



## The effects of using Information & Communication Technology (ICT) on the Learning process of secondary-school students

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### Article history:

Received 25 June 2014

Received in revised form 11 July 2014

Accepted 20 July 2014

### Keywords:

ICT

Learning process

secondary-school students

### Abstract

**Introduction:** The purpose of this research was to evaluate the effects of ICT on Zahedan's secondary-school students.

**Materials and method:** The method of doing the descriptive research was surveying and the statistical community was all Zahedan's secondary-school students with 8000 population. In the academic year of 2012; the statistical sample is 367 students who have been selected by clustering sampling method. In this research we have used two vehicles inducing method and researcher date has been analyzed in two levels: Descriptive level (by using the frequency distribution tables, frequency percentage and drawing charts) and deductive (the T- Test, variance analyzing, Chi Square).

**Results:** The main findings are that using of ICT on increasing determination, resolving ability, curiousness, and educational success and totally on learning of secondary-school students has been effective in a high level and this effectiveness differs among males and females with different averages.

**Conclusion:** Results indicated that Using ICT effects on increase in educational success of secondary-school students.

### Please cite this article as:

Keikha, A., & Ghaznavi, M. R., & Yousef Irani, Y. (2014). The effects of using Information & Communication Technology (ICT) on the Learning process of secondary-school students. *International journal of education and applied sciences*, 1(3), 129- 134.

## **1. Introduction**

Today ICT has achieved new views all over the world and has affected all political, martial, economic, social and educational aspects of 21 century human life so that it leads most of learners to computers and learning how to work with it. Awareness, education and information attachment have fasten and facilitated the learning skills and reviewing the attitudes through using the current information systems (Majidi, 2012).

Computer influences human life, education, globalization, changing tradition economy into informative and science based economy in the so near future. Exchanging information in the organizations management process, particularly educational managements has put an end on those borders and has closed the wide world with all these oppositions and wonderfulness (Karami pour, 2008).

ICT's capability is the capability to use Mechanical Corporation, rather mentions that computers can help in order to improve or fulfill some of the duties. Computers should be considered as tools which can provide the interest of reaching to aims. Education and training ministry has stated that "the criterion for ICT is the ability in effective usage of ICT tools and information sources to analyze, process and presenting this kind of information and measuring and controlling exterior events (Imam jom-e, 2003).

ICT issue and virtual classes category are two important aspects: firstly, one of the main policies of education systems is to train gifted students and recognizing the abilities of individuals in order to promote and balance constant developing; so due to this designing, fulfilling the idea is an effective pace to reach the higher aims, teaching discrimination removal and training forces who are able to lead the country. The next one is the physical space situation of existent classes in the country and the investment resources restrictions for school constructions statistics showed that at the time being the educational system has a grave lack of nearly 9500 classroom that regarding to malty shift schools and rental classes totally 254000 classrooms are required in the country to be built. According to the expressed notes, it's obvious that

the movement towards the design and fulfilling virtual courses because of its independent identity from place and dynamism may solve many financial and educational system problems and presents new guideline in order to convenient usage of existent facilities (NiazAzari, 2007)

ICT capability trough individual abilities and creativity growth and innovation and introduction among man kinds and sufficient usage from materialistic and geographical sources and time and place in public sections of society provides the opportunity for a useful and effective composition (Ebadi, 2005).

It seems that the principle of learning and comprehending has been changed through the changes frame work. Today finding out know to learn is an issue which is overtaking the principle of learning. Such pattern of learning focuses on using ICT. To request help them as tools in order to help learners about accepting their self-teaching responsibility and their scholarship. Teachers use new taught patterns instead of teaching and will observe and judge of learners. While the teachers and students use electronic data bases, in extra word of books, black boards, chalks and oral speech, sometimes exchange their seats that also teachers could learn many things from their learners. In this path each one does their best to exchange and analyze the result digital information by using new technology tools (Afzalnia, 2008). Montazery, Vakili and seyed Ebrahimi (2006) in a research titled " Effect of revelation of information technology teaching on education and training" in Hakimzadeh school in Tehran, concluded that using IT in education and training not only has become the factor of fastness and facilitation and teaching quality promotion, but also the factor of changes in traditional teaching bases concepts so the importance degree and dependence to books and materials of each course, evaluation procedure of teaching methods, learning level, manner of relationship between teachers and students all are the thing which have change by using IT. Zamani and Isfahani(2007) carried out a research titled "Analyzing teachers accessibility rate and their using of ICT" in secondary schools of Isfahan and concluded that teachers accessibility rate to

hardware facilities at home and school is ideal, But their accessibility rate to software bases is not in a high level. Moreover, ICT's application is these categories, teaching, and research and communicational is lower than considered level.

Sandholtz, Rigstaff and Dwyer (1994) in a research titled " A flash to students attendance rate in the tuned up classes by technology, have noted to increasing the teachers and students motivations and interests in order to use technology for learning, and carried out notes below. The students' high interest to work with computers make their learning process becomes faster. This interest also has increased the teachers motivation to assimilate technology in teaching – learning process; students appoint more time to do their tasks and research projects by using computers even in their free times.

Islami(2008) in a research titled " Analyzing ICT developing" in public schools of Mazandaran province, found out these results that computer-based systems and facilities in our schools are too low and teachers ICDL skill status is ideal; teachers are so interested in using ICT in learning and teaching and the existent educational content has been evaluated convenient.

Plegram and Lawe (2003), according to achieved experiences from SITES plan expressed that seems ICT has coasted more than the past to support the student based learning environments. Teachers have reported that students have been motivated and disciplinary problems have been ended and according to teachers speeches although the work quantity have been increased – due to proving the learning bases- teachers are much more controllable and enjoy they could teach their students better. Moreover, they reported that their corporation with other teachers has improved and this matter makes their motivation get increased.

According to noted issues, this research carried out to analyze the effects of ICT on learning of the secondary-school students of Zahedan. More over existence a meaning full difference between effects of ICT on learning of the secondary-school students based on gender variants , typed school, age and average have been analyzed in order to accessibility the noted aims, during research procedure,

hypotheses below were investigated:

The main hypothesis: using ICT affects the learning process of secondary-school students.

1. Using ICT increases determination of secondary-school students.
2. Using ICT affects resolving of secondary school-students.
3. Using ICT affects curiousness of secondary-school students.
4. Using ICT affects the educational success of secondary-school students

## 2. Method

According to the aim and planed hypotheses in this study, method of descriptive research performing was survey.

### 2.1. Participants

The statistical community in this research was all secondary-school students of Zahedan with 8000 population in academic year of 2012 that among them 367 students (168 Female and 199 Male) were selected by Krejcie and Morgan (1970) table as samples.

### 2.2 Measurement

For collecting information in this study, two methods have been used: the library method (using library books, theses, magazines, journals, E-magazines, to research) and free liker that a questionnaire with 40 researcher questions is made and with liker equilibrium which is suited to hypotheses is used. Its justifiability of contents has proved by guide in stators and counselors and some of the instructors of educational sciences department. And the test has calculated of 0.89 by Cronbach's Alpha.

### 2.3. Data analysis

In order to analyzing the research data used deductive statistic methods. In deductive analyze for analyzing data with nominal scale, the chi-square test was used (Delavar, 2000 p. 221) and for data with comparative scale required to independent groups (large groups and multi groups), the F – variance analyze- and t- test (Hassanzadeh, 2008 p.284).

### 3. Results

Table 1 shows the Results of Chi Square for study Hypothesis.

**Table1.** Results of Chi Square for study Hypothesis

Variable	Chi Square	df	sig.
Determination	18.264	3	0.0005
Resolving	19.593	3	0.0005
Curiousness	16.705	4	0.0005
Educational success	15.846	3	0.0005
Learning process	21.659	3	0.0005

According to table 1, calculated chi 2 (18.264) is larger than the table's chi (9.21), so with 99 percent confidence it can be concluded that there is a meaningful difference between observed frequencies and expected frequencies. And this conclusion shows that using ICT to a high extent effects on increase in determination of secondary-school students.

Results related to second hypothesis of according in table 1 calculated chi 2 (19.593) is larger than table's chi 2 (9.21), so with 99 percent confidence it can be concluded that there is a meaningful difference between observed frequencies and expected frequencies, and this conclusion shows that using ICT to a high extent effects on increase in

resolving ability of secondary-school students.

According to table 1, calculated chi-2 (16.705) is larger than table's chi2 (11.34), so with 99 percent confidence it can be concluded that ,using ICT to a high extent effects on increase in curiousness of secondary-school students.

Calculated chi2 (15.847) is larger than table's chi2 (9.21), so with 99 percent confidence it can be concluded that using ICT affects educational success of secondary-school students.

Finally according to table 1, calculated chi2 (21.659) is larger than table's chi2 (9.21), so with 99 percent confidence it can be calculated that using ICT to a high extent effects on learning of secondary-school students.

**Table2.** Results of Independent t- test related to gender.

Groups	N	Mean	Standard Deviation	t test	df	Sig.
Female	168	4.040	0.268	0.470	318	0.639
male	199	4.055	0.289			

Results of table 2 shows that average of female responders is 4.04 and for males 4.055 and their standard deviation respectively is 0.268 and 0.289. Calculated T (0.470) with freedom degree of 318 in 95 level percent is lower than the table's critical

Values (1.96), so the difference is not statistically meaningful. So it can be concluded that there is not a meaningful difference between using of ICT and its affection learning of students (male and female) in term of gender.

**Table3.** Results of Independent t- test related to the type of schools

Groups	N	Mean	Standard Deviation	t test	df	Sig.
Female	168	4.040	0.268	0.470	318	0.639
male	199	4.055	0.289			

Result of table 3 shows that the average of governmental-school students is 4.057 and private 4.026; also their standard deviation is respectively 0.295 and 0.227.

The calculated T (0.860) with the degrees of

freedom=318 in level of 95 percent is lower than the table's critical value (1.96); so the difference is not statistically meaningful. So it can be concluded that there is not a meaningful difference between using of ICT and its effects on learning of students who are studying at governmental-schools and

private-schools, and effects are the same in both above-mentioned groups.

**Table4.** Results of ANOVA according to the student's age.

Index	Sum of Squares	Degrees of freedom	Mean Square	F	sig
Between groups	0.083	1	0.083	1.048	0.307
Within groups	25.117	318	0.079		
Total	25.200	319			

Result of table 9 shows that calculated F rate (1.048) is smaller than critical value of table with degrees of freedom=318 in level of 95 percent. So

ICT's effects on secondary-school students according to the age are the same.

**Table5.** Results of ANOVA according to the averages.

Index	Sum of Squares	Degrees of freedom	Mean Square	F	sig
Between groups	0.083	1	0.083	1.048	0.307
Within groups	25.117	318	0.079		
Total	25.200	319			

The results of table 10 shows that calculated f rate (1.636) is smaller than critical value of table with degrees of freedom=316 in level of 99percent; so it can be concluded that ICT's effects on the learning process of secondary student according to their averages is the same.

General hypotheses of the research show that using ICT affects learning process of secondary-school students. This result is match to Montazeri et al (2006), Zaman, Shamim and Clement (2011) research findings.

#### 4. Discussion

ICT by using of interactive feature and supply is able to manipulate and present information in to different types and provide a potential enhance for active and experiential learning. So the conclusions of this research include:

Research findings showed that using ICT to a high extent has increased determination and has affected the resolving ability, curiousness, educational success and learning of secondary-school students and this effectiveness was different among females and males with different averages. But its effectiveness among students according to age and type of school was the same.

According to the research results it is determined that using ICT increases determination of secondary-school students to a high extent. This result is match to Islami (2008), Sandholtz et al (1994) and Polgram & Law (2003) findings. Also finding research shows that using ICT affects resolving ability of secondary-school students. And using ICT affection increase in resolving ability of secondary-school students to a high extent. This result is match to Montazeri et al. (2006). Using ICT affects curiousness of secondary-school students. This result is match to Hajforooh and Orangi (2003) research findings.

According to the research hypotheses and achieved results of tests, suggestions below are offered:

Using ICT effects on increase in educational success of secondary-school students. This result is match to Dalzil's (2008) findings.

- Teach in courses using ICT in teaching process.
- Using different technologies of ICT like computer, TVs, internet, satellite, radio, cassette player, etc. in teaching and learning process.
- Teachers and students could visit schools and other educational centers which use these technologies.
- Using active and group teaching methods like – questioning, discussing, resolving, etc. based on information & communication technologies.
- Increasing skills of students in using computer and internet in order to download and process the information.

- Providing materials of the courses and teaching content by taking help from informative and communicative technologies.
- Providing sufficient facilities and equipment including teaching media, CDs, video, films, and computers in schools and other educational centers.
- Improving educational system and training teachers with new technological attitudes.
- Promoting knowledge and skill of teachers and motivating them to use ICT convenient facilities in teaching- leaning process.
- Facilitating schools and other educational centers with ICT.

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