

The Impacts of Professional Ability to use ICT in Kharazmi University: a Case Study in Iran

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Received 2015 June 27; Revised 2015 December 30; Accepted 2015 December 24.

Abstract

Background: The purpose of this study is to investigate on the factors have effects on ICT usage specially the professional usage of ICT during teaching and learning process.

Methods: we have a surveyed research regarding Kharazmi's teacher's points of view to use ICT in University. Among 128 of the teachers from seven departments selected as convenience sampling method approximately 118 were answered to the researcher-made Likert-type questionnaire. The questionnaire validity and reliability estimated in advance. Data were analyzed; by the SPSS software, version 20, Pearson Chi-Square and ANOVA formula

Results: The results show that there is a relationship between the teacher's professional usage of ICT and the qualification of related instruments during teaching-learning process ($P < 0.05, 0.01$). The different levels of satisfaction and approach to professional usage of ICT referred to departments found have no meaningful significant ($P < 0.05, 0.01$). The teachers' age and teaching backup found not meaningful item to have effects on ICT usage ($P < 0.05, 0.01$).

Conclusions: An improvement of functions in ICT usage needs having an approach to the teachers' abilities on ICT professional usage during teaching-learning process and preparing the qualified ICT facilities

Keywords: Professional, Education, Retraining, Information, Communication

1. Background

Information and communication technology ICT is based on a group of instrument's and technique's usage that cause to information establishment, connection, production, retention and recitation. According to studies of Koehler and Mishra, effective usage of ICT in education, needs professional skills of scientific panels (1). They explained that teachers should be able to use of three factors as: technology, content, and teaching method in teaching and learning process, in order to have better education in an abreast way. This model progressed in three dimensional factor's relevance (track: technological, pedagogical, and content knowledge) by Archambault and Crippen (2). In this model, a teacher is known as a skillful person in ICT function that knows "how to make usage of technological instrument corresponding with contents area of teaching with proper usage of relevance teaching method (2).

Instruments that are based on technology are considered as a mixture of relative existence of instruments as computer, internet, audio and visual devices and telephone. By considering ICT's advantages and describing its features, we can enumerate its professional function in educational environment as:

- Benefit's Retention and information retrieval: Information communication technology ICT, attainment and retrieval of information, can make views and awareness of relational process easy and possible in the environment.

- Access to information: audiences can select and study their favorite sources in educational environment, in this way, essential motivation for studying presents. Scientific - electronic resources are accessible facilities for weak and poor educational center that they cannot update their scientific resources in term of financial situation.

- Variation and diversity in learning process: take advantage of technology can cause to a special functional variation in learning process. Some of these varieties and advantages are as such as facility in learning process free from time and place restriction, acceleration and facilitation in data analysis and audiences activation.

- Participation: by participating in group and doing group works, the opportunity for better and deep perception prepared. The concepts that are resulted based on collaborative participation can be saved and we can use it in long term.

- Preparation of new educational opportunity: with taking advantage of instruments that are based on tech-

nology, the teacher and students have better opportunity for imagining of concepts and the teacher has a chance to present data by images and photos. In other words, the chance of improving visual and auditory intelligence prepared.

- Improving different types of learning's intelligence in learners: the meaning of learning's intelligence is that learners have different types of innovation such as auditory, confrontation, articulatory, natural and dialectical - logical intelligence. In common educational systems, the teacher is the reference of responsibility design. So raising motivation for learner is one of his or her duty but in educations that is based on technology, the audience gain response and question by digital media and rely on visual and logical intelligence. By doing this he becomes motivated and finally arrives to a suitable and proper conclusion (3).

According to Friedman and Cubanm , usage of ICT in educational environment and its effective utilization by teacher means to prepare instruments and facilities related to computer (software and hardware) and the possibility of recording and saving related information on teaching process in educational environment should be prepared (4, 5). With considering these meanings we can understand that factors as teacher's skill and instrument's utilization opportunity has high importance. Teachers and author's skillful competency in using ICT can cause to improve the quality of teaching and learning on one side and preparation of suitable facilities by educational complex on the other side bring preservice and continuance in this function.

In the 3- dimensional model of factor relation research that is done by Nordin, Davis, and Ariffin emphasized on experience of working with ICT and its effect on professional function of teacher in the process of teaching, content organization and overall effective designing for utilization of ICT mentioned as "professional function of ICT". According to their research findings, there is a relationship between pre and post education of ICT and professional and purposive of that relation (6).

Nowadays using of ICT as an enhancement of learning and teaching methods quality is considered as a high necessity at the most of countries (7). ICT brings with itself exclusiveness against higher education and most of institutions welcome to new technologies and there is a positive reaction to this challenge, consequently, higher education should prepare for revolutions that are based on ICT action. This technology has been penetrating into all area as education. Inasmuch as universities are the final place for gathering and analyzing scientific information, to equipment universities to technologies that they are playing important role in information and communication is so nec-

essary (8). The nature of Higher education has changed because of functional extension of ICT and this technology has had a great impact on universities mission in different aspects of education and research (9).

One of the biggest challenge that Iran's higher education facing with it, is qualitative and quantitative improvement and enhancement of universities scientific panel and using of ICT .However, universities and research and scientific centers try to find a proper strategy for qualitative and quantitative improvement and present adequacies and abilities of scientific panel in using technology (10).

The impact of some factors as age, service record, gender, level and types of employments of masters in universities are investigated by research due to find the usage of ICT, however, the impact of these factors rejected or accepted in some ways. Madadi and et al. (11) didn't find a significant relation between usage of ICT and age. Shariatmadari (8), done a research in order to find pathology of mal-utilization of ICT and mentioned that the knowledge and skills of scientific panel are an effective factors in functioning of ICT, their belief on ICT's impact, curriculum planning in accord with ICT and the existence of hardware and educational materials in universities also enough space and financial equipment in order to use students learning and teaching process. Biglari and Agahi (12) emphasize on the effectiveness of skills in ICT's usage and professional function of it in teaching by teachers and its effectiveness of ICT facilities on usage in universities.

Despite of vital researches that have been done in Iran that show ICT has a critical role in universities and it shows that we need more research in this area. So the present study tries to find a response to this main question that what is the effective priorities on the function of ICT in teaching and learning based on members of Kharazmi scientific panel's point of view, here we pose five questions:

1. Is there any connection between ability of working with instrument, based on ICT and suitable professional function with using of it in education process?
2. Have the scientific panel in various colleges equal ability level in using ICT in a professional way related to education process?
3. Is the satisfaction of scientific panel level in different colleges, equal to ICT facilities?
4. Are there any differences in above variables between scientific panels point of view based on service age?

2. Methods

Surveying method was chosen for the present study: descriptive statistical analyses were done for the Likert

type questions (i.e. frequency analysis, measures of central tendency and dispersion) and final data were scrutinized under and Chi Square and regression formula. The questionnaire spread out among ICT experts and masters and among different colleges in order to find content and face validity. Then in order to find reliability, the questionnaire spread out among some experts and its Alpha Cronbach was confirmed by 85% scale. The sample chosen from Kharazmi scientific panel that among them 128 persons selected based on convenience sampling in 7 colleges (with contractual and formal employing condition) and 118 persons have participated to answer to questionnaire.

In order to prove analyzing accuracy, the impact of some factors as age and service record controlled and the possible impact of these factors on viewpoints of scientific panel investigated. In order to check the relation between work ability factors with the usage of ICT and professional function of masters, we used coefficient formulas, distribution formula χ^2 used to show significant effective priority in ICT's function based on master's point of view in different colleges in order to investigate if passing the time in accordance to age and service record has any effectiveness in productivity of ICT in various aspects of adequacy and professional using, also we take advantage of one directional variation analysis. With regard to morality of research, we also tried to become aware of masters desire to stand in research sampling, they also became completely aware of research process.

In regard to outflow criteria from present study, in primary level of doing this research all participants became completely aware of the results of study if they desire.

3. Results

In order to answer the first question, this point should be considered: is there any connection between ability of working with instrument, based on ICT and suitable professional function with using of it in education process? The connection among factors as acquaintance with internet services, proficiency in using computer, and familiarity with software and other factors and their connection with dependent variables, that their usages during these process have professional aspects, investigated and analyzed. Statistical [Table 1](#) mentions the number of statistical values for each task factors with ICT in accordance to professional function of masters in each college.

Based on given data on [Table 2](#) that investigate Spearman correlation of task factors with ICT and professional function, there is a relationship between all dependent and independent variables. In other words there are relationship between, software acquaintance, internet services and using of internet for educational and research

objectives and using of sites (with dominance on English proficiency and computer knowledge) with professional quality of function based on ICT in the process of education.

The second question investigate that if the scientific panel in various colleges have equal ability level in using ICT in a professional way related to education process? In order to mention the effective significances priorities in using ICT according to masters' opinions in different colleges that they are servicing, we use (χ^2) distribution formula for investigating and testing data's correlational homogeneity ([Table 3](#)).

According to null hypothesis and significance rejection of scientific panels idea differences in each college and in order to answer second question of this research, we can say that the master's viewpoint about ability level and their professional function for enlistment of ICT instrument in learning - teaching process should be investigated based on each universities.

In third question the point is that if the satisfaction of scientific panel level in different colleges, equal to ICT facilities? In order to investigate significant differences in scientific panel opinions based on their servicing colleges, and according to χ^2 distribution formula, the findings of this part is considerable on [Table 4](#). According to null hypothesis and significance rejection among scientific panel ideas we can say that expert's opinions in under study universities, about facilities level adequacy and enlistment of ICT instrument in teaching and learning process can be investigated according to each college.

In the question of this study we investigated that if there were any differences between scientific panels about their adequacy of existing facilities and professional function toward technology's function, age and the duration of servicing with university? Answering to this question needs to investigate distribution analysis of effective responding based on each of mentioned factors, these factors are mentioned here:

- Does age and job servicing have a kind of effect on facilities adequacy?
- Are age and job servicing effective in the applying of technology usage?

We can see the pattern of regression co-efficiency for age and job servicing adequacy of facilities variables with professional using ability of technology instrument in the [Table 5](#) and [6](#). Based on [Table 5](#) the coefficient of model and effectiveness level for adequacy from facilities are 88% for age and 73% for job servicing. In depicted model, we can see that the effect of age on adequacy of facilities is more than job servicing. The amount of Betain this model considered as 27.64.

According to data given in [Table 6](#), the coefficient of

Table 1. Descriptive Statistic of Given Responses (in Little and a Lot Level) to Task Factors with ICT and Professional Function in Each College

Colleges classifications (number of college)	Physical Education	Educational Science and Psychology	Persian and English Literature/	Geology/Geography	Math/Computer	Engineering	Chemistry/Biology/
Familiarity with internet services	11	25	17	16	18	8	18
Ability to use internet	17	18	21	19	11	13	17
Proficiency in using Internet for educational and research objectives	16	17	20	27	12	12	13
Proficiency in using world wide web with English proficiency dominance	20	11	21	22	18	11	10
Familiarity with computer software	23	14	24	13	16	11	16

Table 2. (Spearman) Correlation, Task Factors with ICT and Professional Function^a

Independent Variable	Correlation Coefficient	Significance Level
Internet acquaintance	0.212	0.017
Computer usage skill	0.285	0.001
Skill in using of internet in order to educational and research objectives	0.230	0.017
Ability to use world wide web with English proficiency dominance	0.285	0.000
Computer software acquaintance	0.276	0.045

^aSignificance on 0.05 level, Significance on 0.01.

Table 3. Significance of Scientific Panel Opinions According to College That Are Using ICT, Distribution

Effective Priorities and Opinions Homogeneity in Each College	Degree of Freedom	Calculated Coefficient (Chi-Square) Test	Significance Level
Professional ability of using ICT	117	0.059	0.05

Table 4. Significance of Opinions of Scientific Panel in Each College in Facilities Adequacy, Distribution on χ^2 Level

Effective Priorities and Opinions Homogeneity in Each College	Degree of Freedom	Calculated Coefficient (χ^2 Test)	Significance Level
Adequacy of ICT facilities	117	0.584	0.05

Table 5. Dependent Variable Regression Coefficient for Facilities Adequacy

Independent variable	Beta	SE	SD	T	P>	R ²
Alpha	27.64	1854.65		5.374	0.472	
Age	8.23	0.032	0.82	3.47	0.76	0.88
Service duration	11.58	0.048	0.68	2.39	0.62	0.73

model designation and the amount of effectiveness in professional using technology ability with considering age factor is 0.002 and servicing duration is 0.008. In presented model we can see that the effect of age is less than servicing duration. The amount of Beta is considered 18.62.

Although the task of processing in both models have been approximated but based on data on Table 5, most suitable processing can be considered for facilities' adequacy

according to age and service duration, are totally rejected because of high significance level with 0.05 scale. In conclusion age and servicing duration have not any significant effect on facilities' adequacy and professional ability.

Table 6. Coefficient and Regression: Dependent Variable, Professional Usage of Technology

Independent variable	Beta	SE	SD	T	P >	R ²
Alpha	18.62	0.043		3.652	0.581	
Age	7.72	0.021	0.041	5.28	0.964	0.002
Service duration	9.51	0.043	0.07	4.32	0.672	0.08

4. Discussion

Based on research findings on first hypothesis, there are relationship between computers software familiarity, internet service and internet usage for educational objectives, also, the relationship between English competency domination and computer proficiency and also master's professional skills in education process. We should consider this point based on 3- dimensional model of factors relation that mentioned by Nordin, Davis and Ariffin, they considered to it and emphasize on ICT in accordance to technology factors, content and methodology in learning process for better learning in a stable way (6).

In second question, with accepting null hypothesis and rejection of significance master's opinion based on college and the level of professional ability for using of ICT instruments in the process of learning and teaching we propose that this function should be investigated based on professional skills situation especially in colleges. In most of colleges the amount of professional ability in ICT usage is defined in low and medium level. Adequacies of facilities that are based on ICT have the same condition.

The topic of professional function according to ICT can be considered proportional with professional and acquaintance abilities with their function in more effective educational process. The finding of present study are coincidental with the research that has been done by Shariatmadari (8) and Biglari (12) about the effect of proficiency in ICT usage and its professional function in technology by masters and also there is coincidences in the effort of (ICT) s facilities in its usage in university.

Age and servicing duration, are not an effective and contentious factors in scientific panels opinion in connection to job ability and facilities adequacy with ICT instrument. This point is confirmed by Mashhadi and et al. (10) in their research.

Something that should be considered about professional education of masters for technology usage is their ability level in using instruments that are based on technology. With right and professional usage of instrument and considering situation and usage's necessity, we can be evidence of reform in educational process. In this situation and in most cases we are dealing with some weakness in

proper approaches in the function of instruments that are based on information and communication technology in educational situation. This weakness point and unfamiliarity with software alternatives, internet services and proficiency in using internet for educational and research objectives, inefficient usage of sites due to non-proficiency in language dominance and computer terms can undermine the functions and abilities of masters.

Acknowledgments

The authors wish to acknowledge if needed in a paragraph.

Footnotes

Authors' Contribution: Study concept, design and Critical revision of the manuscript for important intellectual content developed by the authors whom participated through the overall process.

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