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# The Effects of Instructional Technology and Media on the Painting Skill of Special Kids

Zohre Sahebi[a], Javad Alimohammadi Ardakani[b]*

[a]*First affiliation, Address, City and Postcode, Country*
[b]*Assistant Professor, Painting Faculty of Art Science and Culture University, Tehran, Iran*

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## Abstract

Children of any age group are in their objective thinking stage, hence the importance of using tools consistent with their cognitive and mental characteristics. This study uses a descriptive-analytical approach, with an attempt to scrutinize the perception of instructional technology and media effects in conveying the instructional concepts to special kids. As such, a lesson plan based on painting skill was selected for this research study. The participants consisted of 40 male and female students from grade 1-6 elementary school from Ahwaz city (Khouzistan, Iran) which were sampled using systematic cluster sampling method, with an applied and experimental nature. The research tools were the paintings obtained from children both before and after the education. Based on these paintings, a questionnaire with 20-question was designed. The results indicated that using instructional technology and media in a correct and sophisticated manner would facilitate and accelerate better and more efficient teaching of painting to children particularly special kids.

*Keywords:* Instructional Technology; Media; Painting; Special Kids

## 1. Introduction

Advancement in science and technology has led to the advent of new sciences, which creates new demands and challenges for human being. One of the most important areas which experienced fundamental transformations through the advent of new technologies is in the field of education and training. Thus, many psychologists and experts in the case of education have recommended the use of instructional technologies, because these technologies cause the easiness, speed and accuracy in teaching and learning. What makes the perception of new education systems as a modern

* Corresponding author. Tel: +98-9121762735.
*E-mail address:* alimohammadi@usc.ac.ir.

instructional technology and a challenge in education system is the effect of these technologies on applying instructional media in educational system to enhance and promote the quality of learning for the learners (Basaza, 2014).

Instructional technology is a branch of human applied knowledge that deals with events constituting education with an integrated and systematic view. This provides specific solutions, procedures and patterns to perform instructional operations in different situations for different students (Far Danesh, 1998). Today's students are growing up in a technological society and the application of technology is comprehensively observable in business, industry and society. Therefore knowledge of technology among students is deeper and more realistic than adults, and the most important thing is that these groups have accepted the technology and are depended on it (Zophan, and Lotfipour, 2006).

The rapid progress and development of technology and sciences on one hand and vital individual and public demands to better living and reaching to self-reliance at the other hand, urges all social institutions, especially schools, to use new technology to enhance the efficiency and to meet the demands. From this point of view, research results indicated that materials and methods of education can be of substantial contribution to extol the qualitative and quantitative learning that can provide a sensible base for thinking and creation of concepts for students; and besides attracting and absorbing the interest of students they also can lead to faster, more efficient and stable learning (Ahadian, 2014). The fundamental issue raised in education and training field is lack of accessibility to information, but on the contrary it is a matter of "understanding and comprehending the information that learners are continuously exposed to" (Garison, 2006).

Learners may encompass all individuals in a society from infants to elders as well as special kids who are not exceptional and there is an urgent need for their education. With these explanations, it seems necessary to have an educational approach through which one can optimally use physical strength, kinetic energy, sensations, cognitive and mental strength of these kids so that they can reach a higher level of growth, creativity and innovation; and in this way one can train artistic kids. The lack of these educations will inevitably and certainly have an effect on the treatment, creativity and lack of focus among the special kids.

Hence, this study aims to investigate the impact of instructional technology and media on the painting skill of special kids to make their mind more productive and open a new world with a different look to their eyes. In order to achieve this goal, a fundamental question has been raised; to what extent the instructional technology and media be effective on teaching painting to special kids?

The research conducted on this topic so far has indicated that instructional technology and media as a mediator can be helpful to develop teaching painting to special kids, who at first glance seem to be un-educable an un-trainable, and guided instructional planning can have more impact on their teaching and learning process. With regard to the research subject and its objective, this study has been done using a descriptive-analytical method and it is of an applied (practical) nature. The population sample selection consists of 40 male and female special (mentally retarded) students from grades 1-6 at elementary school (Hazrat Zahra school), in Ahwaz, Khouzistan, Iran using a systematic cluster sampling method.

The data collection tools were based on the pre-test and post-test designed by the researcher that included questions related to educational technology, media and painting. In the first step, the students were asked to draw and paint; the later post-test step was performed with many practicing sessions with these students (using variety of technological tools, different types of media and painting tools). This enhanced their level of perception, understanding and abilities. In the final

step, to answer the main research question, this study analyzed the implemented research design of the proposed method using descriptive statistics including measuring frequency, average percentage and inferential statistics.

In addition to the comprehensive definition of instructional technology presented in Far Danesh's study (1998) entitled "Instructional technology and its importance", the reasons and necessities are provided to solve problems by using instructional technology, a step to increase the productivity and deal the limited hours of training for all those involved in the education and training. To improve the efficiency coefficient, training alone was possible through the application of scientific findings taken from the research for education, and this is an undeniable necessity.

Instructional technology and media make a sufficient learning ground for students who will be participating in teaching and learning process. Different instructional media have been extensively used as tools for facilitating teaching and learning in education systems. By combining theoretical and practical matters, these tools will help in persistent learning and maintain the sense of diversity in classes. With regard to the scientific and technological advancement in the last century, instructional tools, as mediators, played their roles appropriately. Nowadays, educational systems are trying to provide learners with a more desirable learning environment through instructional technology (Siadati, and Taghi Yare, 2006). Learning is something that results from teaching. Learning is not only the process that appears through behavioral changes, but also it is a process that will be inseparable from the learner's mind and it will be used to learn new materials. Gagne believes that what we observe as "behavioral change" in a learner is not all of learning outcome. In other words, a change in behavior is simply a part of learning outcome. A piece of information which will be learnt is a new material that will become a part of learner's mind and will appear as a new set of abilities that students are incapable of understanding before that time (Kenani et al., 1995).

Educational psychologists have found that one of the important factor affecting the speed and level of learning among students are their mental structure and previous knowledge about any given educational subject. Technology of any kind of science is based on the latest applied results of that science; without doubt instructional technology had the greatest influence from behavioral psychology, where educational psychology was highly reliable on the scientific results. This process was in progress until 1950s. But after that time, science related to educational psychology developed and grew in new fields, and it was in 1960s that the results of cognitive psychology were published and reported. Cognitive psychology emphasized on mental processes and how to acquire, learn and restore the information in mind. It is clear that along with the advent and growth of this branch of psychology, instructional technology had also a great impact on this science (for more details refer to Robert Gagne, 1987, as an expert and pioneer in instructional technology). In regard to psychology, Arnheim (2011), in his book entitled "art and visual perception" refers to art - in general and kids painting in particular - as the most popular application of Gestalt Perceptual Psychology. Arnheim theory provides with us one of the comprehensive accounts related to kids painting along with perceptual, emotional – expressional and cognitive – and evolutionary (developmental) considerations in a single framework. In one of his latter works, Arnheim asks the researchers to have more emphasis on visual ideas in the realm of culture and education. The other important principle proposed by Strauss, Lowenfeld and other instructionalists, is that encouraging spontaneous self-expression in art leads to cognitive evolution and self-growth (personal growth). Art is equally important in special (mentally retarded) kids as in comparison with normal children, and teaching art through art and painting therapy can facilitate teaching and learning social skills, assertion skills, confidence, stress and anxiety reduction, role-playing and also enhancing cognitive

and perception power in special kids. In addition to the role of painting to increase the perception and cognition in mentally retarded kids, this visual art – having the flexibility and aesthetic sense – can bring flexibility in educational programs designed for mentally retarded kids and also enhance their learning skills such as reading, writing and calculation (Case and Dalley, 2008; Andreas, 2005).

Many neurologists believe that painting skill will enhance a child's growth, and it can affect cerebral hemispheres. The reported evidence showed that teaching painting and coloring can enhance the operation of cerebral occipital lobe which serves to process visual-spatial stimuli; and consequently this teaching causes the kid to have a better perception of shapes and colors. Based on the other studies which have been performed to shed a light on the effect of painting skill on left and right cerebral hemispheres, it turns out that both cerebral hemispheres deal with perception of artwork; teaching and learning painting can activate both hemispheres and remarkably reduce the perceptual and cognitive problems of mentally retarded children (Zaidel, 2005). Many research studies have been done on subjects such as art therapy, the effect of painting on special kids, and the effect of instructional technology on teaching and learning process. Here, to verify and validate the proposed hypothesis, the authors have made great efforts to study some related studies, and have proposed a questionnaire compatible with criteria and important study elements to be used.

## 2. Data Analysis and Results

The following statistical method has been used for data analysis in this study:

- Descriptive statistics method i.e. calculation of frequency, percentage, average, standard deviation and statistical tests
- Inferential statistics
- Crobach's alpha methods to calculate the reliability coefficient

The study has used a questionnaire to collect the data, SPSS software was used to perform statistical operations on the data. Researchers who use SPSS for data analysis can calculate the reliability of their measuring tool by Cronbach's alpha method, by using a formula for this type of calculation (Moghimi, 1998). Likewise, the reliability of applied questionnaire was tested using Crobach's alpha. This method is used to calculate the internal consistency of measuring tools including the questionnaire or tests that measure different attributes. To calculate Crobach's alpha coefficient, first the scores of each question subsets contained in questionnaire and then the total variance of these scores are calculated. Crobach's alpha coefficient is calculated using equation 1:

$$\alpha = \left(\frac{n}{n-1}\right) \times \left(1 - \frac{\Sigma^2 s_i}{S_t^2}\right) \quad (1)$$

where,

$n$= the number of test questions

$S_i^2$ = variance of i$^{th}$ question

$S_t^2$ = total test variance (Sarmad et al., 2016)

In this study, the value of alpha was 82% which indicates reliability of the applied questionnaire. Among the multiple procedure applied for data analysis, only three procedures are important. First, the description and preparing of the required data for testing the hypothesis, then analyzing the relationships between variables and finally comparing the results with the expected results considered in the hypotheses (Kivi and Kampenhoud, 2006). In general, data are representatives of

facts, concepts or instructions. If the data describe the facts in words (not in numbers) then we call them qualitative data. These types of data will be collected through observation, interview, extraction from documents and texts (Sarmad et al., 2016). In this study, descriptive statistics method is used to analyze the research data which includes frequency table, bar charts; also different statistical tests are used in this study to verify and validate the research hypothesis. The main purpose of statistics is to extract some conclusions from a lot of observations made in a defined population. Thus, the first question is whether we can describe this large set of observations and how we can organize these multiple observations in a specified framework (Azar and Momeni, 2011). In this analysis, the statistical samples of the collected data have been analyzed using appropriate descriptive analysis tools. Thus, the descriptive analysis of data has been performed using tables and diagrams. The results of above-mentioned analysis are as follows:

## 2.1. Gender Distribution of Respondents

**Table 1** Frequency of respondents based on gender

| Gender | Frequency | Percentage of frequency | cumulative frequency |
|---|---|---|---|
| Girl | 20 | 50 | 50 |
| Boy | 20 | 50 | 100 |
| Sum | 40 | 100 | |

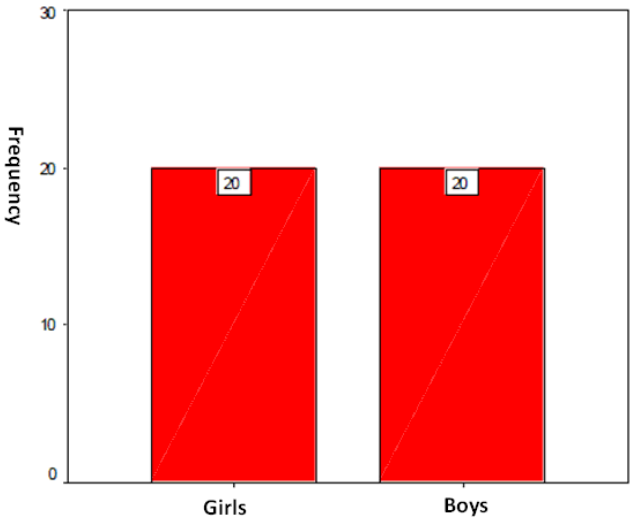


**Fig 1** Frequency of respondents based on gender

As seen in Table 1 and Fig 1, the number of female and male respondents is the same (n=20).

## 2.2. Educational Grade of Respondents

**Table 2** Frequency of respondents based on educational grade

| Age | Frequency | Percentage of Frequency | Cumulative Frequency |
|---|---|---|---|
| First Grade | 14 | 35 | 35 |
| Second Grade | 18 | 45 | 80 |
| Third Grade | 6 | 15 | 95 |
| Fourth Grade | 2 | 5 | 100 |
| Sum | 40 | 100 | |

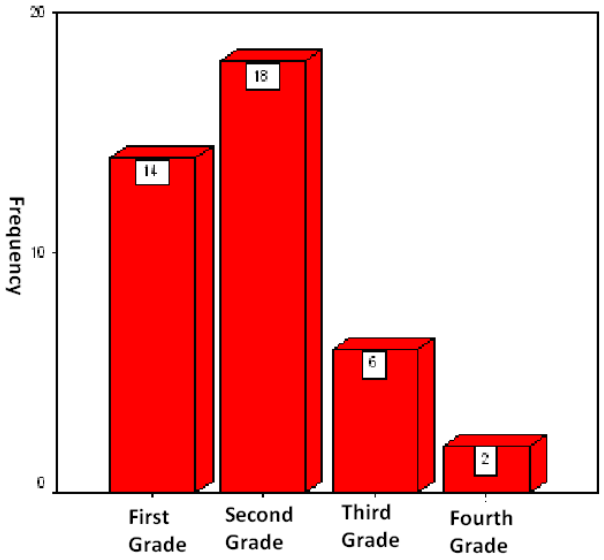


**Fig 2** Frequency of respondents based on educational grade

As it is observed from Table 2 and Fig 2, for educational grade, the highest number of frequency was in the second grade of elementary school with 18 students (45%) and the lowest number of frequency was observed in the fourth grade of elementary school with two students (5%).

## 2.3. Data Analysis using Inferential Statistics

Hypothesis: Instructional technology and media are effective in painting skill of special kids

**Table 3** Result of t-test of research hypothesis

| Variable | Step | Average | standard deviation | mean difference | df | t statistic | sig |
|---|---|---|---|---|---|---|---|
| Instructional technology and media | Pre-test | 21.900 | 2.228 | -13.200 | 39 | -20.667 | 0.000 |
| | Post-test | 35.100 | 3.334 | | | | |

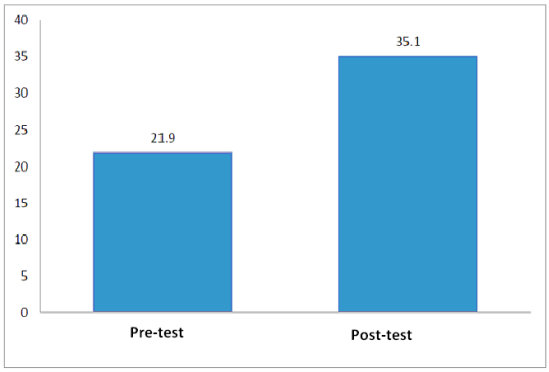


**Fig 3** Histogram for comparison of averages of first hypothesis

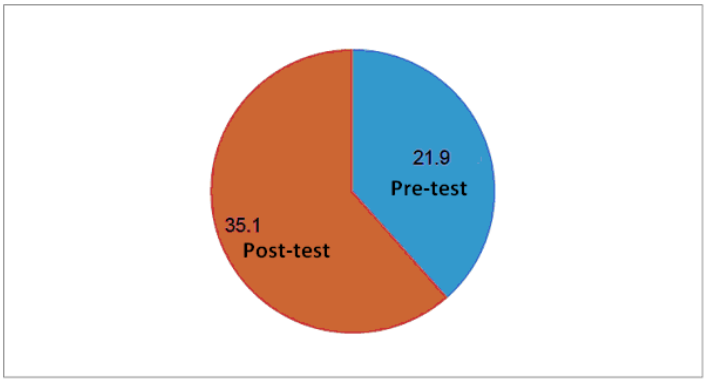


**Fig 4** Pie diagram for comparison of averages of first hypothesis

According to the results of descriptive and inferential statistics, figures and diagrams for pre-test and post-test scenarios, this study showed that instructional technology and media had a positive effect on painting skill and achievement of special kids. Thus, in this regard the proposed hypothesis is validated and verified.

## 3. Discussion and Conclusion

Today technology has a remarkable role in all activities of human beings. The ever developing of technology makes the possibility to extend the human abilities; and fictions and illusions are somehow accessible now. Nowadays, one believes that living on the earth will be subject to difficulties without technology, and even our living will be endangered by present population growth rates. Instructional technology has also the ability to clarify, accelerate and facilitate the learning process and to deepen the learning and make it more meaningful. As technology has an important role in our life, instructional technology is also invaluable. Through appropriate, right and timely application of methods, techniques, tools and facilities provided by instructional technology, we can maximize the rate of learning and instructional efficiency.

Normal people will communicate through language and words, but special kids – lacking this ability and devices – can more often communicate using pictures, movies, music and other types of media. In other words, communication of a human with his/her surrounded environment is so much of a visual-aural type than any lingual or verbal means; these are the main communication interfacing media between the inner world of human and his/her external world. In fact,

communication is one of the necessities of human; a picture, for instance, as a simplest medium is an important factor for facilitating and accelerating this communication. The results of this study confirmed the hypothesis, and the impact of instructional technology and media was verified through data analysis. Thus, one can use instructional technology and different types of media for teaching painting to kids based on their needs, so that one can have better communication with these kids, to gain more knowledge of their inner world, and to help them to reach their educational targets and goals. The hope is to help the development and growth of the special kids through appropriate and right teaching approaches, making their world full of hope, happiness and success.

## References

Ahadian, M. (2014). Fundamental of instructional technology. 36th edition, Tehran, Boshra.

Arnheim, R. (2011). Art and visual perception (M. Akhgar, Trans.). Tehran, SAMT publications.

Andreas, C. (2005). The effects of art education on promotion of visual perceptual skills. USA, Florida University Press.

Azar, A., & Momeni, M. (2011). Statistics and its application in management. 7th edition, Tehran, SAMT publications.

Basaza, G. N. (2014). A hand book of instructional technology (H. Zangane, & M. Hanie, Trans.). Tehran, SAMT publications.

Case, C., & Dalley, T. (2008). Art therapy for children from infant to adolescence. USA, New York and London, Routledge.

Far Danesh, H. (1998). Instructional technology and its necessity. 7, 122-133

Gagne, R. M. (1987). Instructional technology: Foundations. Hillsdale, New Jersey, Lawrence Erlbaum, Associates Publishers.

Garison, D. R. (2006). Electronic learning in 21st century (theoretical and practical basics) (M. Safai, Trans.). Tehran: Oloom va Fonoon.

Kenani, M., Tehrani, A., & Mihandokht. (1995). An introduction to instructional technology. 2nd edition, Tehran: Khorasan publications.

Kivi, R., & Kampenhoud, L. (2006). Research method in Social Science (A. Nik Gohar, Trans.). Tehran: Toti.

Moghimi, M. (1998). Organization and approach-based research management. Tehran: Terme.

Sarmad, Z., Bazargan, A., & Hejazi, E. (2016). Research method in behavioral science. 29th edition, Tehran: Agah.

Siadati, M., & Taghi Yare, F. (2006). Comparative investigation of devices to produce contents in electronic education. Iranian electronic conference, Zanjan.

Zaidel, D. A. (2005). Neuropsychology of Art: Neurological, Cognitive and Evolutionary Perspectives. New York and Hove, UK: Psychology Press.

Zophan, Sh., & Lotfipour, Kh. (2006). Instructional media for classes. Tehran: Iranian textbooks.