

## **EFFECT OF USING INFORMATION AND COMMUNICATION TECHNOLOGIES ON TEACHING AND LEARNING**

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### **ABSTRACT**

The purpose of this study was evaluation of the effect of using information and communication technologies on curricular learning and presentation of strategies for their development in the county of Najaf Abad in the 2014-2015 school year. The method of study was by survey and statistical population constituted all teachers occupied in teaching in the Najaf Abad county. Sample size was determined to be 100 individuals who were selected by simple random sampling. Data was collected after completion of researcher prepared questionnaire and the information was analyzed using the Pearson correlation test. Results showed that use of information and communication technologies is effective on stability and persistence of learning curricular topics, reasoning skills and creativity power and ultimately active learning.

**KEYWORDS:** *Information and Communication Technologies, Teaching, Learning, Education and Development*

### **INTRODUCTION**

Now a day, all effort of policymakers is obtaining the ability to coordinate themselves with the waves of change particularly in the area of information and communication technologies (Emami et al, 2009, 104). Information and communication technologies can be defined as follows: a combination of computer, video and remote communication technology such as use of multimedia computers, networks and other services they are built on (Van Dam, 2003, cited in Kafash et al, 2010). A study was performed by Harrison and colleagues (2002) regarding influence of using information and communication technologies on education and it was found that it deepens learning and makes it more effective and leads to expression of creativity. In a study by Young J (2002, cited in Sharifi, 2007) in relation with effect of information and communication technologies on ways of learning, it was shown that due to focusing on the student, it increases learning. Hiroshiro and Tiene (2001) performed a study in relation with the role of information and communication technologies in flexible learning programs in schools and it was shown that it can be a source for teachers for flexible learning and based on these results, the researchers reported that the main challenges by governments is support of education strategies and investing particularly in the area of application and strengthening of information and communication technologies in teachers for use in classes in developing countries. Soleimanpour and colleagues (2010) in their research evaluated the effect of teaching methodology based on information and communication technologies in creating persistent learning of experimental sciences in third year of junior high school. In this study, to present curricular topics three methods of presentation of electronic contents produced by the teacher, connection to the internet and use of educational software were used and the researchers found that level of persistent leaning by the method of teaching based on information technology is higher than the traditional method.

Results of the study by Daiizadeh and colleagues (2010) also supports the effectiveness of use of information and communication technologies on increasing educational motivation, improving questioning skills, strengthening the spirit of research, increasing grades and overall educational progress of students in the third year of high school. This effectiveness was similar among girl and boy students with various grade point averages and across different majors.

In summary, review of the literature and background studies showed that becoming world encompassing has placed new challenges in front of societies which require adaptation of educational content in response to national and universal demands by way of expansion of information and communication technologies (Salsebili, 2003).

Now a day, the importance of education and development that is appropriate for individual and societal needs is more and more sensed, because a world that is interconnected with an information network requires a force that knows how to use technology as a tool for increased productivity, creativity and learning and decreased challenges due to becoming world encompassing. Since focus on technology pertains to all schools and classes, teachers need to know how to use them in their teaching. As a result, it has been discussed that use of information and communication technologies in education and development is an undeniable necessity. For this reason, this research focused on the effectiveness of

using information and communication technologies on curricular teaching and learning and the researcher has presented hypotheses related to it as follows:

### Major Hypotheses

- 1-Use of information and communication technologies is effective on stability and persistence of learning curricular topics in students.
- 2- Use of information and communication technologies is effective on reasoning skills in students.
- 3- Use of information and communication technologies is effective on power of creativity in students.
- 4- Use of information and communication technologies is effective on active learning in students.

### Minor Hypotheses

- 1-Level of use of computers is effective on improving the process of teaching and learning in students.
- 2-Level of use of computers in school is effective on the process of teaching and learning in students.
- 3-Level of use of the internet (weblog, sites, electronic journals) is effective on the process of teaching and learning in students.

### MATERIALS AND METHODS

This study was descriptive and performed by survey methodology. Study population included all teachers in the primary schools of the county of Najaf Abad occupied in the 2014-2015 semester. Sample was selected by way of simple randomization. To collect needed information a researcher designed questionnaire was used which had 28 items which included responses regarding seven variables including stability and persistence, reasoning, creativity and learning, level of use of computers, level of use of information and communication technologies in school, level of use of internet in a five point Likert scale (very much, much, little, very little). In this questionnaire the opinion of teachers with regards to effectiveness of information and communication technologies (in this study it is particularly meant use of tools and communication technologies such as the computer) on stability and persistence of learning curricular topics, reasoning skill, active learning, power of creativity, change of outlook and ultimately learning in its overall meaning was evaluated. In design and preparation of the items of the questionnaire, the literature, theoretical background and numerous internal and external studies related to information and communication technologies were taken advantage of. For evaluating external and content validity revisional opinions of a number of professors and experts in the area of education and development was used. For determining the reliability of the questionnaire, it was tested preliminarily in a sample consisting of 20 of the teachers and reliability coefficient was obtained using the Cronbach's alpha test to be  $\alpha=0/74$ . To analyze the research hypotheses, the Pearson inferential statistical test was used.

### RESULTS

#### *Results of findings for main hypotheses*

-Hypothesis 1- Use of information and communication technologies is effective on stability and persistence of learning curricular topics in students.

		IT use	Stability and persistence of topics
IT use	Pearson correlation coefficient	1	.641**
	Significance level		.000
	Number	100	100
Stability and persistence of topics	Pearson correlation coefficient	.641**	1
	Significance level	.000	
	Number	100	100

The results of the Pearson test shows that information and communication technologies are influential on stability and persistence of learning curricular topics, because the significant level of the test was  $\text{sig}=0/000$  and is less than the standard level; as a result, the study hypothesis (Use of information and communication technologies is effective on stability and persistence of learning curricular topics in students) is confirmed.

Considering the value for the correlation coefficient of 0/641, a strong and positive correlation is shown. In other words, the more the use of IT increases, the more stability and persistence of learning of the curricular topics by the students increases.

-Hypothesis 2- Use of information and communication technologies is effective on reasoning skills in students.

		IT use	Reasoning skill
IT use	Pearson correlation coefficient	1	.656**
	Significance level		.000
	Number	100	100
Reasoning skill	Pearson correlation coefficient	.656**	1
	Significance level	.000	
	Number	100	100

Results of the Pearson test shows that information and communication technologies are effective on reasoning skills because the level of significance sig=0/000 is lower than the standard. As a result, the research hypothesis (Use of information and communication technologies is effective on reasoning skills in students) is confirmed.

Considering the value of the correlation coefficient of 0/656 a strong positive correlation is shown. In other words, the more the use of IT increases, the more reasoning skill in the students increases.

-Hypothesis 3- Use of information and communication technologies is effective on power of creativity in students.

		IT use	Creativity power
IT use	Pearson correlation coefficient	1	.823**
	Significance level		.000
	Number	100	100
Creativity power	Pearson correlation coefficient	.823**	1
	Significance level	.000	
	Number	100	100

Results of the Pearson test shows that information and communication technologies are effective on creativity power because the level of significance sig=0/000 is lower than the standard. As a result, the research hypothesis (Use of information and communication technologies is effective on power of creativity in students) is confirmed.

Considering the value of the correlation coefficient of 0/823 a strong and positive correlation is shown. In other words, the more the use of IT increases, the more creativity power in the students increases.

-Hypothesis 4- Use of information and communication technologies is effective on active learning in students.

		IT use	Active learning
IT use	Pearson correlation coefficient	1	.740**
	Significance level		.000
	Number	100	100
Active learning	Pearson correlation coefficient	.740**	1
	Significance level	.000	
	Number	100	100

Results of the Pearson test shows that information and communication technologies are effective on active learning because the level of significance sig=0/000 is lower than the standard. As a result, the research hypothesis (Use of information and communication technologies is effective on active learning in students) is confirmed.

Considering the value of the correlation coefficient of 0/740 a strong and positive correlation is shown. In other words, the more the use of IT increases, the more active learning in the students increases.

**Results of Minor Hypotheses**

Hypothesis 1- Level of use of computers is effective on improving the process of teaching and learning in students.

		Improving teaching and learning	Level of use of computers
Improving teaching and learning	Pearson correlation coefficient	1	.522**
	Significance level		.000
	Number	100	100
Level of use of computers	Pearson correlation coefficient	.522**	1
	Significance level	.000	
	Number	100	100

Results of the Pearson test shows that the level of use of computers is effective on the process of teaching and learning because the level of meaningfulness of the test is sig=0/000 which is less than the standard level. As a result, the study hypothesis (Level of use of computers is effective on improving the process of teaching and learning in students.) is confirmed.

Considering the value for the correlation coefficient of 0/522 a moderate and positive correlation is shown. In other words, the more the use of computers increases, the more level of teaching and learning in students increases.

Hypothesis 2- Level of use of computers in school is effective on the process of teaching and learning in students.

		Improving teaching and learning	Level of use of computer facilities in school
Improving teaching and learning	Pearson correlation coefficient	1	.725**
	Significance level		.000
	Number	100	100
Level of use of computer facilities in school	Pearson correlation coefficient	.725**	1
	Significance level	.000	
	Number	100	100

Results of the Pearson test shows that the level of use of computer facilities in school is effective on the process of teaching and learning because the level of meaningfulness of the test is sig=0/000 which is less than the standard level. As a result, the study hypothesis (Level of use of computers in school is effective on the process of teaching and learning in students.) is confirmed.

Considering the value for the correlation coefficient of 0/752 a strong and positive correlation is shown. In other words, the more the use of computer facilities in school increases, the more level of teaching and learning in students increases.

Hypothesis 3- Level of use of the internet (weblog, sites, electronic journals) is effective on the process of teaching and learning in students.

		Improving teaching and learning	Level of use of the internet
Improving teaching and learning	Pearson correlation coefficient	1	.711**
	Significance level		.000
	Number	100	100
Level of use of the internet	Pearson correlation coefficient	.711**	1
	Significance level	.000	
	Number	100	100

Results of the Pearson test shows that the level of use of the internet is effective on the process of teaching and learning because the level of meaningfulness of the test is  $\text{sig}=0/000$  which is less than the standard levels. As a result, the study hypothesis {Level of use of the internet (weblog, sites, electronic journals) is effective on the process of teaching and learning in students} is confirmed. Considering the value for the correlation coefficient of 0/711 a strong and positive correlation is shown. In other words, the more the use of the internet increases, the more level of teaching and learning in students increases.

## DISCUSSION AND CONCLUSION

The results of this study showed that use of computer and IT in schools has significant effect on teaching and learning in students and agrees with the results of Young J (2002), Hirosato (2001) and Harrison (2003).

Information and communication technologies are paradigms that have been able to create a number of changes in the way humans live and one of the fields that has specified a major share of these changes to it is learning. Learning based on information and communication technologies by creating principle changes in traditional concepts can improve the inefficiencies in the educational atmosphere and create basic changes in teaching memory enhancement, interest in learning, speed of transfer and stability and depth of learning, creation of power of reasoning and creativity and ultimately changing the outlook of the students and creating a positive view point in them. As a result, it is expected from the education and development system to pay attention to use of information and communication technologies in curricular teachings. Based on numerous studies up to know, information and communication technologies can have a determining role in students' learning, because it cannot be expected from students to reach higher levels of learning in classes that do not use modern teaching tools and instruments and because of use of traditional methods study in dry learning atmospheres. In such classes, students will remain uninterested to studies, because their learning needs have not been met and the atmosphere is tiresome for the teacher and student. It can be such interpreted that with progress in science and teaching principles, use of educational software has shown more desired effects on education and development and a higher percent of success has been shown with it. The value of educational software's is due to presentation of knowledge via multiple methods. Students can learn the abstract principles by writing and watch the application of those same principles by animation and video.

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