

A STEP TOWARD IMPROVING EDUCABLE STUDENTS' LEARNING IN SECONDARY LEVEL WITH AN EMPHASIS ON MULTIMEDIA

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ABSTRACT

Multimedia has a critical role in learning and learning development in students. In this regard, current study is going to investigate the effect of researcher made multimedia on the high level of mentally retarded educable third grad students' learning in elementary students in Hamedan. Statistical society includes the whole male mentally retarded third grade students in the elementary schools in Hamedan. 28 people have been selected randomly among these retarded mentally educable students. Research method was Quasi-experimental using pre-post-test with control group. Experimental group has been taught by means of training researcher made media for two months. But, control group has been taught traditionally without using multimedia. Primarily, in order to investigate the expected changes, a pre-test has been conducted for both groups. After performing pre-test, experimental group was exposed to independent variable and then a post test was performed on both groups. After 9 weeks, the second post-test has been conducted to evaluate the level of retention. Data was analyzed in descriptive level with mean and standard deviation and in inferential level with statistical analysis covariance. Findings showed that experimental group had progressed significantly by use of researcher made multimedia compare with control group. According to findings, it can be concluded that teaching and learning by means of multimedia will be much more effective for educable students.

KEYWORDS: Educational Mental Retarded; Multimedia; High Level of Learning

INTRODUCTION

Intelligence is one of the most complex mental processes. Populace see intelligence as success in education, high level occupation and appropriate social interaction, but, psychologist describe intelligence as one's power of adaptation with environment and in their point of view, intelligence is the greatest and prominent mental faculties in human beings (Bakhshayesh, 1999). Scientists (Calton, Cattell and Binet) had conducted several researches in this field and provided various tests. The level of their retarding depends on the scores of IQ and they are classified into educable, trainable and supportable. Accordingly, they need continuous supports and guides. Their potentials are more than their de facto (Afrooz, 1997). Mental retardation or so called, "impairment of mental faculties" is not new subject. From the first day of human life, there were somebody who were not able to conform themselves with society (Khaleji, Emad 1389). Nowadays, despite of the whole advances, mental retardation is the worst lifelong discomfort (Marlow, translated by Manias 1999). The total numbers of students who are studying in special education schools in Iran, are 70738 people cited by special education organization. 39039 people of these numbers are of mental retarded.

About 3 percent of the world population has an IQ of less than 68 and the performances of 80 to 90% of these people are at the range of the slight retardation or educable (Kashef 2010). Among the retardate classes, there are educable children of special clinical and physical features who often characterized with family-cultural retardation (Hazhir 1959). The numbers of these educable children have mental lesions. Environmental problems and family- social statuses of these children resulted in mental retardation. These children have normal appearance. Their movements (such as sitting, walking, running etc) are like normal children. Their problems often become apparent by learning disorder and school apathy when they start going to school (Kaplan and Saduk 1995). The results of researches about children's intelligence development showed that improving the environmental conditions make it possible to develop child's intelligence (Movasaghi 2002).

People with low intellectual ability (People with intellectual disability) compared with normal individuals have some behavioral problems and learning skills. So, learning situation should be such that the child can have active role in gaining experience in various areas of mental, environmental, social and emotional fields (Afrooz 1997). One of the main features of retarded child is that it learns late and forgets soon. This results in many problems in educating and training for teachers and coaches (Sharifi Daramadi 2007). These children are reluctant to education and learning and become disgust and fatigue with the least pressure and stress. It is necessary to conduct training and teachings through the use of teaching aids which have to be objectified and game modes to be less likely to cause fatigue (Davarmanesh, 2014; p 24).

With the expansion of information technology and remote mass media penetration into the depth of the society, training tools and methods evolved too, then the newer tools and technologies have been offered to transmit the knowledge. Nowadays, along with the development of multimedia systems and related technologies, learning methods have been developed too (universal, 2004). Using information technology and communication enhances the quality education, increases exhilaration, self-motivation and self-teaching in students (kulis and monen 2002).

Multimedia was introduced from 1950 onwards and the training staff did their best to combine several media to enhance educational qualities (hinich 1993). Among the advantages of the use of multimedia in the classroom are as follows: high participating motivation, the combination of different skills, increasing collaboration skills, the best interactions between students and teacher, analyzing the resources in best and enhancing students' thinking (chery 2002). Multimedia teaching methods agree with a learner-centered approach to education and follow up the principles of active educational methods such as focusing on learners' characteristics', responding to learners' needs along with teaching and focus on the interaction between the user and educational content (Ingram, 2008). A multimedia can provide the opportunities in application text, graphic, video and audio which simulate the necessary information for learner and presented this information in different forms. These factors stimulated the internal motivation of users and then led to be applied more (boyli 2008). These factors also result in achieving effective learning and effective retention of learned subjects in educable students. It can be said that these factors causes to use different senses of learners which motivate them to participate actively in educating and learning process and led them to self-regulating and self-guiding (slaving 2000). Similar studies have not been conducted in this field in iran yet. However, some other studies include: A research titled the impact of training plays on learning of some of math concepts in educable mental retarded students in primary schools has been conducted by a teacher (2007). The findings showed that students who have been taught by training toys had a better function compare with those who have been taught with no training toys (Dabiri 2007; p 123-126).

In a study conducted by Asiye Akhvast et al (2010), the impact of training plays on learning some of math concept in educable mental retarded boys have been investigated which the results indicated the progress in understanding math concepts. In another research conducted by Hossein Mehrdad (2011) investigated the impact of play therapy on academic achievement in primary mental retarded students which its results showed the positive effect of play therapy on academic achievement.

Pirmoradian et al (2012) compare with an expert patterning and video patterning on learning of mental retarded children suggested that video patterning is a useful intervention in learning free throw skill of basketball in these students. Zarei, Zavaraki and Gharibi (2012) has conducted a research with the aim of investigating the effect of multimedia on the level of learning and retention in educable mental retarded students found that the level of learning and retention in the experimental group have been increased significantly.

Oliver (1985) in his research used physical training and thought training as pre-post-test in two similar educable retarded groups. Experimental group participated in a 10 weeks course. At the end, they had significant progress mentally and physically by use of multimedia software.

In research conducted in California (1987) around special education professional opinions about using technology in educational programs for special students, both teachers and managers were definitely agree on the effects of computer and other technologies.

The advantages of technologies which teachers and administrators agree with included: creating immediate feedback, providing the possibility for step by step progress, providing individual training by computer for each student, improving self-concept, increasing the speed of learning in students, providing the opportunity for students to present the materials which students never faced with before.

Scary and Ocanor (1997) investigated three researches which were around the language skills teaching on the students who had communication disorders. In the first study, 8 children with Down syndrome trained by language interventions traditionally and individually. Both approaches had the same results. In the second study, children with language deficits trained following additional meeting. The results indicated significant improvements of these children. In the third study, the effectiveness of trained parent with computer assignments compared with speech therapist's performance. Results indicated the effectiveness of computer programs related to speech therapy.

John and Tomoko (1999) in a research investigated the necessary facilities to make sentences in three students with autism traditionally and with computer. After teaching with computer, the ability to make more sentences has been provided for children in experimental group.

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Clauvert (2002) in a research on 14 students with autism found that these students after computer experimental intervention were more successful than other traditional teaching methods, in acquiring the words (Clauvert, quoted by Kinji & Betholm 2002). Kili and Ritchard (2004) studied the impact of 3 dimensional graphic designs based on computer on

math learning problems in 3 groups of students with slight mental disability. Findings showed the positive impact of this program on learning problems of math basic words.

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Table 1: Mean and Standard Deviation of the Performances of Groups in Pre and Post Tests

Variables		Mean	Standard Deviation
Pre-test	Experimental group	4.25	1.62
	Control group	3.32	1.37
Post test	Experimental group	6.31	2.05
	Control group	3.42	1.27

As you see, there is little difference between the mean of both control and as you see, there is little difference between the mean of both control and experimental groups, but this difference in post-test is significant for experimental group.

In order to investigate the hypothesis we used the multivariate covariance analysis and showed the results in second table

Table 2: Wilks' Lambda Test for Investigating the Equality of Variances of Scores Hypothesis

Variable (Post Test)	F	Df1	Df2	Sig
	126.58	4	42	

Wilks' lambda uses to review the assumption of equality of scores variances and as it has shown, the assumption of equality if variances error was not significant and multivariate covariance analysis can be used which presented in the following table.

Table 3: The Mean and Standard Deviation of Group's Performances in Pre and Post-Test (Understanding, Applying, Analyzing and Evaluating)

Groups	Subscales	Ss	Df	Ms	F Proportion	Significance	Eta Coefficient
experimental	Understanding	35.597	1	24.507	175.651	0.001	0.427
	Applying	99.742	1	98.742	156.380	0.001	0.390
	Analyzing	320.586	1	380.56	126.326	0.001	0.422
	Evaluation	65.316	1	43.316	286.326	0.001	0.540
control	Understanding	35.030	1	12.309	37.016	0.001	0.730
	Applying	29.411	1	8.401	93.148	0.001	0.907
	Analyzing	16.616	1	42.614	69.594	0.001	0.860
	Evaluation	14.785	1	55.605	194.131	0.001	0.987

As you can see in table 3, according to pre-test scores, difference in the performances of educational mental retarded students and understanding subscales with $df=1$, $F=175.651$ & $P<0/05$ and evaluation with $df=1$, $41F=286.727$ & $P<0.05$ are significant which is indicating of efficacy of intervention program (multimedia) on learning enhancing in subscales of high level of learning in experimental group.

DISCUSSIONS

The aim of this paper is to investigate of efficacy of self-made multimedia on improving the high level of learning on elementary agriculture students in Hamedan. As a whole, the results of this research showed thatteaching 9 sessions via multimedia to educable students' learning was effective; because educable mentallyretarded children faced with difficulties in high level of learning, due to their mental limitation. According to research findings, it is necessary to consider mentally retarded students' learning capabilities to make them to resolve their life issues as wise and thoughtful individuals. In fact, these findings made coaches and parents to be optimistic about future. Fair justification is that this multimedia is appropriate to students' needs.

Although we couldn't find a research which was equivalent with present study, but there are several studies regarding to the impact of multimedia on education, learning and academic progress and success which support the findings of this research, such as the research conducted by Akhvast et al (2010), Zarei-Zavaraki (2012), Kili& Richard (2004), Askari & Ocanor (1997) which directly point to the impact of multimedia on learningprogress of special course in different level. Also, we can point to the findings of the research of Cluver (2002), Oliver (1985), Lwise et al (1987). These studies agree with the impact of multimedia in intellectual development.

In governed educational process, administrators concerned about students' mind wholly and it can be said that their spirit and psychological needs have been neglected. Memorizing the material is at the center of the education system. In our view, current educational methods used in special schools have defects which keep these children away from the main goal of education, "achieving socio economic and personal adequacy"

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According to the progress of science and technology, there is an increasingly need for new methods of teaching, nowadays. Active methods of teaching are those which stimulate students' mental activity in the field of theircommon needs (Karimi 2004).

The research conducted by Kuzma (2005, quated by Miker 2011) indicates that multimedia technology influences positively in a few ways: enhancing students' score, deepening the view of teachers and students toward technology, increasing innovation in schools.

CONCLUSIONS

There are a few strategies which guide a teacher to provide desirable progress for all three groups in singleclass. They include:Students and teachers should cooperate with each other so that both would be able to catch the goals of learning according to their capabilities. It is suggested to the whole administrators of special education ministry to focus all their efforts on making 18multimedia to flourish the innate talents in these kinds of children, administrators and planners are asked to implement this project in a few provinces experimentally and benefit of the results of it for their programming. it is recommended to administrators of ministry of special education that to make class hours much more lively and charming by means of professional coaches' views in order to reinforce the mental, intellectual and physical 24abilities of

these children. Create a clear vision for the teachers to be successful in the field of education via multimedia & understanding that training through creative use of technology will provide opportunities new ideas and variety of scientific and academic programs for them and finally result in enhancing the qualities of courses & their efficiency in training. Providing appropriate software for virtual training; expanding broadband internal network; providing appropriate hardware for virtual educational system are our recommendation to administrators of especial educational system

REFERENCES

1. Slovin, R. E., (2011). Educational psychology; theory and application: translated by seyedmohammadi, yahya, Tehran, Ravan
2. Afrooz. (1994). Mental retarded child, Tehran: Tehran University press,
3. Behrman, R. (1995), textbook of pediatric (translated by KhosrowAhsaniGhahramaniet. Al). Tehran: AyandesazanShahrab press, first edition
4. Khaleji, j., Emad, m. (2003). The impact of selected motion schedule on motor-perceptual performance of children, sport science press (v. 1, p30-42)
5. Beachman, A. N., Alty, J. L. (2006). An investigation into the effects that digital media can have on the learning outcomes of individuals who have dyslexia. *Computer & Education*, 47, 74-93.
6. Boyle, T. D; Howard, C; Bottcher, J; Jorraine, L; Schenk, K; Ogers, p; Berg, G. A. (2008). Design for multimedia, in encyclopedia of distance learning, United States of America, 3, 11-62.
7. Collis, B ; Moonen, J. (2002). Flexible Learning in a Digital World: Experiences and Expectations. London, Kegan112.
8. ZareeZavarraki, A., Gharibi, F., (2012). The educational impact of multimedia on the level of learning and retention math in mental disabled girls' student in fourth grade of Arak. *Psychology Quarterly of Special People*, vol. 2 & 5.
9. Sarmad, Z., Bazargan, A. & Hejazi, A (2003). Methodology in behavioral science, Tehran: Agah press,
10. SharifiDaramadi, P., Molavi, H. & Rezvani, F. (2009). The Impact of Training of Emotional Intelligence on General Health of the Mothers of Cerebral Palsy Children in Isfahan, *Science and Research Journal*.
11. Karimi, A. (2003). Training against creativity, *management quarterly in education* vol. 2 (3)
12. Marlou, D. (2001). Nursing of children, translated by Sonia Arezu Manias, Tehran: human advertisement and press (p 519-531)
13. Majdfar, M. (1999). Course plane is an appropriate software in educational technology, Tehran: Chapar-Farzanegan press

