

## EFFECT OF SYSTEMATIC MOVEMENT EDUCATION PROGRAMME ON THE PROBLEM SOLVING ABILITY OF ELEMENTARY SCHOOL CHILDREN

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**Mr. Michael Xavier**

Department of Physical Education  
University of Pune, Pune, Maharashtra

**Dr. Ashish Phulkar**, Deputy Director Physical Education  
Symbiosis International University, Lavale Campus, Pune (India)



### Abstract

Developing problem solving ability is an essential competency for sustaining emotional and mental health among children. The purpose of this experimental study was to investigate how children's participation in a systematic movement education programme has an effect on their problem solving ability. Non-probability based convenience sampling technique was used to select 50 elementary school children aged between 5yrs to 7yrs who participated in the study. 25 children formed the control group and the 25 children that formed the experimental group underwent a 6 week developmental games programme designed by the researcher on the basis of the movement education framework. The problem solving ability of the participants was assessed using a researcher modified assessment tool. Independent sample 't' test was used for comparing the change in performance of both the groups, and it was seen that the calculated 't' value 5.484 was significant at 0.05 level of significance. Hence it can be concluded that a systematic movement education programme has a significant effect on the problem solving ability of elementary school children.

**Keywords:** Movement education, Problem solving and Elementary school children.

### Introduction

There are various options for young children to spend their free time, the particular choice made by parents and children contribute positively or negatively to his/her long-term development during the formative years considering the stages of growth and development. Elementary school age is a period of steady progress in physical growth and maturation and in behavioural development (Malina, Bouchard & Bar-Or, 2004) where children learn to initiate play activities, display intelligence, learn creativity, and decipher how to recognize and express emotions (Hilborn et al., 2004). These developmental years of a child's life are critical for cognitive, social and emotional development.

Movement should be at the very center of children's lives, meeting all facets of their development, whether in the physical, cognitive, or affective domain. To refuse children the opportunity to obtain the many benefits of regular physical activity is to deny them the opportunity to experience the joy of movement, the health benefits of activity and a lifetime as confident and competent movers (Gallahue, 1993). The role of play and movement in

children's lives create conditions in which children develop and learn. Children play to understand the world around them, to express themselves, and to practice new skills. Through play, children actively explore, manipulate and respond to their environments and experiences. Play is pivotal in the process of daily interactions with events, people, and things. Play provides the opportunity for children to interact with the concrete environment allowing children to develop intellectually and acquire social, emotional and physical abilities (Shiple, 1998).

The competency to develop problem solving ability among children is an essential skill required for mental development. When this is established, it helps children make informed decisions about their health and act upon them in a social-ecological context (Dryfoos, J.G., 1990).

The aim of this study is to portray an instructional strategy for developing problem-solving ability among school kids. The author believes that such a strategy can be applied in diverse school settings with a favourable result in developing problem-solving ability and thus reducing stress, preserving and promoting emotional health and preventing long-term depression among school kids. The purpose of this study is to discuss and present in detail the effect of one of the student centered approach in teaching on the problem solving ability of elementary school children.

### Material and Methods

#### Variables

After reviewing the literature in the researcher's area of interest, various student centered approaches used by teachers for teaching Physical Education (P.E.) were analysed on the basis of teaching styles that focus on maximum student participation. Keeping this in mind the research problem was formulated and the variables were identified. A Systematic Movement Education programme was identified as the Independent variable and the Problem Solving ability was identified as the Dependent variable.

#### Assessment Instrument

The "Exemplars: - Getting started: A Guide to the successful Use of Exemplars." Assessment instrument was modified by the researcher to measure the problem solving ability of the elementary school children, the validity of which was established by experts in the related field.

The assessment required every student to undergo a set of 5 attempts to solve a 12 piece jigsaw puzzle under the time

limit of 30sec for each attempt. Every attempt was scored on the basis of the criteria set by the researcher.

**Research Design**

For this experimental study a Pre-Test Post-Test non-equivalent group design was adopted. This required the subjects to be divide into two groups, the experimental group that would undergo the programme and the control group wchich would not undergo the programme but would be needed to compare the change in performance. Both the groups would be required to undergo an assessment that would measure their problem solving ability before the implementation of the programme and after the implementation of the programme.

**Sampling**

The population for this study were all the children aged between 5yrs to 7yrs of the Challenger Public School, Pune. 50 of these students were selected as sample for the study using the non-probability based convenience sampling technique. 25 subjects formed the experimental group and the remaining 25 formed the control group.

Convenience sampling technique was used for sample selection as the researcher had to consider the number of P.E. classes available during the week, the time of the P.E. class during the day and the convenience of the students for participating in the programme.

**Procedure**

**Phase One**

The “Exemplars: - Getting started: A Guide to the Successful Use of Exemplars.” Assessment instrument was modified by the researcher as it used a six piece jigsaw puzzle to assess the math problem solving ability, where the subjects who could not assemble any pieces were graded as “Novice”, those who could assemble two pieces were graded as “Apprentice”, those who could assemble four pieces were graded as “Practitioner” and those who could assemble all the six pieces were graded “Expert”.

The researcher found this to inappropriate to measure the overall problem solving ability, hence the instrument was modified to suit the main objective. The modification done by the researcher required the subject to finish the task in a time limit of 30sec and also if no piece or at least one piece was assembled “5 points” were awarded, if two or three pieces were assembled “10 points” were awarded, if four or five pieces were assembled “15 points” were awarded and if all six pieces were assembled “20 points” were awarded.

To establish the validity of the modified instrument, three experts from the field of Physical Education two experts from the field of Child Psychological Development gave their valuable opinion.

Pertaining to the feedback given by experts the assessment instrument was modified again and now included the use of a 12 piece jigsaw puzzle so as to increase the difficulty level with regards to age. Each subject would now be given 5 attempts as less that 5 attempts would prove to be inadequate and more than 5 attempts may result in tiring of

cognitive functioning. The time limit and the points criteria remained the same.

**Phase Two**

The problem solving ability of the subjects was measured before implementing the programme. A Systematic Movement Education programme was then designed by the researcher on the basis of the movement education framework laid down by Rudolf Von Laban. This programme was then implemented for duration of 6 weeks (3 times a week). The problem solving ability was measured again after the implementation of the programme and the data was analysed to study the change in performance of both the groups.

**Results**

The problem solving ability of the 25 subjects that formed the experimental group before implementing the programme was 44.00 and that after the implementation of the programme was 73.00 and that of the control group was 41.40 before and 44.00 after.

TABLE 1  
COMPARATIVE ANALYSIS OF DIFFERENT GROUPS

Group	Test	Mean	SD	MD	SE	df	't' ratio
Exp.	Pre	44.00	10.25	29.0	3.34	48	5.484
	Post	73.00	8.16				
Control	Pre	41.40	10.05	2.60	3.47		
	Post	44.00	10.25				

\*Significant at 0.05 level of significance

An increase of 29 can be seen in the change in performance of the experimental group. For degree of freedom 48 the calculated 't' value (5.484) is significant at 0.05 level of significance.

**Discussion of Findings**

The purpose of this study was to portray movement education as one the teaching strategies for developing problem solving ability in elementary school children. This technique assisted the researcher in developing the problem-solving ability of elementary school children.

Movement is a fundamental form of expression for children (Koff, 2000 and Sansom, 2011). Koff believes that children communicate how they feel and think by using this non-verbal expression. Bodily-kinesthetic intelligence is recognized as one of our multiple intelligences (Gardner, 1983), but is one of the most undervalued in our schools. We seem not to understand that physically learning, including kinesthetic activities, creative movement, and dance, is natural to most children.

A child's learning begins by the physical experiences that he/she encounters in the early stages of growth and development. It is this trial and error method of self-learning that benefits the child throughout his/her life. The benefits of movement education are numerous and far-reaching, some of these are focus and engage in learning, applying

kinesthetic intelligence, understand concepts and themes, developing and refining higher-level thinking skills, communicating in unique ways and appreciating the artistic expression of others, develop spatial awareness, cooperate and collaborate with each other. (Zakkai, 1997). Movement education has had a positive effect on a child's social development (Johnson, 2010), the Aural perception skills (Lewis, 1985), Percentage of overcoming fear (AbdAllah, 2010) and many other physical and psychological factors.

It is our job as educators to equip children with the skills and strategies to think critically in order to solve problems. The challenge is how to transform these important instructional objectives into real, developmentally appropriate activities that are integrated into lessons across the curriculum. Implementations of these objectives and strategies may appear difficult, but often requires only a slight shift in one's approach to the curriculum. Here is a way how movement education can be used by educators to help children explore problem-solving tasks and learn through their own personal and purposeful discoveries.

On the basis of the findings of this study we can see that there is a significant improvement in the problem solving ability of the subjects. Hence we can deduce that, implementing movement education at elementary school level will prove beneficial considering optimum development of the child. The researcher believes that this strategy, applied to elementary school children in Pune can give favourable results in other school across the nation.

### Conclusion

From this study we can conclude that a six weeks systematic movement education programme has a significant effect on the problem solving ability of elementary school children.

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