The Caspian Sea Journal
ISSN: 1578-7899

Volume 9, Issue 1 (2015) 09-16

Impact of Inactive, Active, Multi-Sensory Cognitive Educating In Accepting and Employing the Strategies in Kids with Soft Intellectual Inabilities

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ABSTRACT — The objective of this research is to evaluate the impact of active, inactive and multi-sensory cognitive educating in accepting and employing the strategies in soft mentally weak kids. Therefore, by applying a semi-empirical method a sample of 60 persons was chosen using random, layered sampling drawn from a thicker population of all the soft mentally retarded people studying in the fourth grade of special schools situated in the city of Ahwaz. This group was subsequently allocated to the empirical and control groups. To record and specify the efficiency and competence of the discplines in pre-test and post-test, pictorial cards (fruits, animals and articles) have been employed in the educational intervention covering active cognitive strategies, inactive cognitive strategies (study, generalization and categorization) and also active cognitive Fernald multisensory method were managed for 7 days in the experimental group; concurrently, the control group had been accepting irrelevant programs. The data were analysed using inferential and descriptive statistics (one-way ANOVA and Tukey follow-up test). Results showed that active, inactive and multi-sensory cognitive educating was influential in accepting and using the retention and retrieval strategies in kids with mild retardation. But, no between-group difference was seen among the three mentioned groups on retention.

KEYWORDS: Fernald Multi-Sensory Method, Active, Inactive Cognitive Strategies, Retrieval, Retention, Generalization.

Introduction

Children with mild intellectual abilities have always attracted the attention of the medical profession, psychologists, sociologists, educationalists, and geneticists. In the meantime, in comparison to other groups who could be normally educated, mild mentally retarded children are at the centre of attention. Educating this group of children has always been a great challenge in the realm of special education. Nonetheless, according to Kraijer & Plas (2006) there should be some sorts of coordination between the level of their efficiency and their biological age. Children with mild intellectual disabilities, show little ability in using learning strategies, as an example, when they are exposed to recite numbers 3, 4, 5, 8 they are expected to create ordination via utilizing organizing strategy, unfortunately, no tendency toward finding such a heterogeneous resolution is observed (Halahan translated by Javadian, 2005). In comparison of the learning abilities in mentally retarded individuals, one of the most compatible finding is that when mentally retarded individuals are asked to recall a list of words, sounds, or a group of photos which have been presented a few minutes ago, their performance seems weaker than those who don't suffer deficiency (Halahan, translated by Maher, 1998). It's mainly believed that students with special mental needs may not be considered as active learners because they are incapable of using review cognitive strategies (Borkowski, 2000 quoted by Yousefi), generalizing and organizing (Sharifi Daramadi, 2006). After a while, a new strategy will be let and individual will be able to generalize the strategy in adoptive form. Many researchers believe that mentally retarded children's inability in using the repetition and organization strategies is due to the lack of growth in the process of executive functioning (Halahan, translated by Javadian, 2005). Other studies also confirm that mentally retarded children encounter problems in utilizing the cognitive strategies (Yousefi, 1999).Recently done studies show that a significant part of cognitive strategies can be learned. Moreover, cognitive trainings exert influence on educational performance (Ruthanne & Von Thaden) and committing things to memory (Henry & MacLean). Researchers believe that we are able to improve the deficiencies related to memorization, retrieval, retaining and generalizing through using appropriate educational strategies. Educational studies have confirmed that the central point of many deficiencies in mentally retarded individuals is in the control or output process. But the main point is that education takes on key and leading role and exerts many positive effects. The crucial role of active cognitive strategies (review, categorization and generalization) in the improvement of memory deficiency, retrieval, learning, retention and generalization strategies in children with special mental needs has been observed and its effect on children's retrieval has been confirmed (Cantrell &et al, 2010; Martin & et al, 2001; Martin and Jones,

1985; Comblain, 1994; and Broadley). Inactive cognitive strategy finds itself on the other end of continuum that has stimulated not many pieces of research. In this method, the child receives no direct instruction from the examiner and should commit things to memory through using mnemonic devices. Prior studies carried out in this field demonstrated that children with special mental needs were not able to retain the data through using mnemonic devices (Glidden & Mar, 1977), on the grounds that these children can't automatically employ the cognitive strategies (Sharifi Daramadi, 2006). Further research showed that this inability might be due to the strategic deficiency. A study by Turner and Brown (quoted by Ashman and Kanoy, translated by Touzand Jani et al, 2004) indicated that children and adolescents with mild intellectual inabilities are able to automatically employ the required strategies fit in with the assigned task or assignment.Mentally retarded children also have special sensory and kinesthetic features that influence their learning. If we accept this claim, many children have one or more specific problems that can be managed and dealt with through special trainings (Chan and Kele, quoted from Maher, 2007). Use of strategies that can involve multiple senses can help individuals with their memorizing, retrieval and learning problems (Riggs, 2008). Multisensory instructional approach incorporates use of the visual, auditory, kinaesthetic, and tactile (VAKT) modalities simultaneously (Henry, 1998, quoted by Aghalar, 2006). This approach is an effective strategy that improves memory for printed words and word parts and different studies done is this field demonstrates its increased effectiveness in learning (Aghalar, 2006; Eshaghi Gorji, 2002; Jena Abadi, 2007; Kakayi, 2002). Moreover, the incorporation of this method with active cognitive strategies can foster and accelerate the educational development. Teaching the strategies to children if they are unable to maintain the strategy till the next day, is a waste of time. Hence, we should initiate and mount effort to enable students to retain the strategies. Educational training is totally effective but there exist some problems with not very reliable outcomes. When the reward is discontinued, the effect of training is also neutralized. Intensive training can retain the results for over six month; however, this requires the assignment to remain unchanged.Studies done by Fereshteh Baezat (1997), Pour Jalal (1997), Majid Yousefi Louyeh (1999), Broadley (1992), Comblain (1994) indicated that these children were able to somehow retain the learned strategies and employ them in the future conditions. There is low possibility of shifting to new assignments and this is true even when the assignment is easy (Robinson and Robinson, translated by Maher, 1998). In-depth and detained studies show that these methods do not lead to retention and generalization of learned strategies (Chan and Kele, translated by Maher, 2007). The present research tried to assign the cognitive strategies into two groups of active cognitive (the individual is encouraged to review, generalize, categorize and employ these skills in the experimental assignments) and inactive cognitive (the individual does not actively manipulate the experimental assignment and the created and existing condition helps him/her in memorization). We have also tried to incorporate the multisensory and active cognitive strategies to help children with special needs deal with memorization and retrieval. Inattention to inactive cognitive strategies and multisensory method in order to enhance the memorization skills of students with mental limitations in previous studies are the reasons to shed light on the problem of memorization, retrieval, retention and generalization.

Materials and Method

The present research employed a quasi-experimental method and pre-test, post-test with control group design. Our statistical population included all the children with special mental needs studying in the fourth grade of special elementary schools located in Ahwaz in the school year ran from 2010-2011. From this population, four schools were selected through random, cluster sampling, out of which 60 students with mental inability were randomly selected and assigned to three experimental groups (active cognitive, inactive cognitive and active-multisensory cognitive) and one control group. All the four groups included 15 individuals.

Data gathering method

12 cards were used to assess the retrieval skill in pre-test and post-test. The subjects of these cards were fruits, animals and objects which were presented in four cards for each subject. A total number of 18 cards were used in the training sessions. Moreover, 12 cards were used apart from the previous cards of pre-test, post-test and training sessions.

Performed tests: pre-test, post-test, retention and generalization test.

Retrieval pre-test included 12 cards which were presented prior to the children's training in order to assess the retrieval ability and as a placement test. Retrieval post-test also included 12 cards that were administered on children subsequent to the treatment to assess the effectiveness of the educational program. 12 other cards were used for the retention and generalization tests.

Instruction of pre-test, post-test and retention-generalization test is as follows:

The child is informed of the game; we will tell him or her that we are going to play a game. I'm going to show the photos to you and tell their names. Watch them out and try to memorize their names. When we're done with the photos, you can tell me what you have seen.

One picture was shown to the child and he was given 5 seconds to see it and the next card was shown after 2 seconds. The obtained results were written in specific tables of the test.

Performance method

Special trainings were provided for one week for the three experimental groups. The examiner ran direct interference in the process of learning in active cognitive group and taught the techniques and strategies to the child. The child was constantly encouraged to employ the strategies in the experimental assignments. This group received three types of active cognitive training (review, generalization and categorization). In each stage of strategy training, repetition was also used and the child was strongly encouraged to make use of the strategy. For example the examiner told the child "don't you think that you can remember the

words much better when you repeat them (review)/ associate them to something in your mind (generalization)/ or place them in their category (categorization)". After the training and strategy implement, the child was exposed to the experimental task and got highly encouraged to employ the strategies in similar situations. Subsequent to the training and experimental tasks, the child was provided with success feedback of his performance shown in a pictorial graph. He was then constantly reminded of executing the strategy in doing similar assignments. The child is asked about unfinished sentences in order to get assured of the strategy learning. The examiner doesn't run any interference in the process of learning in inactive cognitive training. In this method, the group receives the words from the examiner through mnemonic devices. Theses mnemonic devices are prepared in a way to guide the child to place the card in its own place. Correct understanding of the meaning generalization in mnemonic card helps child associate the written mnemonic to its related picture (when received the rabbit card the sentence of the rabbit runs fast was written on the mnemonic card). The cards were selected to stimulate the child to form an association between the card and the sentence. Therefore, the child was motivated to generalize the meaning. Finally in the categorization stage, the cards were placed in their own positions based on the subjects. No encouragement was offered in this stage and only child performance was demonstrated through a pictorial graph and explanation. If the child can remember the cards, the examiner would say that "you see, you are making a progress, this line which indicates your success is mounting. Well-done". No further explanation is given.
The Fernald Method is a systematic, multisensory instructional approach that incorporates use of the visual, auditory, kinesthetic, and tactile (VAKT) modalities simultaneously. The association of sensory and perceptual cues reinforces the mental image of words as well as the association between printed words and their oral representations. In this step the examiner should model word tracing for the student. Subsequent to saying the word, we trace the word using one or two fingers, saying each part of the word as you trace it. Then, we say the word again while underlining it with the tracing fingers in a fluent motion; and have the student practice tracing until the process is completed correctly.Next, we should have the student continue tracing the word until the student is sure he or she can write the word from memory with no errors. When the student feels ready, remove the model and have him or her write the word while saying it. If at any point the student makes an error, stop the writing immediately, cover or erase the error, and have the student use the tracing procedure again before proceeding. After the student has written the word correctly three times without the model, have the student file it alphabetically in a word bank. The training sessions were held individually. Moreover, control group also received unrelated educational sessions in order to eliminate the effect of the examiner.

The results were analyzed using descriptive and inferential statics (mean, standard deviation, minimum and maximum, one-way ANOVA, Tukey test and convergent harmonic means.

Results and Findings

Table 1- the mean, standard deviation, maximum and minimum scores of the test.

Descriptive statics		No	Mean	SD	Min	Max
Protest	Control group	15	7.40	1.29	6.00	9.00
	Inactive cognitive	15	7.46	1.06	6.00	9.00
	Active cognitive	15	7.93	1.09	6.00	10.00
	Active multi-sensory group	15	7.66	1.04	6.00	9.00
Post-test	Control group	15	7.86	0.74	7.0	9.0
	Inactive cognitive	15	10.33	0.97	8.0	12.0
	Active cognitive	15	11.13	0.91	9.0	12.0
	Active multi-sensory group	15	11.66	0.48	11.0	12.0
Retention score	Control group	15	7.06	.70	6.0	8.0
	Inactive cognitive	15	9.53	.99	8.0	12.0
	Active cognitive	15	9.66	.81	8.0	11.0
	Active multi-sensory group	15	10.00	.75	9.0	11.0
Generalization score	Control group	15	7.26	0.79	6.0	8.0
	Inactive cognitive	15	9.13	0.99	7.0	11.0
	Active cognitive	15	10.00	1.19	8.0	12.0
	Active multi-sensory group	15	10.20	0.94	9.0	12.0

As observed in table 1, the mean and standard deviation in the control group equaled 7.40 and 1.2 in pretest, 7.86 and 0.74 in post-test, 7.06 and 0.70 in retention test, 7.26 and 0.79 in generalization test. Mean and standard deviation of inactive cognitive group equaled 7.46 and 1.06 in pretest, 10.33 and 0.97 in post-test, 9.53 and 0.99 in retention test and 9.13 and 0.99 in generalization test. Mean and standard deviation of active cognitive group equaled 7.93 and 1.09 in pretest, 11.13 and 0.91 in post-test, 9.66 and 0.81 in retention test, and 10.00 and 1.19 in generalization test. Mean and standard deviation of active

cognitive -multisensory group equaled 7.66 and 1.04 in pretest, 11.66 and 0.48 in posttest, 10.00 and 0.75 in retention test and 10.20 and 0.94 in generalization test.

Table 2- One-way variance analysis for mean difference analysis between control, inactive cognitive, active cognitive and active multisensory groups

	Sum of squares	Degree of freedom	Mean squares	F test	Significance level
Between-group	127.117	3	42.372	65.669	.0010
Error	36.133	56	.645		
Total	163.250	59			

The estimated value of F (65.66) at 0.0010 level of significance indicates that there exists between-group difference between control, inactive cognitive, active cognitive, and active and multisensory groups. Therefore, the research hypothesis is confirmed and active-inactive-multisensory training is effective in the improvement of retrieval rate in children with mental retardation. Tukey follow-up test was conducted to fully investigate the between-group difference.

Table 3- Tukey follow-up test for mean difference analysis between controls, inactive cognitive, active cognitive, and active multisensory groups regarding retrieval enhancement

		Mean difference	Significance level
Control group	Inactive cognitive group	-2.467	.0010
	Active cognitive group	-3.267	.0010
	Active cognitive multisensory group	-3800	.0010
Inactive cognitive group	Control group	2.467	.0010
	Active cognitive group	-0.800	.041
	Active cognitive multisensory group	-1.333	.0010
Active cognitive group	Control group	3.267	.0010
	Inactive cognitive group	0.800	.041
	Active cognitive multisensory group	-0.533	0.276
Active cognitive multisensory group	Control group	3800	.0010
	Inactive cognitive group	1.333	.0010
	Active cognitive group	.533	.276

Tukey follow-up test (table 4) indicated that there is between-group difference between control group and inactive cognitive (2.467), active cognitive (3.267) and active cognitive -multisensory (3.800) regarding retrieval enhancement at 0.05 of significance level. The negative difference finds support for the higher score of inactive cognitive, active cognitive and active cognitive -multisensory. Therefore, it can be concluded that training program was effective in the improvement of children's retrieval enhancement in all the experimental groups. The mean difference between active-multisensory group and inactive cognitive group (0.533) is not significant at 0.05 level of significance. However, the mean difference between active cognitive group and inactive cognitive group (0.800) is significant at 0.05 level of significance. The harmonic mean test indicates the order of training effectiveness on the groups as following: control group in the first category, inactive cognitive group in the second category, active cognitive group and active multi-sensory group fit into the third rank.

Table 4- One-way analysis for mean difference analysis between controls, inactive cognitive, active cognitive, and active and multisensory groups regarding retention test

	Sum of squares	Degree of freedom	Mean squares	F test	Significance level
Between-group	81.733	3	27.244	40.150	0.0010
Error	38.000	56	.679		
Total	119.733	59			

Table 4 demonstrates one-way analysis for mean difference analysis between control, inactive cognitive, active cognitive, and active- multisensory groups regarding retention test. Value of f (40.150) at 0.001 level of significance indicates the significant mean difference between controls, inactive cognitive, active cognitive, and active- multisensory groups at 0.05 error level. Results also support the mean difference between control, inactive cognitive, active cognitive, and active- multisensory groups with regard to retention test. Tukey follow-up test was performed to fully assess the between-group difference.

Table 5- Tukey follow-up test for mean difference analysis between control, inactive cognitive, active cognitive, and active-multisensory groups regarding retention test

		Mean difference	Significance level
Control group	Inactive cognitive group	-2.467	.0010
	Active cognitive group	-2.600	.0010
	Active cognitive multisensory group	-2.933	.0010
Inactive cognitive group	Control group	2.467	.0010
	Active cognitive group	-0.133	.9710
	Active cognitive multisensory group	-0.4670	.4140
Active cognitive group	Control group	2.600	.0010
	Inactive cognitive group	00.133	.9710
	Active cognitive multisensory group	-0.333	.6860
Active cognitive multisensory group	Control group	2.933	.0010
	Inactive cognitive group	.4670	.4140
	Active cognitive group	.3330	.6860

As it can be observed in table 5, the mean difference of control group with active-multisensory group, active cognitive group and inactive cognitive group regarding retention test is equal to 2.933, 2.600 and 2.467 The mean difference is significant at level of 0.05. This result indicates that cognitive strategy training has proved to be effective after one week of time interval among the children with mental retardation in active-multisensory group, active cognitive group and inactive cognitive group. However, the mean difference between active-multisensory group and active cognitive group (0.333) and also between active cognitive group and inactive cognitive group (0.133) is not significant at significance level of 0.05. Moreover, no significant mean difference was observed between active-multisensory group and inactive cognitive group (0.467) at 0.05 level of significance.

Table 6- One-way variance for mean difference analysis between control, inactive cognitive, active cognitive, and active-multisensory groups regarding strategy generalization

	Sum of squares	Degree of freedom	Mean squares	F test	Significance level
Between-group	80.583	3	26.861	27.316	.001
Error	55.067	56	.983		
Total	135.650	59			

As observed in table 5, one-way variance was performed for mean difference analysis between control, inactive cognitive, active cognitive, and active-multisensory groups regarding strategy generalization. The value of F was obtained to be 27.316 at significance level of 0.001 for the control group, inactive cognitive group, active cognitive group and active-multisensory group. Significance supports the between-group mean difference between control, inactive cognitive, active cognitive, and active-multisensory groups regarding strategy generalization. Tukey follow-up test was performed to fully assess the mean between-group difference regarding strategy generalization.

Table 7- Tukey follow-up test for mean difference analysis between control, inactive cognitive, active cognitive, and active-multisensory groups regarding strategy generalization

		Mean difference	Significance level
Control group	Inactive cognitive group	-1.867	.001
	Active cognitive group	-2.733	.001
	Active cognitive multisensory group	-2.933	.001
Inactive cognitive group	Control group	1.867	.001
	Active cognitive group	-0.867	.090
	Active cognitive multisensory group	-1.067	.024
Active cognitive group	Control group	2.733	.001
	Inactive cognitive group	0.867	.090
	Active cognitive multisensory group	-0.200	.946
Active cognitive multisensory group	Control group	2.933	.001
	Inactive cognitive group	1.067	.024
	Active cognitive group	0.200	.946

As it can be observed in table 7, the mean difference of control group with active-multisensory group, active cognitive group and inactive cognitive group regarding strategy generalization is equal to 2.93, 2.733 and 1.876. The mean difference is significant at level of 0.05. This difference is negative which indicates the higher scores of active-multisensory group, active cognitive group and inactive cognitive group. However, the mean difference between active-multisensory group and active cognitive group (0.200) and also between active cognitive group and inactive cognitive group (0.867) is not significant at significance level of

0.05. Moreover, mean difference was observed between active-multisensory group and inactive cognitive group (1.067) at 0.05 level of significance with higher scores of active-multisensory group.

Discussion and Conclusion

The main educational focus with regard to mentally retarded children is that educational method can help children benefit their cognitive system. Cognitive strategies take on key and leading role in training these children. Educational efforts differ with one another based on the stimulation of individual for employing the strategy. There are some approaches that do not provide any training but aime to change the environment to enhance the possibility of strategy implement by the individual. However, there is active educational training on the other side of the continuum that makes use of direct training and the individuals are told what to do. Beside all these strategies, there are multisensory methods like The Fernald Method which is a systematic, multisensory instructional approach that incorporates use of the visual, auditory, kinaesthetic, and tactile (VAKT) modalities simultaneously. The association of sensory and perceptual cues reinforces the mental image of words as well as the association between printed words and their oral representations. Use of this approach also improves memory for printed words and word parts. The Fernald method is intended for individual or small-group instruction and improves sight word acquisition and word identification skill in students who have failed to learn and read through other instructional methods or who have particular difficulty learning exception or phonetically irregular words (e.g., once). Using this method, students are expected to retain reading recognition of the words learned. A different procedure is used to teach the written spelling of words for long-term retrieval. The research purpose was to assess the effectiveness of active, inactive and multi-sensory cognitive training on adopting and utilizing the strategies in children with mild intellectual disabilities. Results proved that active, inactive and multi-sensory cognitive training were all effective in enhancing the learning abilities of mentally retarded children. Results indicate that both active and inactive cognitive strategies can enhance the retrieval rate of children with special mental needs. Repetition, practice, categorization, prelearning and meaningful learning proved to be effective in children's retrieval, specifically when delivered in the context of active training. Doing assignment and practicing is of crucial importance in teaching children with mental retardation and can strengthen the learning foundation. This result is in line with the findings of studies done by Cantrell et al, 2010; Beckman, 2002; Martin et al, 2001; Yousefi Louyeh, 1999; Comblain (1994); Broadly, 1992; Martin and Jones, 1985; Baezat, 1997). Children can employ these strategies; however, they should reach a specific degree of mental growth in order to actively adopt these strategies. This finding proves that a crucial part of cognitive skills can be learned. Our findings are not in harmony with research results done by Glidden and Mar (1997), Halahan (1998), Reed and Hersco (1999) Torgesen (1982) and Torgesen and Houk (1980). These researchers believe that mentally retarded children have low degree of spontaneity and inactive educational methods are not effective. Results also indicate that inactive strategies can be effective and stimulate children for learning (Sharifi Daramadi, 2006) if the mnemonic system for memorization is carefully selected (Turner and Brown, 1985; quoted by Ashman and Kanoy). The present research employed mnemonic as a key for each cognitive strategy like reviewing, generalizing and categorizing and provided a learning condition to enable children to memorize and retrieve the educational materials in the absence of strategy training. It seems that children's deficiency in memorizing is highly due to the mnemonic selection, educational training and teaching strategy rather than their mental inability. Research results indicated that an examiner is bound to show four cards instead of one card to further stimulate a child. On the other hand, the mnemonic card associates the word to a sentence in his long-term memory. This stimulates the child to participate in the task. When the child is offered four cards on one subject, he can relate it to a sentence of his previous information. The cards should be designed in a way to guide the child toward placing the pictorial card with the written word on it in its appropriate place. These methods can help tackle the problem of inactive methods' insufficiency and move toward the success of the educational program. For reviewing process, an adequate number of cards should be used (the same number as the cognitive, active strategy when we tell the child to have a repetition of at least four or five times). In the generalization strategy a synthetic picture should be used for a word, for example instead of the picture of a cow a synthetic picture of a cow and a cup of milk should be used. In this method, we have employed active cognitive strategies in the absence of cognitive strategies training using mnemonic devices. It can be concluded that mild mentally retarded children are able to make an association between pictures and expand the meaning of the objects. Results indicate that the material classification mnemonic for one object (a card that refers to the classification of animal, fruit and object) has proved to be effective. The research result was in harmony with the findings of Broomfield and Comblain (2000), Bell (2005) and Rigg (2008) who proved that multisensory training is a basic element in learning. Other studies carried out by Aghalar (2006), Henri (1998, quoted by Aghalar 2006), Henri and McLean (2002) Eshaghi Gorji (2012), Jena Abadi (2007), Kakayi (2002) have supported the effectiveness of multisensory method in enhancing the learning and retrieval in children with learning and mental disability. The present research also found support for the effectiveness of this method. The research results indicated that utilizing and following this educational method and its incorporation with active cognitive strategies can enhance the memorization speed of mild mentally retarded children. Bell (2005), Zeinivand (2006) and Eshagh Gorji (2002) indicated that the synthesis of Fernald method with other methods improves the children's learning performance. The statistical data of the research demonstrated that the incorporation of cognitive and multisensory methods enable the brain to enter the data from different visual, auditory, kinaesthetic, and tactile and exert strong effect on memorization and retrieval. A multisensory method as a method that utilizes all the learning channels of the brain strengthens the memory and enhances the learning.Follow-up studies showed that active cognitive training (direct participation of the examiner) is more effective than inactive cognitive training (indirect participation of the examiner) in the enhancement of the retrieval rate of mild mentally retarded children. Active strategies boost the effectiveness of learning as it has the direct effect of the examiner who teaches the methods of strategies implement. On the other hand, active-multisensory cognitive strategies enhance the retrieval rate of mentally retarded children as compared to inactive training. It's

crystal clear that use of the other senses like tactile and kinaesthetic improves the retrieval rate. Since mild mentally retarded children have mental limitations in their visual and auditory senses, the use of active multisensory methods can improve this mental limitation. Irrespective of what was mentioned, active-multisensory cognitive strategies are no better than active cognitive strategies and none of them asserts dominance over the other. Nonetheless, the mean preference shows that the synthesis of cognitive strategies and multisensory strategies promotes the improvement as compared to other strategies, although, this difference is not statistically significant. Another finding of the research has shed light onto the consistency of the training effectiveness in retaining the strategies among the children after one week of time interval. The research result on this subject was not in line with the findings of studies done by Torgesen (1982) in inactive cognitive training, Kele and Chan, translated by Maher (2007) in active cognitive training. However, the research results were in harmony with the finding of studies done by Fereshteh Baezat (1997), Pour Jalal (1997) Yousefi Louyeh (1999), Comblain (1994), Broadley (1992) in active cognitive training and Zandi (2001) who believed that stimulation and use of different methods help children stabilize their learning. In our research, children were able to maintain the learned strategies in their memory after one week of time interval and make use of it in their retrieval. Moreover, the aim of education is shifting to different assignments and when shifting is made the performance of transference assignment is similar to education assignment. This finding with regard to the content of retention test which is similar to the educational position and the time interval till the retention test proves that the strategies' shifting in short time and in education-like assignment contents play key and leading role in the maintenance and transference of strategies. It is also agreeable that the consistency of the education has only been a week and this is a disadvantage of the study. Results indicate that the three experimental groups didn't dominate over each other with this regard. Follow-up studies indicated that two groups of active cognitive and active multisensory cognitive scored better than inactive cognitive group. However, the inactive cognitive group scored higher on the retention test. So we can be hopeful that this style of learning enhances the motivation of mild mentally retarded children and their retrieval rate. It seems that inactive cognitive method is in line with Piaget's theory on the personal exploratory learning. While active cognitive method is in line with guided exploratory method of Vigotski. Another significant result of the study was that active-multisensory cognitive strategies training do not differ from active and inactive cognitive strategies trainings. That is to say that the three types of training have relatively same effect on the learning maintenance. Moreover, active cognitive training exerts the same effect as inactive cognitive training. The effectiveness of active-multisensory cognitive strategies training and active and inactive cognitive strategies training would have the same effect after one week of time interval. It's interesting that inactive cognitive training would show higher consistency as compared to other methods. The score analysis of control group, inactive cognitive (not in line with Torgesen, 1982) active cognitive (in line with Yousefi, 1999, Fadvi Khedmati, 1995) active-multisensory (line with Nazari, 2001) believe that stimulating and use of different senses can help children in the enforcement and learning stabilization. The results proved that the researcher's training has been effective in strategy generalization to similar situations. When children received quality educational strategies were able to make transference to similar situations and utilize the strategies. This results indicate that cognitive strategies (active and inactive) and multisensory if taught well, are effective strategies for the learning process of mentally-retarded children. One of the reasons that can explain this finding is that the content of generalization test has the highest degree of similarity with the learning position. On the other hand, with regard to the concepts' simplicity, the educational content and generalization test had an adequate degree of difficulty.However, the effectiveness of active-multisensory cognitive strategies in generalization to new situations is no better than active cognitive strategies. Furthermore, two methods (direct and indirect) act similar in retrieval generalization. That is to say that the effectiveness of active cognitive strategies shows to be the same as inactive cognitive strategies. However, the effectiveness of active-multisensory cognitive strategies shows to be in a higher degree as compared to inactive cognitive strategies when we intend to generalize the strategies to new conditions. Cognitive-multisensory trainings are of invaluable worth and increased effectiveness that can be utilized to help children with mental limitation and enable them to employ the strategies in similar condition apart from the educational environment. This result proves that cognitive learning enhances the retrieval rate through reviewing the material, meaning making, forming an association with the previous data, categorization of the obtained information and incorporation of auditory, visual and tactile senses in the process of learning. Teachers and educational assistants are required to make use of inactive methods to guide the children toward autonomy in strategy implement. They should focus on other learning channels such as kinaesthetic and tactile senses. Needless to say that strategy maintenance and transference produces more beneficial results.On the basis of the data available, excluding studies with inadequate methods and applying sound epidemiological methodological principles, recent findings cannot be generalized to the mentally retarded population as a whole. Some of the results depend on the therapist's characteristics (the quality of therapeutic implication and approaching the problem, capability of framing the therapeutic problem and showing sensitivity to patient's needs). Therefore, further research should elaborate on the usefulness of active, inactive and multisensory strategies trainings in future studies through literal, operational and systematic repetitions in large samples of both clinical and non-clinical, different age range with varying psychological symptoms or disorders and with more qualified therapists or more objective scales of assessment.

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