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Factors Affecting the Application of ICTs by Faculty Members at Islamic Azad University

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ABSTRACT

The main goal of this research is to assess socio- psychotic factors affecting the application ICTsby faculty members in Islamic Azad University. Simple random sampling method was used. Given that the present survey has a descriptive-field plan and questionnaire is measurement tool that reliability and validity of this tool was confirmed. The results of study show that nine variables affect the application of ICT. These variables explain 84 percent of the dependent variable's variance. Computer competency, computer self-efficacy, management support and perceived ease of computer use were recognized as strong predictors of ICTs application.

Keywords: Factors Affecting; ICTs; Faculty Member, Islamic Azad University.

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INTRODUCTION

ICTs have an important role in educational sector and colleges and higher education institutions should adapt themselves with emergence of these new technologies (Tan, 2007). Meanwhile, universities are playing an important role in development process (Akhundi, 2011). In fact, higher education of each country is the main route to development because literacy is one of the important social indexes for a stable development. In other words, literacy not only enhances general education rather its increasing level affects the manner and amount of political, economic, cultural and educational participation of its people. Naisbitt (1984) also believes that an up-to-date knowledge is significant for many jobs and professions.

Currently, universities worldwide are trying to find out how to adapt with such changes so that they overcome the challenges arising from implementation of ICT (Karimi-Alavije *et al*., 2002).

Since acceptance and use of the ICT by individuals is vital for the success of a system studying the nature and factors affecting application of ICTs has gained a significant attention (Chau, 2001). Consequently, perceiving a factor that reinforces the efficiency of information systems' application is still a significant issue for researchers and the people attached to this educational domain (Mun& Huang, 2003).Integrating ICTs in university classes require important transition that must be confirmed and accepted by the most significant factors and agents, namely students and faculty members (Jaffee, 1998).

Effective factors in exploiting ICT at universities especially by faculty members as trainers of the specialized force as well as how these technologies have been used in education have not been touched upon. Faculty members are the principal elements of private and public universities. Personal, social and psychical factors are effective in using ICT but no comprehensive research has yet been done in this regard. The current research is an attempt to bridge the gap in the existing literature by investigating which elements and factors are effective in facilitating the use of ICT by faculty members of the IAU at zone 8 branches of Tehran metropolitan area.

In the global area, the last several years have seen a significant growth in ICT opportunities. A diverse number of academic communities have been part of this process. There are numerous experiences where the growth in ICT appears to be having an important impact on socio-psycho realities. The social, psychological, legal, financial, educational and human resources provide grounds for favourable application of ICTs (Mahmoodi *et al*., 2011).The emphasis in Iran has been to promote the use of ICTs in higher educational system by adapting themselves with these changes (Yaghoobi, 2002).

On the other hand, Faculty members as key persons in improving and increasing quality of education are heavily dependent on e-resources for their required information and to keep themselves up-to-date in their subject area. Faculty members access more and more resources in their respective departments or personal desktop/laptop, it seems to be more hypothetical (Thanuskodi, 2011).

This section presents the theories and models developed in different disciplines and used in predicting, explaining, and understanding individuals' acceptance and adoption of new products or technologies.

These theories and models have evolved over the years and came as a result of persistent efforts of models' validation and extension that took place during the period each was presented.

This segment contains three parts. Issues related to psycho-social theories of innovation acceptance (Social Cognitive Theory of Bandura, Theory of Reasoned Action, Theory of Planned Behaviour, and Decomposed Theory of Planned Behaviour) and acceptance models (Technology Acceptance Model, Technology Acceptance Model 2, Unified Theory of Acceptance and Use of Technology and Diffusion of Innovation) are studied in the first part of this study (Rizza, 2000).

Effective psycho-social factors on ICT usage (managers` support, computer anxiety, computer self-efficacy, cultural perception, perceived ease of use, perceived usefulness, intention to use and attitude toward the use of ICT) and personal-professional factors (age, gender, academic group, English language qualifications, work experience in university, computer competencies, experience of working with ICT by faculty members) that are represented in the conceptual model of research along with results of researches will be discussed in the second part.

Finally, the conceptual model of this research is represented in the third part.

Davis proposed this model in 1985 in order to model the subject of technology acceptance by users. Indeed this model determines that how users accept a technology and apply it. The theoretical origin of TAM model is reasoned

action theory of Fishbein and Ajzen (1975) that is considered as a framework to predict and explain the manner of human beings' behaviour and is focused on determinant factors of deliberate behaviours (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). Theory of reasoned action specifies existing causal relations in the flow of movement from beliefs, attitudes and tendencies towards behaviour. Davis (1985) proposed the technology acceptance model (TAM) by means of theory of reasoned action to focus on the scope of technology acceptance by the individual. Indeed this model describes effective individual factors on technology acceptance by users. He proposed a model to predict and accept technology by substitution of determinants or ideological variables of theory of reasoned action with two key beliefs of mental perception from usefulness and mental perception from ease of use.

MATERIALS AND METHODS

The study was conducted in three phases; the first phase dealt with the design of the research instrument, the second phase involved the pilot study to assess the reliability and validity of the instrument and the final phase was explanation of the analysis method to obtain accurate result from study. This study was specifically designed to guide and obtain empirical evidence for the conceptual framework. The statistical population of this study was all full-time faculty members who were working in Islamic Azad University in Tehran province during 2009-2010 academic years. The total population was 3898 faculty members and 316 were selected by simple random sampling. Out of 316 questionnaires that was send to respondents, 291 returned the questionnaire.

RESULTS AND DISCUSSION

Table 1 show the results of descriptive information and results indicated that majority were between 36 to 40 years old. It is reported that majority were female and most of them had a doctorate degree.

Table 1: Personal characteristics of respondent

Variables	Scale	the highest Measure
Age	36 to 40 years	53.6%
Gender	Female	51.8%
Field of Study	Basic Sciences	22.3%
Education Level	PhD	55.7%
Professional Rank	Associate professor	29.9%
English Language Proficiency	Moderate	57.0%
Working Experience with ICTs	4 to 6 years	26.8%

Table 2: Priority of psycho-socio factor on ICT usage

Dependent variable	Mean	SD	CV (%)	Rank
Computer Self-efficacy	65.05	15.899	24.4	5
Computer Anxiety	51.28	20.234	39.4	9
Computer competences	100.69	28.965	0.9	1
Management support	57.04	15.049	27.1	6
Attitude about ICTs	92.27	20.131	21.8	3
Perceived usefulness	76.64	22.704	29.6	7
Behavioural Intention to use	34.44	11.063	32.1	8
Perceived ease of use	34.82	8.164	23.4	4
Cultural perception	80.90	15.938	19.7	2

In order to respond to the second question related to factors on application of ICTs, they have been asked to questions regarding computer self-efficacy, computer anxiety, computer attitude, intention to use, perceived ease of use, perceived usefulness, cultural perception, attitude about ICTs and management support. The results of their priority could be observed in the following table.

Correlation test is used to respond to relationships between psycho-social factors of the respondents with the ICTs application by members given the fact that it is intended to determine relations among all psycho-social variables with each other and actual use of ICT. The results are illustrated in Table 3.

3-2-Prediction of Actual use of ICT through all variables of proposed Model

As observed in Table 4 computer competence with R^2 = .644 was recognized as the strongest predictor for use of ICT among effective variables on the dependent variable. Then computer self-efficacy with R^2 = .409 and management support with R^2 = .400 were

recognized as the second and third strongest predictors for usage of ICT respectively. But in terms of effect on the dependent variable of ICT usage, variables of attitude toward ICT, behavioral intention and computer competence were the most important and the most effective variables with regard to use of ICT.

Multiple regression results indicate that 84 percent of the variance in the dependent variable was explained by the linear combination of the predicting variables. This shows high predicting power of variables of the recommended model.

Table 3: Correlation Matrix between Psycho-social Variables with Each Other and Actual Use of ICT

		CSE	CA	MS	CP	PU	PEOU	AT	BI	AU
CSE	Pearson Correlation	1	-.145*	.577**	.181**	.229**	.459**	.546**	.462**	.639**
	Sig. (2-tailed)	.	.013	.000	.002	.000	.000	.000	.000	.000
	N	291	291	291	291	291	291	291	291	291
CA	Pearson Correlation	-.145(*)	1	-.165(**)	-.461**	-.497**	-.400**	-.347**	-.266**	-.263**
	Sig. (2-tailed)	.013	.	.005	.000	.000	.000	.000	.000	.000
	N	291	291	291	291	291	291	291	291	291
MS	Pearson Correlation	.577(**)	-.165(**)	1	.160**	.317**	.432**	.442**	.305**	.633**
	Sig. (2-tailed)	.000	.005	.	.006	.000	.000	.000	.000	.000
	N	291	291	291	291	291	291	291	291	291
CP	Pearson Correlation	.181(**)	-.461(**)	.160(**)	1	.595**	.521**	.408**	.562**	.234**
	Sig. (2-tailed)	.002	.000	.006	.	.000	.000	.000	.000	.000
	N	291	291	291	291	291	291	291	291	291
PU	Pearson Correlation	.229**	-.497**	.317**	.595**	1	.452**	.221**	.539**	.251**
	Sig. (2-tailed)	.000	.000	.000	.000	.	.000	.000	.000	.000
	N	291	291	291	291	291	291	291	291	291
PE	Pearson Correlation	.459**	-.400**	.432**	.521**	.452**	1	.507**	.685**	.540**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.	.000	.000	.000
	N	291	291	291	291	291	291	291	291	291
AT	Pearson Correlation	.546**	-.347**	.442**	.408**	.221**	.507**	1	.552**	.401**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.	.000	.000
	N	291	291	291	291	291	291	291	291	291
BI	Pearson Correlation	.462**	-.266**	.305**	.562**	.539**	.685**	.552**	1	.430**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.	.000
	N	291	291	291	291	291	291	291	291	291
AU	Pearson Correlation	.639**	-.263**	.633**	.234**	.251**	.540**	.401**	.430**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.
	N	291	291	291	291	291	291	291	291	291

** Correlation is significant at the .01 level (2-tailed).

* Correlation is significant at the .05 level (2-tailed).

Table 4: Amount of R, R^2 and Effects of Independent Variable on Actual Use of ICT

Dependent variable	Independent variables	*R*	R^2	Direct effects	Indirect effects	Total effects
(AU) (R^2= .84)	Behavioural Intention	.430	.184	.87		.87
	Attitude toward ICT (AT)	.401	.161	-	.85	.85
	Perceived usefulness (PU)	.251	.063	-	.17	.17
	Perceived ease of use (PE)	.540	.292	-	.62	.62
	Age (AGEFACTOR)	.078	.006	-	.06	.06
	Computer Self-efficacy (CSE)	.639	.409	-	.13	.13
	Computer Anxiety (CA)	.263	.069	-	.09	.09
	Computer Competence (CC)	.803	.644	-	.69	.69
	Management Support (MS)	.633	.400	-	.03	.03
	Cultural Perception (CP)	.234	.055	-	.51	.51
	Work Experience (EXPERIENCE)	.006	.000	-	.23	.23

CONCLUSION

This survey has been performed in IAU branches in Tehran given to the importance of studying use of ICT in universities. The final result of this survey was access to an ICT usage model in IAU. It will be possible to use this model in other universities, institutions and countries by more studies and testing of the above model in other situations.

According to the obtained model, affects the use of ICT in IAU in Iran. These variables explain 87 percent of the dependent variable's variance. Computer competence, computer self-efficacy, management support and perceived ease of use of computer were recognized as strong predictors of ICTsapplication among the above variables. Hence more attention must be focused on these four components in order to enhance the use of ICT in universities. Necessary education with regard to using modern information and communication technologies must be represented for faculty members and students in order to increase computer competence and computer self-efficacy. Management support is necessary to hold such terms and increase accessibility to hardware and software in the university; therefore managers play a significant role in universities in order to encourage ICT usage.

REFERENCES

Akhundi, A.(2011). *Development in Higher Education*. Proceedings of the First National Conference in SIAU, 12-14 May, Mashhad, Iran. Retrieved from:http://www.iaus.ac.ir.

Ajzen, I., Fishbein, M. (1980). *Understanding attitudes and predicting social behavior.* Englewood Cliffs, NJ: Prentice Hall.

Chau, P. Y. K. (2001). Influence of computer attitudes and self-efficacy on IT usage behavior. *Journal of End User Computing., 13*(1)*,* 26-34.

Davis, F. D. (1985). *The technology acceptance model for empirically testing new end-user information systems: Theory and results*. Ph.D. dissertation, Massachusetts Institute of Technology, Cambridge.

Fishbein, M., Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.

Jaffee, D.(1998). Institutionalized resistance to asynchronous learning networks, *Journal of Asynchronous Learning Networks.,*2(2)*,* 1-12. Retrieved from:www.learn.gwumc .edu/hsc idist/toolkit/facultytoolkit_references.htm.

Karimi-Alavije, M., Khalifeh, S., Bakhtiar, H.(2002). *Perspectives of applying information and communications technology in higher education teaching and learning processes*. Retrieved from: http://www.sid.ir.html.

Mahmoodi, M., Pezeshki-Rad, Gh.,Chizari, M.(2011). *Identifying educational needs of selected faculty members in using ICTs for educational and research activities*. In Proceeding of the 10th AIAEE Conference (pp. 250-259). Saskatoon, Saskatchewan, Canada, 16-19 May 2010.

Mun, Y., Huang, Y.(2003). Predicting the use of web-based information systems: Self-efficacy, enjoyment, learning goal orientation, and the technology acceptance model. *International Journal of Human-Computer Studies., 59,* 431-449.

Naisbitt, J.(1984). *Megatrends: Ten new directions transforming our lives*. New York, NY: Warner Books.

Rizza, M. G.(2000). Perspectives on preservice teachers' attitudes toward technology. *The*

journal of Teacher Educator., 36(2), 132-147.

Tan, W. (2007). *An integrated view of cognitive absorption in a technology-mediated learning environment.* Concordia University, Montreal, Quebec, Canada.

Thanuskodi, S. (2011). *Lack of ICT infrastructure as a barrier to resource sharing in Indian public libraries*. Retrieved from: http://interesjournals.org/IRJLIAS/pdf/2011/Decem ber/T hanuskodi.pdf.

Yaghubi, J. (2002). *A study on effective factors on adoption and usage of internet in research and educational activities of agricultural education and extension faculty members and students*.M.Sc. thesis, Tarbiat Modares University, Tehran, Iran.