.8

The results showed positive attitudes of the study subjects, as the number of the items which scored more than 60% was (33), based on table 2 that shows that the means of the attitudes of the subjects on all the measure items –except for items (43), (19) and (25) - were higher than the means of the response scale for item (3). That item presented the neutral (undetermined) opinion and scored 60%. This indicates that these attitudes towards the use of IT applications in the university instruction were positive, as the total means for the tool was (3.89), equaling 77.8%.

In addition, there were 24 items of higher means than (4), and which formed more than 80%. Furthermore, the means ranged from (4.5) for item (2) that showed that the teaching staff members consider IT applications & its use in their university instruction as priorities to that should be made available for each university instructor, knowing that the means was (4.02) for items (26) & (29) which say that “I do not like to employ the use of IT in the university instruction because it requires high financial costs” and “I prefer that every member of the teaching staff would employ the IT applications”. However the responses for item (7) which says that “I think that using IT applications in the university instruction and in the scientific research enables me of acquiring various experiences in a short time” were coherent and scored a means of (4.48), followed by the means of item (35): “I believe that IT applications play a vital role in the scientific & technological development”, with a score of (4.47). The fourth rank was for the means of item (5): “I see that IT use & applications in the university instruction helps improve the

instructional process”, & number (34): “I feel the possibility of catering for the scientific, technological & informational developments by the use of IT applications in the university instruction”, with a means of (4.46). In addition, there were 17 items of a means ranging from (3.96) for item (22): “I feel comfort when I use IT in the university instruction” & (3.01) for item (41):” I see that the problem of language limits the importance of IT to acquire knowledge and scientific research”.

These results are so logical because many studies proved the use of technology in teaching to be helpful in developing the instruction process, and that IT facilitates catering for the technological and scientific developments, e.g. Minhsein (2005) and Sawyer & Brian (2001).

Table 2 also shows that the three lower means were for items (25), (19) and (43) successively, while the lowest was for item (25) with a values= (2.6), that item which says: “ I feel that IT applications are only employable in some university courses” This reflects the point of view of faculty members and their belief that IT applications are required in some and not in all courses, especially those courses that need designing, preparation and use of these applications. This shows that the faculty members are convinced of a partial but not a total use of the IT in the university instruction, and that it may need more time to prepare for use than the other technologies, knowing that item number (19) with a mean of (2.73) says: “The preparation for use of IT in the university instruction needs longer time than other techniques” This might explain the tendency of faculty members to employ easy techniques that do not require much time in preparation and presentation, or that the use of IT applications requires a considerable amount of time on the expense of courses.

Finally, we focus on item (43) which says: “I feel that the exaggeration in using IT negatively affects some human aspects between the instructor and the student “. This item has a mean value of 2.88. This is probably due to the feeling of the faculty members that IT applications may reduce the role of the teacher and the process of communication and interaction with students who become dependent on these applications such as the Internet, a course management system (e.g., Blackboard),

and on-line exam may eliminate the face to face communication between the teacher and student.

Generally, and through the means of the sample subjects' responses to the entire items, we can conclude that the teaching staff members attitudes were positive, a fact attributed to their recognition of the importance of using IT applications in the university instruction. And a deep feeling of their applicability in the university courses, due to the wide option they afford in the fields of internet, multimedia and the various computer programs and software. All of that changes the university instruction from the traditional style to a technological one, and fills the class with a vivid, interactive and active atmosphere, catering for the scientific and technological development.

That can also be attributed to the teaching staff high level of keeping up-to-date with the scientific and technological developments, as well as the technologies of communication and IT applications, especially with the university holding training courses and workshops throughout the year. These courses and workshops aim at improving the teaching staff members in this field, and thus generate positive attitudes and tendencies towards the kind of instruction that liberates them from the traditional roles and the 'theoretical' instruction, to a reality where the student and the instructor interact through technology.

This result agrees with the studies of: Jawarneh & Al-Hersh (2005), Upton (2005), Minhsein (2005), Koohang (2004), Oreiqat (2003), Al-Manna'i (2003), Al-Shayeb (2001), Al-Najar (2001), which exhibited positive attitudes towards IT; but disagreed with study of Weiss and Koohang (2001) which revealed low positive attitudes towards IT and using it in university education.

Second Question: Do the attitudes of faculty members vary significantly ( $\alpha= 0, 05$ ) toward the use of IT applications in the university education according to the academic ranks? (professor, associate prof., assistant prof. or lecturer). To answer the question, we should calculate the means and standard deviations. The results are shown in Table (4).

**Table 4**  
**Means and STD Deviations for the Responses of the Sample**  
**According to the Academic Ranks**

Rank	N	Mean	Std. Deviation
Professor.	12	3.92	0.484
Associate prof.	31	3.82	0.407
Assistant prof.	63	3.92	0.463
Lecturer	55	3.89	0.464
Total	161	3.89	0.452

Table (4) shows that there are apparent differences among the means. To find out whether there were significant differences ( $\alpha = 0, 05$ ) according to the academic rank, ANOVA was conducted .Table (5) shows the results.

**Table 5**  
**The Results of ANOVA According to the Academic Rank**

	Sum of Squares	df	Mean Square	F	Sig
Between Groups	0.205	3	6.83	0.33	0.804
Within Groups	32.51	157	0.207		
Total	32.72	160			

Table 5 shows that there are no statistically significant differences at ( $\alpha = 0.05$ ) attributed to the academic ranks on the attitudes measure, where the calculated F-value amounted to (0.33) with a statistical significance of (0.804), which indicates positive attitudes on the part of the faculty members toward IT applications regardless of their academic ranks. This result can be attributed to the awareness of the faculty members, regardless of their academic rank, of the importance of IT applications in the teaching process. In other words, it says that faculty members want to employ new techniques in university education, namely, IT applications.

For this reason, HU stresses and encourages the use of IT applications in teaching courses. In addition, the similar conditions and environment created at the HU and the facilities and potentials provided for all faculty members in IT field generated positive attitudes and tendencies to employ IT applications in university education.

This result can be attributed to the faculty members' recognition, regardless of their academic ranks, of the importance of IT and its uses in the classroom situations. In addition, the high level of awareness of the scientific and technological development, communication technologies and IT applications, especially with the continuous courses and workshops the university holds to improve their levels in this field. These facts can generate competence on the part of the faculty members, in addition to positive attitudes towards using IT applications in the university instruction, and a tendency towards the kind of instruction that liberates them from the traditional roles and the 'theoretical' instruction, to a reality where the student and the instructor interact through technology.

The result agrees with the studies of Al-Manna'i (2003) and Al-Shayeb (2001), which showed no statistically significant differences among the subjects' attitudes toward IT due to the academic rank, but disagrees with the study of Al-Najjar (2001), which showed the contrary.

Third Question: Do the attitudes of the faculty members vary significantly ( $\alpha = 0, 05$ ) towards the use of IT applications in the university education based on the differences in sex? (male, female). To answer the question, we should calculate the means and standard deviations. The results are shown in Table (6).

**Table 6**  
**Means and Standard Deviations and T-test for the Responses of the Sample According to the Variance of the Sex**

	N	Mean	Std. Deviation	T	df	Sig
Male	107	3.81	0.44	3.32-	159	0.001*
Female	54	4.05	0.43			

\*Statistically significant

Table (6) shows that there is a statistically significant difference at ( $\alpha = 0.05$ ) attributed to the variable of sex, in favor of females. This implies that the attitudes of the female faculty members were more positive than those of the male members. The result might be attributed to the fact that female instructors may exhibit more awareness than males in the importance of IT application in teaching. In addition, they may believe that new techniques can reflect more their talents and creativity in teaching. They also tend to believe that the use of IT applications could instill more confidence in them, in a society that perceives females inferior to males in work, unlike males who feel they are superior and believe that they do not need to employ new technologies to prove their ability in and efficiency in teaching. This result agrees with the studies of Minhsein (2005), Salameh (2005), Koochang (2004), & Oreiqat (2003), which revealed significant differences among the subjects' attitudes towards IT due to gender, on the other hand, it disagreed with the studies of Al-Khadash and Abuloum (2005), AL.Mousawi & Abedel-Rahem (2004), Al-Manna'i (2003), Al-Omari (2002), & Al-Najar (2001) which shows the contrary.

Fourth Question: Do the attitudes of the faculty members differ significantly ( $\alpha = 0, 05$ ) towards the use of IT applications in the university education based on the difference in instructional experience? (short, moderate, long). To answer the question, we should calculate the means and standard deviations. The results are shown in table (7).

**Table 7**  
**Means and Standard Deviations for the Responses of the Sample**  
**According to the Variance in Instructional Experience**

Experience	N	Mean	Std Deviation
Short	49	3.96	0.49
Moderate	72	3.88	0.38
Long	40	3.82	0.50
Total	161	3.89	0.45



Table (7) shows that there are significant differences among the means of the instructional experience variable mean. To find out whether there were significant differences ( $\alpha = 0,05$ ) according to instructional experience the ANOVA was conducted. Table (8) shows the results.

**Table 8**  
**The Results of ANOVA According to the Instructional Experience**

	Sum of Squares	df	Mean Square	F	Sig
Between Groups	0.412	2	0.206	1.006	0.368
Within Groups	32.31	158	0.205		
Total	32.72	160			

Table (8) shows that there are no statistically significant differences at ( $\alpha = 0.05$ ) attributed to instructional experience among the means of the study sample, as the F-value was (1.006) with a statistical significance of (0.368). This shows that the faculty members' attitudes towards the use of IT applications in the university instruction are positive, regardless of their instructional experience, be it long, medium or short. The reason for this is that faculty members, regardless of their instructional experience, realize the importance of IT applications, particularly in the development of their teaching strategy and their desire to acquire a variety of useful experiences in this field. They also feel that IT applications will develop their expertise and knowledge. However, they feel that using these applications needs more time than other techniques and will affect the interaction between the teacher and the student, yet they might be used in some but not in all courses. The finding can be explained by the fact that faculty members, regardless of their instructional experience, realize the importance of the IT application, and the need to use it the teaching-learning process, this result conforms with items (2), (5) and (3), which say consecutively, "I think the IT and its applications are one of the basics for each university instructor to possess". "I see that the use of IT applications in instruction

helps improve the teaching- learning process”. “I prefer using a home internet to improve the use of IT applications and my professional and academic abilities”. The means of these items are: (4.50), (4.46), and (4.39), respectively. These means indicate that faculty members regardless of their academic rank stressed the necessity of using IT applications and they have a strong desire to develop themselves in this field, since the university started to offer on-line courses, on-line exam, and encourages faculty members to do that.

Fifth Question: Do the attitudes of the faculty members vary significantly ( $\alpha= 0, 05$ ) towards the use of IT applications in the university education and are attributed to experience in IT? (low, moderate, high). To answer the question, we should calculate the means and standard deviations. The results are shown in table (9)

**Table 9**  
**Means and Standard Deviations for the Responses of the Sample**  
**According to the Experience in IT**

Éxperience	N	Mean	Std. Deviation
Low	39	3.79	0.56
Moderate	34	3.88	0.36
High	88	3.94	0.42
Total	161	3.89	0.45

Table (9) shows that there are differences among the means of the IT experience variable. To find out whether there were significant differences ( $\alpha= 0, 05$ ) according to experience in IT, ANOVA was conducted. Table (10) shows the results.

**Table 10**  
**The Results of ANOVA According to the Experience in IT**

	Sum of Squares	df	Mean Square	F	Sig
Between Groups	0.632	2	0.316	1.55	0.214
Within Groups	32.09	158	0.203		
Total	32.77	160			

Table 10 shows that there are no statistically significant differences at ( $\alpha = 0.05$ ) attributed to experience in the field of IT, as the F-value was (1.55) with a statistical significance of (0.214). This result might be justified by the fact that most of the faculty members have just started learning and designing their courses and on-line exams using IT applications, e.g., Blackboard. In addition, the Hashemite University encourages faculty members, regardless of their IT expertise, to enhance their instructional skills by equipping their courses with modern technological aspects, thus forming a positive attitudes and tendencies towards using IT application in university instruction. This conforms with items 3, 4, 10, "I prefer using a home internet to improve the use of IT applications and my professional and academic abilities". "I think the use of IT in instruction satisfies my love of inquiry". "I feel that the IT applications help in developing the university-related learning strategies". The means are (4.39), (4.33), and (4.30), respectively.

However, this result does not agree with the study of Al-Khadash and Abuloum (2005), Koohang (2004), Oreiqat (2003), & Al-Shayeb (2001), which revealed significant differences among attitudes towards IT due to experience of IT. This disagreement, however, shows that conducting training courses on IT applications is sufficient to suppress the gap between experienced users and novice users when it comes to IT-based instruction.

### Study Recommendations

This paper conducted a study on the faculty members' attitude toward

using IT tools in university education. Based on the results of this study, the following recommendations were concluded:

- 1- Encouraging the faculty members to use IT applications in the university instruction through offering enhancements and rewards.
- 2- Expanding the use of IT applications in all the instructional syllabuses, and not being limited to some parts.
- 3- Conducting further studies in the field of IT dealing with other variables such as the major, attendance for a course in IT, etc.
- 4- Conducting further studies to explore and specify more benefits of using IT applications in the university instruction.

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