

Comparing the Effectiveness of Different Educational Styles (Intelligent, Semi-Intelligent, and Traditional) on Academic Achievement of Female Students at Tehran City

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ABSTRACT

Objective: the current study attempts to compare effectiveness of intelligent, semi-intelligent, and traditional educational styles on academic achievement in second grade classes at Tehran female high schools. **Methodology:** the design of the current study is descriptive, and a comparative type, the population includes all the students in female high schools of Tehran city in academic year of 2013-2014. Using cluster sampling, several schools were chosen from the five areas of Tehran city in several steps and by the use of available sampling procedure, the academic achievement of 658 students were examined through Variance analysis. **Discussion and conclusion:** the findings of the research show that students' academic achievement is better in intelligent schools compared to traditional ones, however, there is no difference in the academic achievement level of students in a semi-intelligent schools with those of intelligent and traditional ones. Therefore, it can be said that utilizing student-centered and multimedia educational style is important in academic achievement increase of students in intelligent schools.

KEY WORDS: Academic Achievement, Intelligent Schools, Semi-intelligent and Traditional Schools.

1. INTRODUCTION

The entry of personal computers and wide access to the internet makes the international educational systems to have major changes in the structure of education and research (Kerck & Doris 2005). In recent years, also Iran in line with global changes in educational organizations of different countries has moved toward intellectualizing schools and converting teacher-centered procedures of learning to student-centered ones. Investigating the existing information and data on the level of development of information technology and communication in the educational systems of the countries, it is found that most of the developed or developing countries, to equip schools with various facilities as computers and internet, have developed a comprehensive program to update and increase the performance level of students (Zogi pour & Gafari 2006). The entry of technology into the realm of education causes the learning to be more effective and motivating in a multimedia environment. In fact, with the rise of global and wide pages of the web, the application of computer has attracted attention in education as well, causing a great revolution in training field (Pelgram & Lav 2003). Whereas, the basis of the traditional educational system is mostly in audio form, which in this kind of processing method, the recording and saving of the information last only for six months. In the new educational system and with the help of multi-media training tools, the audiovisual information processing is handled simultaneously and the information can be stored for more than twenty years. In the traditional educational system of Iran the process is mostly auditory and according to the mentioned facts the information is stored for at most six months. But with the start of the school intellectualizing project and use of various instruments for training such as: film, picture, poster, voice, slide, and so on, the students are able to handle multi-sensory processing and as a result, they can store the information for a longer period of time (Zamani 2008). Most of the managers believe that the increase in the use of technology and information technology facilities has improved learning and attracted students to use the technological instruments more effectively (Kansil 1999). Bedroom (2006) investigated the training standards in the basic training course of Singapore, Japan, England, Australia and America. The results of his research show that course content in Iran, with the application of new methodologies in line with the mentioned countries, leads into science and technological development in this field. Watz and Luvie (2004) assigned some homework in a research and asked the students to do it using CDs. The findings of the study demonstrated increased activity and motivation of students in classrooms.

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In addition, in such a condition, students tried to do their homework autonomously, leading to enhancement of students' cognitive and mental skills by using the new information technologies, therefore creating a better and more enjoyable learning. Zamani (2008) declares that according to the intellect theory of Gardner, use of ICT technology can strengthen students' intellectual abilities and provides opportunities for their improvement at school. Zamani, Nasr Isfahani, and Liagatdar (2002) show that one of the obvious differences between Iranian schools and the countries with high level of education, is related to the type and amount of the assigned homework. That is the homework in foreign countries is much less but exciting and interesting compared to homework in Iran. This is despite the fact that, doing homework in Iranian schools is so tiring and boring and of the reasons for the mundane of homework and as a result the reluctance of students towards doing homework can be lack of application of variety of interesting tasks and training activities. Kiamanesh and Kheirieh (2001) declared that one of the reasons that Iranian students are not good enough in mathematics and science compared to their American counterpart is the inconsistency between training content and the educational plans and tools. Montazeri (2006) in a study entitled as the impact of information technology training changes on educational system in Hakimzadehhigh school at Tehran concluded that use of information technology facilitates and accelerated learning and at the same time, improves the learning quality in chemistry and biology courses. Neefe (2001) compared organizational learning indexes of the universities which implemented the scientific improvement project with those of traditional procedures. His findings demonstrated the difference in organizational learning indexes of traditional and intelligent universities. The results also show that use of tools such as computer and internet motivates learners and improves their scores. Etkinson (2004) compared the relation of traditional and intelligent environment to students' gender and style. He declares that people with word style have a more positive view and better learning performance while working with computer, whereas, the analytical people have lower performance compared to previous group. His findings show that visual analytic style people have minimum use of this context and holistic cognitive-word style has the best use of the context. Dimitius and Jorjuis (2005) examined the learning quality of people considering the multimedia training content and their learning style in chemistry courses. They say that people's stylistic influence their content production, because the content is based on individual learning styles, finally we can witness the progress in his education yield. The results of Holm's (2004) study in three schools at Norway showed that ICT provides schools with a variety of facilities that leads to change in teachers' role in the classroom.

In the new condition, teachers and learners spend more time together compared to common schools. In these classrooms, the teacher acts as a counselor and by reducing his supporting role and discussing more with students involves them in learning activities and improves their educational performance. In a study entitled as "students' view to science while moving from a technologically equipped elementary school to a less equipped high school" by Bioshap¹¹ and Parkinson (2008) on 30 high school students, it was found that though the students were sad in their classes because of lack of sufficient communication and information technologies and computers, they improved their scores with their science teachers' efforts. Afrasiabi (2010) in a research entitled as the effect of educational software on Persian written grammar skills of fifth grade elementary students on 70 boys and girls concluded that the students trained via educational software did meaningfully better in educational progress tests on Persian course compared to those being taught with traditional procedures. In a research by Yousefi and Rezaei (2011) the role of software in science course of second grade students of junior high school were examined. The results of this study manifested, that electronic content increases average scores of science course. Beheshte and Molahoseini (2011) in a study on 400 first grade high school students in Qom entitled "effect of training by the use of information technology on problem solving skills, motivation, and academic performance," said that there is a meaningful difference between students in technological context and the typical ones in all three variables. That is, training by utilizing information technology has a positive effect on motivation, problem solving skills and students' performance. However, some experts still an emphasis on traditional methodologies and reasons such as lack of experts and educated staff, an insufficient mastery of the computer, teachers' and students' insufficient proficiency of the English language, lack of financial and physical resources to equip schools, a weakness in the correct use of information technology among students, teachers, and managers are among the major reasons to oppose this project. In fact, concerning the traditional structures of most schools, much money and time is needed to equip schools, on the other hand, teachers' lack of knowledge of resources and procedures to use software and Persian information banks are some of the other reasons for the slowness of this project improvement. The exact implementation of the intellectualizing project is so important that some experts warn that the hasty application of information technology can exacerbate conservative educational systems, so that teachers beside the previous book-centered methodology, lead students to the bunch of information and ask them to memorize more (Rezaei 2010). Therefore, because of the different views and conflicts in the use of electronic technology such as computer, internet, and tablets, the question is posed that what can be the real influence of intelligent system on the academic achievement of students. An important issue that formed the question of the current study as follows.

Which educational mode (intelligent, semi-intelligent, and traditional) has the best effect on students' academic achievement?

2. RESEARCH METHODOLOGY

2.1 Research population

The population of the current study includes all female students in second grade of Tehran high schools at the academic year of 2014-2015.

2.2 Sampling procedure

At first step, multi stage cluster sampling was used to choose schools from the five areas (north, east, south, west, and center) of Tehran. Next, a meeting was held by authorities like managers, assistants and teachers at school. With the use of the available sampling method, the IQ and the academic achievement of 658 students were measured. In addition, to minimize the effect of one's intelligence on her academic achievement, all students were tested by the intelligence test of Stanford Binet.

2.3 Measurement tools:

Tehran- Stanford Binet intelligence scale:

In order to match students of different schools according to their IQ, the IQ test was given and brief IQ scores were calculated using the Tehran- Stanford Binet intelligence scale. These scales included verbal and non-verbal domains and each domain had five subtests of fluid reasoning, knowledge, quantitative reasoning, visual-spatial reasoning, and active memory (Afruz & Kamkari 2009). In situations like screening projects, the IQ brief score for the subjects can be estimated by using the two subtests of non verbal liquid reasoning and theological knowledge (guide book) and the related psychometric principles (Roid, 2005). Mean and standard deviation of brief IQ score is 100 and 15, which are 85 to 115 two average communities. The new version of Tehran Stanford-Binet intelligence scale which is taken from the fifth version of Stanford-Binet scale has been checked against the validity and reliability by Afruz and Kamkari at 2006 in Tehran.

Academic achievement scores:

In order to determine the academic achievement of students, their scores in formal examinations during the academic year were gathered and used as an index to determine their academic achievement.

3. Data analysis

Using SPSS version 19, data was analyzed at two levels. Descriptive data were analyzed to determine central tendency and dispersion and using the two-factor ANOVA the research question was answered.

4. Findings

Table 1. Descriptive analysis of students' academic achievement according to educational mode

Group	Number	average	variance	standard deviation	Tilt factor	Elongation factor
Traditional	226	15.16	6.83	2.61	0.50	0.03
Synthetic	306	15.50	6.75	2.59	0.63	0.18
intelligent	126	16.14	4.07	2.01	0.21	0.07

In the above table, the academic achievement score of students is displayed based on three kinds of school, that is, intelligent, synthetic, and traditional. In order to examine normality of distribution, the deformation and elongation factor is also calculated, but as neither is meaningful, we can conclude that distribution of IQ scores are normal in all groups. Assumption of parametric statistics has been considered.

Table2. Homogeneity of variance in students' academic achievement

F	DF1	DF2	Sig
0.56	5	652	0.63

According to the above table, F= 0.56, which is not meaningful. Therefore, the assumption of homogeneity of variance is respected.

Table 3. Two-factor ANOVA analysis of academic achievement based on field and mode of training

Source Change	Sum of squares	Mean square	df	F	Sig level	Chi Eta
Academic field	53.82	53.82	1	8.73	0.00	0.01
Learning style	77.43	38.71	2	6.28	0.00	0.01
Interaction of style & field	38.60	19.30	2	3.13	0.04	0.01
error	4016.54	6.16	652			

As it is obvious in the above table, there is a difference between academic achievement according to training mode and field of study. That is, $F= 8.73$ for academic fields, $F= 6.28$ for training mode, and $F=3.13$ for the interaction of the two variables and 0.05 does not indicate a meaningful difference. In addition, considering the Chi Eta for the interaction of two independent factors (academic field and learning style), it can be said that the observed 0.01 of the variance in achievement scores can be because of this interaction. Regarding the academic field, the findings show that the achievement scores of science students are meaningfully (more than 0.05) higher than those of mathematics students. Comparing academic achievement on the basis of different kinds of schools, suitable follow-up tests were utilized to compare achievement in intelligent, synthetic and traditional schools.

Table4. Comparison of students' academic achievement based on different kinds of school

Type of school	mean	Sig level
Traditional	-0.34	0.11
semi-intelligent	0.98	0.0
Semi-intelligent	-0.64	0.01
intelligent		

According to the above table, the students in intelligent schools had more progress and achievement compared to students in traditional and semi-intelligent schools. However, there was not a meaningful difference between achievements of students in synthetic schools (semi-intelligent) with that of traditional ones.

5. DISCUSSION AND CONCLUSION

The purpose of the current study was comparison of academic achievement of girls students based of their learning styles, that is, intelligent, semi-intelligent, and traditional, in Tehran schools. In 1980 the word information technology came to make changes from calculating technology to abilities to store and retrieve information. At the same time, educational system as an effective organization had to adapt to the changes and build modern and more effective environments to augment people's motivation and learning ability. As academic achievement is one of the goals of educational system in each country, naturally, it should change to suit the information age. So that, many of the educational systems in different countries has documented a comprehensive plan to equip their schools with various facilities such as computer and have focused on use of information technology tools in their curriculum. In 2002, Iran started to intellectualize schools and in 2010, 283 schools in Tehran were actively involved in intellectualizing process. The concept of incorporation of ICT in the curriculum has been paying attention in various researches. This emphasizes the necessity of experts' attention and all those who are involved in syllabus design to use the most modern teaching methodologies and train efficient staff. On the other hand, there are missing areas concerning the use of technology in the educational system of Iran that needs attention. Various uncertainties concerning the level of technology use in schools and the influence of the tools on students' achievement was the first idea in performing the current research. According to the findings of the present research, it can be said that students of intelligent schools have higher achievement than those in traditional schools. Regarding the effectiveness of the use of technology or in other words, ICT, on improving students' academic performance, the findings of the current study are in line with those of Kerasing (2005), Karami (2001), Afrasiabi (2010), Yousefi and colleagues (2010), Kachuee (2009), Beheshte and MolaHosseini (2010), Pustholm (2004), and Parkinson(2008). Though, most of the mentioned studies have investigated the effect of ICT on elementary courses. As Tyson (2004) stated that the use of ICT has put students in a multi-sensory environment, and had induced them for a simultaneous audio, visual, and motion processing. This issue increases the students' mental and practical involvement with the course, therefore improving their academic performance. On the other hand, learning and education will not be limited to temporal and spatial situations, and framed and pre-determined information anymore. This is the case that education

in a special framed structure ignores various learning styles in different people and this is the approach used in most traditional school. Whereas, nourishing the talents and considering the differences have been the focus of attention in intelligent and semi-intelligent schools (Tehran education department, 2013). In other words, as Shahamat and colleagues (2012) stated having access to more ICT resources at school can increase educational content, therefore it can improve students' academic performance and quality of education. The influence of ICT on students' motivation must not be ignored. As Pelgram and Lar (2003) declare because of ICT's attention to student-centered learning environments, we can witness motivation and involvement increase in learning process that finally leads to academic improvement. The main reasons for the increased academic performance of learners in ICT are concluded as follows:

- Providing multi-sensory learning environment
- More attention to research and broader use of various resources
- Creating student-centered environments and more involvement of the learner in the learning process
- The increase in students' motivation to learn

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