

Effectiveness of educating auricular skills on operation of problem solving skills of girl students with mathematical problems

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ABSTRACT: Purpose: its purpose is to study effectiveness of educating auricular skills on operation of problem solving skills of girl students with mathematical problems. Methodology: its method is quasi test research and social statistics is 24 girl students (12 students with mathematical problems and 12 students as control group) with 7-8 years old who had mathematical problems in Tehran, District 14 during first three months of 2013. Sampling was recognized by K-Math test (mathematical disorder) and Azortski test (fine and rough motion skills) that were selected as sample of the research. For analysis of the information, descriptive statistics and illative statistics methods of covariance analysis were used. Findings: education of auricular skills have affect on operation of problem solving skills of girl students with mathematical problems considering to fine and rough motion skills. Conclusion: the results showed that auricular skills have affect on operation of problem solving skills of girl students with mathematical problems and education of fine and rough motion skills have more affect than education of mathematics on development of problem solving skills. Conclusion: The results showed that performance on problem solving skills training atrial of improve mathematics scores of students with learning difficulties are math skills vestibular function scores improved motor skills, problem solving skills, fine motor function of the Vdrsht the school students with math problems is.

Keywords: educating auricular skills, girl students, mathematical problems.

INTRODUCTION

Human has faced with different figures of learning from beginning of his life up to end and is learning continuously so that without this process, life will be impossible in any society. In fact, where there is human, learning is inseparable element (Isargar et al, 2000). The children with learning disability are the children who have abnormal pattern of understanding the world. It seems that their neurological patterns are almost different from the children with same age who don't have this disability. The individual with learning disability are common with a kind of educational and social failure. They are not able to do what others do with same intelligence. They have many problems in one or several learning fields such as reading, writing, spelling and mathematics and need to special training for educational development (Creck & Galager and Anastasio translated by Heidari, 2008).

Many researches have showed that the most important neurological property of students with mathematical learning problems is problem with calculation, naive approaches in problem solving, memory problems, viso-spatial processing failure, weakness of executive functions, attention and working memory (Abedi, Aghababaei, 2010).

Richardson and Suuin (1993) defined mathematical anxiety as tension feeling and anxiety that interfere with work with numbers and mathematical problem solving and this interference includes a range of life situations to educational situations (Heidarian, Aryana, 2009).

Sensory processing has role on evolution of different motion steps and creating great operations of brain. A child receives and integrates different sensory inter-data especially deep auricular sensory ones and sense of touch during the first two years of his life. The above processing and integrity and sensory inter-data and their interaction with sense of sight and hearing create primary levels of motion skills (Kimbal, J.G., 1999, Chu, S. 2003). Ayerz believes that this development occurs very rapidly during the first 7 years of life and continues up to adulthood (Parham & Milox, 2005).

Auricular system provides direct cooperation with motion control for providing sensory information. Central nervous system uses descending motion direction that receives auricular information and other information for controlling stand-up situation of head and body (Herdman, 2007).

The patients with secondary auricular slow work have differences based on type and extent of auricular failure. Despite of these differences, these patients have some symptoms such as dizziness, wackiness and imbalance, etc. In addition, these patients may experience anxiety, depression and fear related to their disorder. If this habit is not improved, it can result in physical unconditional making and change in style of life (same source).

In view of Harwel loinsen, auricular system is a unifier system of brain and he believes that when this system can not have suitable action, input data are divided by senses incorrectly and dissimilarly and makes some problems that cause disorders (Fing, Bitá translated by Raghfar, 2004). Ayerz proposed that nervous works are done by some treatments such as auricular stimulus, muscular and touch receptors. Auricular stimulus is a stimulus that has been designed for increasing correct operation of auricular system and transfers information by balance-sonic nerve to high cortical balance centers. This system receives muscular and joint receptors and transfers sensory information about movement (Pourmohammad, 2000). According to Ayerz, balance stimulus make accommodates nervous system for providing accommodation respond. If this system has not a correct and suitable operation, interpretation of other senses will be disturbed. Therefore, auricular stimulus has deep affect on development of nervous system (quoted from Aboutaleb, 1999). Physical issues were the first clinical research in the filed of auricular stimulus. Ayerz was pioneer in application of auricular stimulus as radial dimension of sensory integration treatment that was first used for the children with learning disorder (1973). As lack of sense is controller of the conditions in which remarkable decrease in sensory suitable stimulus is seen during a time period. Totally, all individuals with disabilities have lack of stimulus, capacity of understanding and interpreting sensory inter-data (Maher, 2007). Therefore, the main question of this research is whether education of auricular skills has affect on operation of problem solving skills of girl students with mathematical problems?

METHOD OF THE RESEARCH

Whereas the research is going to use the results of research, this research is applied and quasi testing research. As conditions of the research is under control of the researcher, social statistics is 24 girl students (12 students with mathematical problems and 12 students as control group) with 7-8 years old who had mathematical problems in Tehran, District 14 during first three months of 2013. Sampling was targeted within 7-8 year's old girl students with mathematical problems and consultation with psychologist of these schools and was recognized by K-Math test (mathematical disorder) and Azortski test (fine and rough motion skills) that were selected as sample of the research. 24 girl students were selected as samples of the research. They stand in two groups, control group (12) and experimental group (12).

METHOD OF THE RESEARCH

First step

Selection of students with mathematical problems

Second step

K-Math, Azortsky test from 7-8 year's old girl students with mathematical problems

Third step: to practice and learn for increasing motion-conceptual connection.

INFORMATION COLLECTING METHOD

The results were evaluated by 1) test of Azortsky for motion-conceptual skills, 2) K-Math test. Observation tools and recording changes were used by the researcher for information collecting. The researcher at first recorded type of disorder and structured interview by using researcher made questionnaire such as Azortsky test of conceptual-motion skills and K-math test in check list and then auricular stimulus was taught by the system for education of designed auricular stimulus within 2 months in 18 sessions and the changes were noted.

Analysis of information

Descriptive statistics for analysis of information and illative statistics for covariance analysis were used. Hypothesis studying:

First hypothesis (main): education of auricular skills have affect on operation of problem solving skills of girl students with mathematical problems.

Table 1. results of covariance analysis for scores of problem solving in two control and experimental groups

Sources of change	Total squares	Freedom degree	Average of squares	F	Meaningful level
	36.518	1	36.518	5.885	0.021
Group	5286.151	2	2643.075	42.205	0.000
Error	2003.982	32	62.624		
Total	44760.000	36			

As you can see in table 1, amount of F calculated for scores of problem solving in test of mathematical education and fine motions are.

Table2.

Group	Modified average	Standard deviation
Mathematical education	30.991	2.34
Fine motion education	47.200	2.48
Control	14.976	2.32

Second hypothesis: education of auricular skills have effect on operation of problem solving skills of girl students with mathematical problems considering to fine motion skills.

Considering to first and second hypothesis and information gained from tables 4-4 and 4-5 and considering to amount of F and reported meaningful level, after modification of pretest scores, there is meaningful effect of factor within students.

Modified average scores of the group show that both groups have been successful in goals of education and the students have had development but education of fine motion have had more affect than mathematical education on development of problem solving skills of girl students.

Modified average of mathematical education and education of fine motion were 30.991 and 47.200 respectively. Education of fine motion was more useful than mathematical education.

CONCLUSION

Nowadays, the studies about cognitive specifications of individuals with learning problems have determined some special cognitive processes that differentiate the aforesaid children from normal children with same age. Most of these researches emphasize on process of memory, attention and documents (Raesi Yazdi, Amiri, Molavi, 2008). Life is a great opportunity that brings small issues for us daily that we know them as problems. Problem solving has a good affect on creating self assurance and gaining calmness and gives a special power to human to face with problems (Khanifar, Pourhosseini, 2010).

Access of anxiety is natural reaction of everyone toward different events. If there isn't this anxiety, motivation doesn't create in individuals and if amount of this anxiety exceeds its natural limit, there will be unsuitable situation in life of the individual (Samimi Ardestani, 2009).

First hypothesis (main): education of auricular skills have affect on operation of problem solving skills of girl students with mathematical problems.

Results of the table showed that auricular skills have affect on operation of problem solving skills of girl students with mathematical problems. These results was similar to Dilda, Mac Dogal et al (2012) who understood that vestibular galvanic stimulus increases cognitive operation and also Wilkinson et al (2008) understood that time of mention of participants who received vestibular galvanic stimulus was shorter than other participants who were not subject to the stimulus. There is meaningful relation between speed of mention and vestibular stimulus. These findings are similar to findings of Ghahramani (2009), Ghanaei (2007), Rahamalek (2006), Moradi (2004), Fallah (2002), Dalvand (--), Zeinali (1999) in Iran and researches of Almida and Carvalho (2011), Clark et al (2008), Robert et al (2002), Dav (1990), Brooke lores and Woodes (1990), Maclen Webameister (1982), Cantner et al (1976) and Farman et al (1976 in abroad).

Second hypothesis: education of auricular skills have effect on operation of problem solving skills of girl students with mathematical problems considering to fine motion skills. Results of the table showed that the children in both groups have had development but education of fine and rough motion had more effect than mathematical education on development of problem solving skills of girl students. Results of this research was similar to results of Dalvand who found that deep and auricular stimulus have positive effect on facilitating development of fine and rough motion, language and social and individual skills. Meanwhile, findings of this research are similar to results of Ghahramani (2009), Ghanaei (2007), Rahamalek (2006), Moradi (2004), Fallah (2002), Zeinali (1999) in Iran and and researches of Almida and Carvalho (2011), Clark et al (2008),

Robert et al (2002), Dav (1990), Brooke lores and Woodes (1990), Maclen Webameister (1982), Cantner et al (1976) and Farman et al (1976 in abroad. Limitations of the research: Present research is limited to Tehran city on academic year 2012-13 and girl students with 7-8 ages. Incognizant parents caused to decrease treatment activities.

Applied suggestions

Educational centers are advised to do auricular practice in sport programs of students. Some educational classes are held for teachers for recognizing auricular disorders. Educational sessions are held for parents to learn auricular practices for using at home. Auricular practices and their affect are introduced to authorities of education to use. Research proposals: method of research is compared with other methods. The treatment is followed. The research is performed widely with more population. The research is performed for other girl and boy students. The research is performed for other problems of students.

REFERENCES

- Asadollah Sanandaji H. 2008. Effect of sensory integration practices on decrease of inexpressive reading of students of Tehran with 7-10 years old. Thesis for MAaster's degree. Islamic Azad University, Central Tehran Branch.
- Bamiou DE, Sisodiya S, Musiek FE, Luxon LM. 2007. The role of the interhemispheric pathway in hearing. *Brain Res Rev.* 56 (1): 170-82.
- Cheraghchi SS. 2011. Effect of sensory integration education on improvement of writing problems of students.
- Ghahramani M. 2009. Effectiveness of auricular and sensory stimulus on decrease of over active signs and lack of children's attention, Thesis for MAaster's degree. Islamic Azad University, Central Tehran Branch.
- Halahan D, Pilyod J, Kafman James M, Vis Margaret P, Martines E. 2012. Learning disorders translated by: Alizadeh, hamid, Alamdarloo, Hamidrezaei, dehnavi, Sedigheh, Shojaei, setareh, Arasbaran publication.
- Marcano-Reik AJ, Blumberg MS. 2008. The corpus callosum modulates spindle-burst activity within homotopic regions of somatosensory cortex in newborn rats. *Eur J Neurosci.* 28 (8): 1457-66
- Pourmohammad N. 2000. Studying and comparing sensory and motion skills of mental retarded students of primary normal and exceptional institutes of Esfahan. Thesis for MAaster's degree. Islamic Azad University, Central Tehran Branch.
- Zayer M. 2007. Group rehabilitation of itism with sensory integration. Thesis for MAaster's degree. Faculty of psychology and social sciences of Islamic Azad University, Central Tehran Branch.