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## Effects of Playing with Sand on Visual-Motor Skills of Preschool Children in Gachsaran: Short Communication

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### ABSTRACT

The purpose of this study was to examine therapeutic effects of playing with sand on visual-motor skills of preschool children. The sample under study included a total number of 60 children (aged 5-6 years old) that were enrolled in preschool centers of Gachsaran. These children were assigned randomly in two control and experimental groups; each containing 30 preschool students. A quasi-experimental research method with pre-test and post-test and a control group was employed to perform the present study. The data were collected through Lincoln-Oseretsky Test and Vahedi's Aggression Questionnaire. After two months and 16 treatment sessions for the participants in the experimental group, the two groups were post-tested. The collected data were analyzed in SPSS software using descriptive statistics and inferential statistics. The results of the final analysis indicated that the instruction of sand therapy to children can improve preschoolers' visual-motor skills.

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## INTRODUCTION

In today's education, games are regarded as one of the most effective known educational tools since games are a means serving education and facilitating children's education. Besides, games can be used as a means to treat some mental diseases and emotional and behavioral problems of children (Ahmadvand, 2004). One of the therapeutic games is therapeutic sand play; a nonverbal technique by which a child expresses his conflicts, preferences, and emotions by building his world in a tray. When the child is creating these scenes, the psychotherapist plays the role of a silent observer, interprets his observations till the game tray is arranged by the child in a given time period (Mohammadi, 2005). Cognitive-motor skills are one of the most important aspects of the child growth therefore many scholars try at different level of the child development to facilitate his growth by the use of appropriate artistic programs (Farmani, 2006). The relationship between the cognition and motor activities has historically been considered by developmental specialists. To do so, they have formulated a number of theories on cognitive-motor skills. Today psychologists have extensive perspectives about the child world and what happens through it and put a special emphasis on childhood games and the roles of such games in their future (Sheikh, 2009). Baghayei Pour and (Shatarchi, 2012) in a study on "Game therapy and its role in the diagnosis and the treatment of children's emotional and behavioral disorders" concluded that game therapy is helpful in reducing emotional and behavioral disorders. (Youmpard, 2001) in a study entitled "Neurorehabilitation" concluded that therapeutic sand play is a method that increases children's behavioral-cognitive-visual skills. The use of sand has a long history in the treatment and therapeutic process (Jung and Kim, 2012). Besides, such games are considered as a unique experience which associates the first childhood games for the majority of us (Lesvos, 2002).

### Methodology:

The present study has used a quasi-experimental research method (with pre-test and post-test and the control group) to examine the effects of the independent variable of sand play during the research period on the dependent variables (visual abilities - Motion) of the students were measured. In this study, a total number of sixty children aged 5-6 years old in Academic Year 2013-2014 enrolled in preschool centers of Gachsaran were

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randomly assigned in two experimental and control groups; each group with 30 students. The instrument used to collect the data was Lincoln-Oseretsky Cognitive-Motor Test. Then the collected data were analyzed by descriptive and inferential statistics using SPSS Software Package.

#### Results of the study:

**Table 1:** The sample under the study.

Groups	Gender	Males	Females	Sum
Experimental		17	13	30
Control		19	11	30

**Table 2:** The reliability of Lincoln-Oseretsky Test.

Dynamic equilibrium	Static equilibrium	Nerve-muscle Coordination	Power	Accuracy	Speed	Cognitive-motor abilities
0.79	0.83	0.81	0.81	0.89	0.77	0.84

**Table 3:** Frequency and percentage of participants based on their gender.

Gender	Experimental		Control	
	Frequency	Percentage	Frequency	Percentage
Female	13	43.3	11	36.7
Male	17	56.7	19	63.3
Total	30	100	30	100

**Table 4:** Independent t-test to compare the intelligence of the participants in the experimental and control groups.

Groups	Frequency	Mean	SD	t	df	Sig.
Experimental	30	102.67	3.59	0.84	58	NS
Control	30	101.87	3.80			

As shown in the above table, there is no significant difference between the experimental and control groups in terms of the participants' level of intelligence so the two groups were nearly the same in terms of intelligence.

**Table 5:** Results of covariance for the effects of sand play on visual-motor abilities of preschool children.

Sources of change	$\Sigma$ Squares	df	Mean squares	F	Sig.	Eta squared
Pretest	2515.40	1	2515.40	188.76	0.001	0.17
Groups	60.50	1	60.50	4.54	0.04	0.15
Error	759.56	57	13.33			
Total	52723	60				

**Table 6:** Results of independent t-test to determine the effects of sand play on visual-motor abilities of male and female children.

Stages	Sex	Frequency	Mean	SD	t	df	Sig.
Pretest	Females	13	30.15	7.69	1.70	28	NS
	Males	17	25.47	7.14			
Posttest	Females	13	32.23	7.28	1.54	28	NS
	Males	17	28.06	7.47			
Difference	Females	13	2.08	2.36	0.34	28	NS
	Males	17	2.59	5.63			

#### Conclusions:

Games are of value and importance in that a child not only grows stronger physically but also the activities of his other organs accelerate in the light of playing games. The amazing effects of playing games on the formation of a child's personality can not be disregarded as games are essential for the formation of a healthy personality, the increased acquisition of social behaviors, and the reduction of the child's emotional and behavioral problems (Nejati, 2001). As the results of the post-test for visual-motor abilities for the types of the group are significant ( $F = 4.54$ ,  $df = 1$ ,  $P \leq 0.04$ ), it can be said that sand play has had a significant effect on visual-motor abilities of preschoolers. The results of the present study are consistent with the results of the research conducted in this area by Nesaei Moghadam (2012), Robuvi (2011), Bovik and Goodwin (2000), and Pumped (2001). A possible explanation for this finding based on Kopart Theory (1970) is that when a baby first moves his hand this movement is accidental and limited with regard to direction and meaning. However, when a child touches something, his eyes follow the movement of his hands; in fact it can be said that he makes a communication between information between he receives from vision and tactility. His eyes learn to follow what his hands feel. This constructive experience is the first step for eye-hand coordination which is in fact the hand-eye coordination as hands play a more prominent role than eyes. But when the child begins to learn through the vision, his eyes gains superiority as eyes efficiency is greater than that of his hands. As learning is extend through the eyes, his hands become more coordinated following his eyes. In other words, here hands

(movements) confirm the child's eye experiences (perception). It is expected that sand play which is the product of the combination of skills gained by organs including hand-eye coordination has a significant effect on the development of visual-motor skills. Finally, it can be pointed out that sand play in preschool education is a means by which the child can more effectively communicate with others; leading to the expression of personal tendencies, thoughts, feelings, and experiences and thus the reduction of the child's emotional, behavioral, and social problems.

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