

A Study of the Application of Internet Use in Academic and Research Activities of Faculty on the Basis of Concern Based Adoption Model (CBAM)

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ABSTRACT

Concerns-Based Adoption Model (CBAM) is useful in explaining the level of teachers' commitment in adopting technology innovations. The main purpose of this study is Levels of Internet use by faculty members Isfahan University of Medical Sciences. Another goal of this research is comparative study of the use of internet by faculty member teachers based on demographic factors gender, service, academic rank, university of disease. Earlier research of Internet use in scientific research activities approved by the faculty of Korea, and suggests the use of this technology. Hence the importance of my research study is the first time in Isfahan university of Medical Sciences in Iran and has been authorities to assess their proficiency in faculty and program deficiencies and defects in the future to compensate. The results show: With reference to the model based on the interest, The majority of university professors at levels 2 to 5 ready to use the ordinary use of the internet are female teachers than male teachers and trainers in order professor in the faculty rank of associate professor and assistant professor of the lower level of Internet use are university professors of the university the lower are level of internet use. Since the majority of faculty members of Isfahan university of Medical Sciences level 2 to 5 so the field and improve their ability postings per technology in the curriculum provide according to the results school funding increase for the optimum utilization of internet facilities meetings and conferences to learn more about faculty members how to use the internet, especially women in scientific and research activities. Training courses for faculty members with academic rank, up to more familiar. It is recommended.

KEYWORD: Concern Based Adoption Model, Innovation, Higher Education.

1. INTRODUCTION

Internet is one of the most important tools more than one billion people around the world as it the main tool they use to access information (Anderson, 2007). The new technologies are being pioneered in universities and also because of the many advantages of using these technologies in education and research growth 3.91 percent of production in countries that have great attention to the internet and networking technologies have with the advent of the internet (Meis and et al, 2003). Daily production of tertiary education is higher and this also affects the quality of research has been (Cuenca and Tanaka, 2005). According to the findings of (Franklin, 2004) internet in higher education as a creative learning environment increased morale is up to date information on research and discovered that. Professor is one who uses the internet network and new technologies and updated for easier communication with their counterparts in other universities will use. He is able to be partners in national and international research.

It is likely that the quality of their work can promote through participatory research. Shared results of research projects and international faculty members can be published on the internet. It brought new knowledge of new technologies in the field of research has been (Cuenca and Tanaka, 2005). Today, universities have a key role for faculty members to apply new technologies in scientific processes have defined (Kelly, 2006). Powerful and effective applications of computer technology tools for the promotion of scientific research and provide research with increasing emphasis on application of new technologies in education institutions of higher education faculty members with a fitness challenge. With their knowledge and skills in applying their research activities effectively use this technology on the internet, they are faced (Sahin and Thompson, 2006).

Although at present, how to use new technologies in higher education is important selective application of technology is important because the increase in scientific output (Peluchette and Rust, 2005; Xu and Meyer, 2007).

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And also due to the excessive growth of new technologies account rethinking of the structure of higher education in teaching and research press their faces (Del Favero and Hinson, 2007; Lamboy and Bucker , 2005). Consequently, the process of knowledge production with a serious challenge to integrate with new innovations and plagued (Brill and Galloway, 2007; Sahin, 2008).

Research showed that many more faculty members with experience older technologies such as word and older technologies (such as projectors over had) have while most have less experience in applying new technologies are (Maltese media, distance learning, etc.) (Wozney and et al, 2006; Peluchette and Rust, 2005; Georgina and Olson, 2008; Brill and Galloway, 2007).

One of the ways in which faculty members informed of new technologies in education and scientific products increase their technological skills (Sahin and Thompson, 2006; Wozney and et. al, 2006). In fact, "if you want to institutions of higher education in the era of technological development; remain application of new technologies for the faculty members in the fields of education and scientific activities, to prepare. Although the application of the real nature of the internet by faculty members can be clearly seen in studies conducted in recent years witnessed a massive growth are of the internet technology in higher education (Ajjan and Hartshorne, 2008). This possibility has been provided to teachers via the internet without a physical presence in order participates in scientific output and research work together to accomplish projects (Maloney, 2007). Research by the (Georgina and Olson, 2008) as the integration of technology in higher education was. In this study the effects of the Internet in the educational process and scientific faculty at the University of Dakota, United States.

The results showed a positive correlation between education and the integration of internet technology in teaching and research could have. Given the above model of technology adoption in higher education are addressed. Acceptance of innovation in higher education in Iran is still in the incubation period to take. Integrating technology in teaching and learning is still common although almost all public universities have invested in information technology communication, in recent years there has been a thriving part of our teaching and learning, today we see that Yi universities in response to the effective and efficient communication and information about teaching and learning are integrated.

2. Concern based adoption model (cbam)

Hall and Hord's (1987) Concerns-Based Adoption Model (CBAM) is useful in explaining the level of teachers' commitment in adopting technology innovations. This model is based on an early one by Hall, Wallace and Dossett (1973), which describes seven stages of concern that teachers experience as they adopt a new practice. These levels are explained as:

Table 2: Levels of Use (LoU)

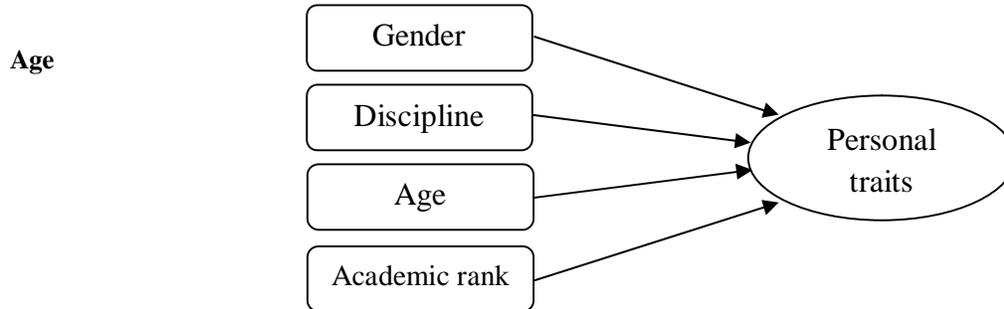
Levels	Description
Non-use	State in which the person has no knowledge of innovation and action in order to apply doesn't knowledge and innovation.
Orientation	In which case, the information about the innovation and determination to bring their values, goals will determine the application of innovation.
Preparation	In which case, the primary advantage of the innovation is ready.
Mechanical Use	In which case, a more focused effort and the occasional use of short-term innovation. During this phase, the user performs actions to progressively higher on the tasks necessary for innovation to be dominant. Most of the higher level of innovation in the irregular surface and has no integrity.
Routine	At this point, the application of innovation and consolidation will be dominated. This, then, using a continuous flow of innovation in small changes occur In this case, however little attention to the preparation and use of innovation or use it to get better results there.
Refinement	Case in which the person applying innovative methods to increase its direct influence on the audience that These changes are based on results from short-and long-term effects of different methods of application innovation in audience needs to accept.
Integration	In order to respond effectively to the needs of the individual case in which the audience, Implementing innovation activities with other colleagues working in the field and coordination And innovation is the integration of activities within a coherent and integrated.
Renewal	Quality assessment of individual cases in which the use of innovative, alternative solutions to increase its impact on the audience identifies And with new developments in the field of practice, new goals for the class, school and education system will draw.

The first four levels are "non-adopter" stages, while the last three are "adopter" stages. The CBAM model is relevant for this study because it explores the concerns of faculty with the technology innovation. It also complements quite well Rogers' five stage models for diffusion of innovations, which has been tested with several projects and situations, including technology integration in education. The CBAM also addresses the two main shortcomings of Rogers' (1995). DoI theory: pro-innovator's biases, and global social system characterization rather than individual concerns. If the concerns at the non-adopter stages of awareness, informational, personal, and management get

appropriately addressed, users begin to express higher concerns at the three adopter stages of consequence, collaboration, and refocusing. If faculty members do not have their concerns first reduced at the non-adopter stages, they will not move on to the adopter stages (Vaughan, 2002). Other research findings support the stages of concern as a framework for assessing adoption of innovations and professional development (Adams and Martray, 1981; Damarte and Manhood, 1981; Hall and et al., 1973; Marso and Pigge, 1994; as cited in Vaughan, 2002).

The survey of stages of technology adoption, based on the CBAM, is a single item self-assessment survey on faculty levels of technology adoption for teaching and learning. Research (Christensen, 1997; Christensen and Knezek, 1999) shows that it is a quick useful way to determine the average stage of faculty members' technology adoption, which has implications for the design of their technology professional development programs. It may also serve as a basis for an ongoing assessment of the institutions' technology integration programs. Finally, it gives faculty an opportunity to assess their progress in the use of technology for teaching and learning.

Figure 1: Factors influencing the use of technology for scientific purposes



The Innovation Decision Process

The Innovation Decision Process (IDP) states that diffusion is a process that occurs over time and can be seen as having five distinct stages (Rogers, 1995). The stages in the process are knowledge, persuasion, decision, implementation, and confirmation. The IDP is thus a framework for analyzing the adoption and diffusion of an innovation (Rogers, 1995). The innovation-decision process is essentially an information-seeking and information processing activity in which the individual is motivated to reduce uncertainty about the relative advantages and disadvantages of an innovation (Rogers, 1995).

Table 1: Concern Based Adoption Model (CBAM) Yidana (2007)

stage	Descriptions
<i>Awareness</i>	Teachers have little concern or involvement with the innovation.
<i>Informational.</i>	Teachers have a general interest in the innovation and would like to know more about it.
<i>Personal</i>	Teachers want to learn about the personal ramifications of the innovation. They question how the innovation will affect them.
<i>Management.</i>	Teachers learn the processes and tasks of the innovation. They focus on information and resources.
<i>Consequence</i>	Teachers focus on the innovation's impact on students.
<i>Collaboration.</i>	Teachers cooperate with other teachers in implementing the innovation.
<i>Refocusing</i>	Teachers consider the benefits of the innovation and think of additional alternatives that might work even better.

3. Background research

Several studies have been based on model-based admission favorites and other models based on the in developed countries there has been (Rakes, 2007; Hope, 1995; Christensen and Knezek, 2001). Most of the research topic Review process for interested teachers to use computers in classrooms has been and a smaller number of studies to evaluate the technology using and obstacles facing teachers in paid. This is most obvious point is that the statistical studies of teachers in primary and secondary courses have. And little attention to the status of university professors in this field has been research results (Yidana, 2007) based on accepted model based on that interest1-Faculty perceptions about the impact of application and use of technology in the curriculum and students learn. 2-Faculty perceptions about barriers and challenges to adoption and application of technology in teaching and learning and curriculum innovation, 3- Motivation of acceptance of educational technology by faculty representation is on the application of technology in teaching and learning effect.

According to studies of technology adoption model in this section factors affecting internet use in scientific research activities that are. Various components of the relationship between demographic and internet use by faculty

members has shown (Xu and Meyer, 2007; Ahadiat, 2008). These include: work experience (Lambooy and Bucker, 2005) computer Skills (Sahin and Thompson, 2006), Discipline (Ahadiat, 2008) and Language English Skill (Almarae, 2003; Al-Kahtani, 2006) the description on each is presented.

Gender: Gender and the internet is one of the most important and most controversial issues that the human-machine interaction deals with gender digital divide. The study (Liyan and et al, 2008) used the Internet in 152 (80 females and 72 males) student, Teacher Training University of Malaysia were Potra the results suggest that the use of women and men in internet usage patterns and there was no significant difference gender. Another group of researchers (Venkatesh and Morris, 2000) in research and for guidance as to the question why men do not difference. Gender, social influence and their role in technology acceptance. They are expressing more interest in women compared with men using the internet if easy access to the facilities provided for them on the internet (Al Saif, 2006). Research and poor survival and Sharif (2003) showed that the faculty members are more men than women use the internet (Shifer, 2002). In research as a full-time faculty member to evaluate the use of distance education and application of internet technologies in the scientific activities of this group of teachers concluded that significant differences in gender and faculty members to use the internet and e-learning.

Discipline: Researchers in their research have pointed to the importance of the discipline; the internet is an essential element in the application of new technologies. (Gauo, 2000) Faculty members can express in applying technology that the field of technology is an important factor. Because some of its fields are based on internet technologies and completely integrated with the development of these technologies become his research has showed that school faculty members in engineering and computer sciences at the frequency of use of Internet technologies.

Age: Internet use has a significant negative correlation with age. This means that the old faculty members to work in the field of higher education need, Because this group should be able to successfully use these technologies in their educational and scientific activities (Lambooy and Bucker, 2005; Xu and Meyer, 2007). For example (Lambooy and Bucker, 2005) reported that young faculty members of the faculty members in computer skills than the old year are minimal (Mayfield and Thomas, 2005). Faculty members reported that many young faculty members of electronic journals compared with older age, use.

Academic rank: (Xu and Meyer, 2007) Report stated that the application of the Internet to carry out scientific and research activities is a positive correlation. (Ahadiat, 2008) found that faculty members with academic rank, high rates of these technologies more than faculty members with academic rank, the use. He points out that more research expectations of faculty members with academic ranks rises they make greater use of technology in the research. Khase and Hatami (2007) found that the difference was significant between the academic ranks. In the study, information seeking behavior of humanities faculty members in the database found that of which is in associate professors and assistant professors and instructors than the average for the consideration. The importance of the Internet as an educational innovation Internet use in scientific and research activity as a technological issue, this study seeks to understand the impact of demographic factors on the level of internet use by faculty members in scientific and research activities at Isfahan University of Medical Sciences, Isfahan, and has risen. According to the following questions form the basis of?

Table 3: Demographic characteristics of participants in the study described the frequency of sex, frequency of experience

Gender	Frequency	percent	Experience	Frequency	percent
Female	74	24.7	0-100-10	58	19.3
Male	226	75.3	11-2011-20	123	41
Academic rank	Frequency	percent	21-3021-30	106	35.3
Professor	22	7.3	31years	13	4.3
Associate Professor	103	34.3	University	Frequency	percent
Senior Lecturer	148	49.3	Isfahan University	126	42
Lecturer	27	9	Isfahan University of Medical Sciences	174	58
Total	300	100	Total	300	100

4. Research questions

- 1 - The faculty of Isfahan University of Medical Sciences and at what level the application of scientific and research activities is on the internet?
- 2 - Whether based on demographic factors (gender, academic rank, years of service and type of) a difference in the average level of Internet use by teachers to be observed?

5. METHODS AND RESEARCH TOOLS

The aim of this study and in ways that take description of research - the survey is based on theoretical study and field study is also. The study of 1190 people and faculty members of Isfahan University of Medical Sciences is based on stratified sampling 300 professors of both universities were selected as sample and research instruments were distributed among them. This tool is a questionnaire composed of two parts. The face and content validity by 10 experts in educational sciences at the University of Engineering and information technology has been approved.

Demographic: In these section variables is including gender, academic rank and years of service, university.

Standard questionnaire: Applying the technology acceptance model to measure the levels of interest based on it is a scale that by Griffin and Christensen (1999) measured and standardization is and Behaviors when using technology and innovative teachers in the classroom assessment. This form contains a question and 8-scale questionnaire, which is classified Applying the technology acceptance model based on eight-fold the levels of interest Include (1) Non-use, (2) familiarity, (3) preparation, (4) irregular use, (5) regular use, (6) improvement, (7) integration, (8) reconstruction Along a continuum that determines. In the present study, Cranach's alpha reliability coefficient for this questionnaire to the 0.91 was. Meanwhile, the content validity of the questionnaire was confirmed by 10 experts.

Question 1: master of Isfahan University of Medical Sciences, Isfahan, and in what level of Internet usage in the application of scientific and research activities are? This measure of teachers' familiarity with the internet and its application in scientific and research activities.

Table4: Average scores compared to the level of Internet use by teachers with a score of four hypothetical

	Average	Standard Dev	Standard error	t
Using the Internet	3.82	1.92	1.57	-1.14

Test "T" and compared the mean professors (in the questionnaire) was used with an average of four hypothetical Table 4. As seen in Table 4 t critical value at the level of error is % 5 smaller thus $\mu \leq 4$ Hypothesis accepted. Thus hypothesis $\mu \leq 4$ accepted and professor's familiar with the Internet is less than mean.

The results of the agreement between the variables gender and level of Internet use Shows that the majority of teachers (65.9%) at levels are 2 to 5 (i.e. no use to normal use) Internet applications.

Table 5: Table to determine the level of agreement among all teachers use the internet

		Non-use	Orientation	Preparation	Mechanica l Use	Routine	Refinement	Integration	Renewal
All professor	Total	15	21	23	22	21	16	8	6
	Percent	11.4%	15.9%	17.4%	17.4%	15.9%	12.1%	6.1%	%4.5

Question 2: According to demographic factors (gender, academic rank, years of service, and type of university, computer skills and proficiency in English language) seen different from the average level of Internet use by teachers.

Table 6: Comparison of mean levels of Internet use by teachers, male and female

		Male		Female		t	p
levels of Internet use by professor		Mean	Standard Dev	Mean	Standard Dev		
		1.85	3.18	2.04	3.36	-2.28	0.02

To answer this question, the researcher stated on each of the factors can be categorized in different groups of teachers in and to compare test scores between the groups.

Gender: This t-test results (Table 7) showed between groups of men and women use the Internet, there are differences And women use the Internet are on average lower. This result is also consistent with the results of the agreement.

Table 7: Results of the agreement to determine the levels of Internet use by teachers, male and female

Level of application		Non-use	Orientation	Preparation	Mechanical Use	Routine	Refinement	Integration	Renewal
Female	Some	9	9	5	6	5	4	1	2
	Percent	22%	22%	12.22%	14.6%	12.2%	9.8%	2.4%	4.9%
Male	Some	6	12	18	16	16	12	7	4
	Percent	6.6%	13%	19.8%	17.6%	17.6%	13.2%	7.7%	4.4%

Furthermore, according to the results of an agreement between the variables gender and level of Internet use (Table 8) shows that About half of women faculty (totaling 44%) in the universities at levels 1 and 2 (i.e. the use of or basic knowledge) And about a quarter of them (27%) at levels 3 and 4 (preparation and mechanical) are using the Internet.

Table 8: Comparison of mean levels of Internet use by teachers in terms of academic rank

	Mean	Standard Dev	F	P
Professor	3.57	1.80	2.22	0.07
Associate Professor	4.32			
Senior Lecturer (Assistant Professor)	4.73	1.97		
Lecturer	3.96	1.66		
		2.07		

While in contrast, are often masters men (overall 55.3%) at (3) preparation, (4) use of mechanical and (5) are normally used.

Academic rank: In applying this test variance ANOVA indicated generally observed in the $F 0.05 \geq P$ not significant.

However, in paired comparisons between groups indicate that the average level of internet use by faculty and associate professor at times significantly. The instructor and professor in the faculty in order to have significantly less than it is. In other cases, did not significant differences between groups.

Table 9: Comparison of mean levels of Internet use by teachers in terms of type

	Mean	Standard deviation	F	P
Isfahan University	3.28	1.83	2.442	0.91
Isfahan University of Medical Sciences	4.10	1.95		

Table 10: Mean difference in the level of Internet use by teachers depending on the type

	Mean difference	Level of significant
Isfahan University	-0.90	0.045
Isfahan University of Medical Sciences		

Type of university: In this section, the ANOVA "ANOVA" was used to compare the mean responses of groups. The results (Table 9), F number observed in $0.5 \geq P$ not significant. However, due to a small error rate is observed in the equity. Average of paired comparisons between groups were also used as a complementary test showed that the rate of Internet use by faculty members of Isfahan University of Technology and medicine have significantly and the University is less than two. In other cases, significant differences did not between groups.

6. Conclusion

The application of the Internet to promote educational innovation in higher education institutions in Iran evaluation of acceptance and application of research enacted in the literature faculty of Isfahan University of Medical Sciences, Isfahan, scientific and research activities arising. The results of this study indicate that the majority of professors of medicine and science at levels 2 to 5(no use to normal use) of internet use are.

According to researchers, these results into account, and Iran and conditions criteria. Rise above the situation in Iran because of the way educational institutions can be explained. On one hand, due to a comprehensive policy for the Internet application of scientific and research institutions are, Training courses for teachers in this field cannot be held. This is not because they enjoy the confidence and skills needed to on the other hand, the traditional bureaucratic management institutions in Iran and resource constraints and in restructure.

The denial of enabling teachers to work with heads of institutions for dialogue and reflection in educational activities and increasing applying is technology.

The findings of the study showed that that a) female professors than male professors Web) master coach and teacher rank, University Professor and professor of the university faculty rank, the lower. Although the reasons for the discrepancies listed need to do further research such as longitudinal studies and al are compared the likely cause of these results may be related to the following are presentation of the results section), with consideration of the factors listed. And Iran believe the because low levels of Internet use among female teachers, More than anything to hide women's continued access to home computers, and low self-esteem and the ability to use computers at work in

the more related. The findings of this study whit (Xu, and Meyer, 2007; Ahadiat, 2008; Almarae, 2003; Al-Kahtani, 2006) is consistent.

The suspect, according to research conducted by Khase and Hatami (2007) and consider the situation in Iran as a developing country will be strengthened. Because the researchers, patriarchal culture in Iran that restrict women's access to computers at home, families are the findings of this study (Xu and Meyer, 2007; Ahadiat, 2008) is consistent.

Results showed that the components of scientific, Based on all questions except the fifth, the observed differences between respondents with different academic ranks, is significant. The findings of current research findings (Mayfield and Thomas, 2005; Ahadiat, 2008) is consistent.

Based on these results we can infer that Associate Professor and two more have been dealing with Internet. This is the result of scientific skills and the duties and expectations of the new they are defined in the internet age. Hence the interest in doing scientific research on the internet scientific and academic community because of the need to update the information in this group of faculty members is the driving factor for most. While the masters of the age, interest and less patience and lack of familiarity with the technologies necessary to courses and instructors with only a theory, skills needed in working with the internet did not earn enough and Associate Professor. The findings of this study's findings (Xu and Meyer, 2007; Ahadiat, 2008; Almarae, 2003; Al-Kahtani, 2006) is consistent.

The component type of criteria into account the results of research findings, Researchers believe the explanation of the results of this section, University professors, Medical technology and software tools for handling deals with specific training in their fields, The deep commitment of the university authorities to support their teachers in the educational innovations in postings per is activity. So the professor of university professors of the higher level of internet is implementation in scientific and research activities.

7. Practical suggestions

1. An increase of funding for the optimum utilization of internet and communication facilities, quantity and quality of development and computer training classes, computer hardware, software, networking, internet for faculty members culture of teaching and administrative staff in schools to identify internet
2. Holding conferences and seminars in scientific activities and research shows that the impact of the internet
3. Training courses to increase capacity utilization of the internet and internet services among female faculty members to be held
4. Case examples of successful educational institutions in the field of internet use in scientific and research activities.

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