

Effect of Scheming Play Training Package on the Development of Selective Adaptive Skills among Children with Intellectual Disabilities

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ABSTRACT

Scheming play is a method that has potential to facilitate development of skills in the domains of functional academics and daily life skills for children with intellectual disabilities. The present study investigates the effect of this method for development of skills in children with mild and moderate intellectual disabilities using a two group experimental design (control (n=4) and experimental group (n=4)) and the non-parametric test, Mann-Whitney 'u' test, for statistical analysis. Four areas of functional mathematics skills and three areas of daily life skills were selected. The age range of the children selected for this study was 10 – 14 years. The study found that scheming play based training brought about a statistically significant improvement in the chosen functional mathematical skills and one area of daily life skills. One possible reason for the lack of observable improvement in fine motor and receptive domains in the present study could be due to the higher variability of change scores for these two areas among students with mild and moderate intellectual disabilities, which may be attributed to their prior experience with these activities. The high variability could have confounded the identification of an observable pattern of effect due to the small sample size. Therefore this effect needs to be studied further, using larger sample sizes.

Keywords: Scheming Play Training Package, Adaptive Skills, Children with Intellectual Disabilities.

INTRODUCTION

The population of children is considered to be greatest potential of any nation more so with developing countries. When children enjoy a state of well-being in every true sense then harmony, stability, peace and happiness prevails in the family, community leading to a building of a strong nation. At times this equilibrium is disturbed due to many factors affecting population of children from independent functioning. Mental handicap is one such condition from which almost 3% children are affected. A concern for children with mental challenges has tremendously increased in past two decades. Children with Mental challenges have impaired social functioning. Due to inadequate functioning they find it difficult to control their impulses, tension and aggression and have decreased attention and concentration. This results in inability to evince a reciprocal interrelationship with others and lesser adaptive interaction with others like friends, relatives which cause impairment in their level of socialization.

Mathematics surrounds around us and the children involved from the childhood with mathematical concepts and ideas in the surroundings (Stafford, 2010) According to the characteristics and requirements of today's world, mathematics has a major contribution in presentation and transmission of knowledge and skills. It is the leading skill which students with intellectual disabilities have difficulty to understand (Kroesbergen and Van Luit, 2005). Due to this lack of knowledge of math facts, students may learn neither math computation nor higher-order mathematics (Vaughn et al. 2007). However, the No Child Left Behind Act of (2001) requires that all students, regardless of their disability, should be included and make adequate yearly progress in high-stakes assessments. With the inclusive education initiatives of the Sarva Shiksha Abhiyaan, children with mild, moderate intellectual disabilities are being increasingly included in regular education classes today. While they are physically included in the classes, they are not able to be included in the learning processes. This may be because of various reasons related to their slower pace of intellectual development. However, if they are enabled to develop their fundamental skills at their own rate using different strategies, their inclusion in the learning process in the classroom can also be facilitated. In this context the investigators taken up a research problem entitled “Effect of Scheming Play Training Package on the Development of Selective Adaptive Skills among Children with Intellectual Disabilities”.

2. Operationalization of Terminology

Scheming Play: Scheming play refers to activities where children move, order, turn, or screw items to make them fit. It is a play based activity using scheming material to learn numerical concepts, which facilitates fine motor skills, eye-hand coordination and develops the small muscles.

Scheming Play Training Package: Scheming play training package was used to provide intervention to children with intellectual disabilities this package included activities like:

1. Number Perfection addition and subtraction activities
2. Multipurpose Magnetic Board with activities
3. Time Concept Kit with activities
4. Money Concept Kit with activities.
5. Daily Life Skills Kit with activities.

Adaptive skills: are the conceptual, social and practical skills that individuals have learned and use in their daily lives.

Selective Adaptive skills: refers to those adaptive skills in which children with intellectual disabilities most commonly shows deficit. These skills include Functional academic skills (addition, subtraction, money concept and time concept), Daily Life Skills (play and leisure, fine motor skills, and receptive skills).

Children with intellectual disabilities: This included children of Mild IQ 50- 69 to Moderate category IQ 35- 49, selected from the special school of Jammu Kashmir with the age group 10- 14yrs. both male and female.

3. Objectives:

1. To develop scheming play training package (MPTP) for enhancing functional math skills and daily life skills of children with intellectual disabilities.
2. To develop tools for assessing selective adaptive skills of children with mild and moderate intellectual disabilities.

3. To study the effectiveness of scheming play training package for enhancing functional math skills (FMS) and daily life skills (DLS) of children with mild and moderate intellectual disabilities.
4. To study the significant difference, if any, in the functional math skills and daily life skills of children with intellectual disabilities learnt through conventional method of teaching and scheming play training.
5. To study the significant difference, if any, in the functional math skills between children with mild and moderate intellectual disability, learnt through scheming play training.
6. To study the significant difference, if any, in the daily life skills between children with mild and moderate intellectual disability, learnt through scheming play training.

4. Research Hypotheses

1. There is significant difference in the functional math skills of children with intellectual disability learnt through conventional method of teaching (CMT) and scheming play training (MPT).
2. There is significant difference in the daily life skills of children with intellectual disability learnt through conventional method of teaching (CMT) and scheming play training (MPT).
3. There is significant difference in the functional math skills of children with mild intellectual disability learnt through conventional method of teaching (CMT) and scheming play training (MPT).
4. There is significant difference in the functional math skills of children with moderate intellectual disability learnt through conventional method of teaching (CMT) and scheming play training (MPT).
5. There is significant difference in the daily life skills of children with mild intellectual disability learnt through conventional method of teaching (CMT) and scheming play training (MPT).
6. There is significant difference in the daily life skills of children with moderate intellectual disability learnt through conventional method of teaching (CMT) and scheming play training (MPT).
7. There is significant difference between functional math skills of children with mild and moderate intellectual disabilities learnt through scheming play training (MPT).
8. There is significant difference between daily life skills of children with mild and moderate intellectual disabilities learnt through scheming play training (MPT).

RELATED LITERATURE

Development of adaptive skills (functional academic skills and daily life skills) using manipulative play based training package is the focus of this research. The following literature review begins with reviewing children with Mild and Moderate Intellectual Disabilities in general, studies related to inclusion of children with disabilities in Indian context, followed by the current level of understanding about their skill development in the areas under study. The fourth section included reviewed literature on different types of play with focus on manipulative play based strategies for children with disabilities, specifically for children with Mild and Moderate Intellectual Disabilities.

5.1 Research Design

In this present experimental study the researcher has used a two group experimental design. One group was given instruction using the scheming play intervention package (designed and developed by the researcher) and another group was given instruction using conventional teaching method.

5.2 Sampling Technique

Purposive sampling technique was used to select the sample for the study. A total number of 14 children were assessed using basic arithmetic checklist. Among which total 8 children were selected for the study. The criteria for the selection was achieving 20% and above scores in the given basic arithmetic checklist. After sample selection, random assignment of subjects with mild and moderate intellectual disabilities was done into control and experimental groups. This was done by first classifying the samples into groups with mild and moderate intellectual disability and then using random assignment of individuals from each group into the control and experimental groups. All the 8 children were selected from the Sahara Special School Jammu with the age group 10- 14 years.

5.3 Sample size

A total number of 08 subjects out of 14 were selected for this study divided into two groups, consisted of one experimental group of four (4) subjects with mild and moderate intellectual disability in 2:2 ratios and was given instruction using scheming play training intervention package. Another experimental group consisted of (4) subjects with mild and moderate intellectual disability in 2:2 ratios which were given instruction using conventional teaching method.

5.4 Tools for the study:

The following tools were used in this study:

1. Scheming play training package was developed for giving intervention to experimental group.
2. Tool to obtain baseline was developed for functional math skills. This test was conducted in order to know the entry level of basic arithmetic's before giving intervention for functional math skills / math skills.
3. Checklist for functional math skills (addition, subtraction, money concept and time concept) was developed to conduct pre and post-tests data.
4. Checklist for Daily life skills (play and leisure, fine motor and receptive skills) was developed to conduct pre and post-tests data.
5. Lesson plans for conventional group in the respected areas were prepared which are enclosed with appendices.

5.5 Validity of the Tools:

Content validity: Tools were validated with the help of experts. The items with more than 80% accuracy and above were retained and the remaining items were deleted. After validation the final tools were developed.

Construct Validity: Inter-correlation of domains and overall SSAS (Scale of Selective Adaptive Skills). The data collected from the sample of 8 intellectually disabled and 30 normal children was analyzed, using Pearson correlation coefficient, to find out the inter-correlations of domains and SSAS composite. Correlation coefficient values of the domains with total score of the SSAS ranges from (.766) at the domain of Time concept to (.990) at the domain of Subtraction, , and all of the reported values are significant at (.01). It is, also, seen that the values of inter-correlation of domains range from (.658) between the domains of Time concept and Fine motor to (.998) between the domains of Addition and Subtraction, and all of the reported values are significant at (.01). These results reveal that the scale has

good inter-correlation between its domains, and all domains are related to the adaptive skills. Therefore, it is inferred that the selective scale for adaptive skills has good internal structure validity.

5.6 Reliability of Tools:

For the present study the researcher has used test-retest method in order to calculate the reliability co-efficient of the subjects with intellectual disabilities. The reliability co-efficiency of the functional math skills was found to be .977 and the reliability co-efficiency of the daily life skills was found to be .988. This indicates that the tools were highly reliable.

5.7 Data Collection:

A total number of 80 sessions with one hour time duration were used as intervention for both the groups (control and experimental). Among the 80 sessions of intervention 40 sessions were arranged in the morning and 40 sessions in the afternoon for both the groups respectively. After 80 sessions of intervention posttest was conducted in both the groups to obtain the final scores. Follow up test was conducted after 10 days stopping the intervention.

6. Data analysis

For research questions 1 and 2, Mann-Whitney 'U' tests comparing two groups ($n_1 = n_2 = 4$) was performed for the dependent variables described below. For research questions 3-8, data visualization through graph was done as the sample size in each group was 2.

The dependent variables are –

1. Change scores (post-test score – pre-test score): representing learning in the specified area
2. Pre-test to follow-up change score (follow-up score – post-test score): represents retention of learning after 10 days of termination of the intervention. If this difference was statistically significant, it would mean that the learning was not retained after 10 days of post-test, when the intervention as stopped. If the difference was not statistically significant, it would mean that there is not much difference between post-test and follow up test which in turn indicates that the learning is retained 10 days after post-test, when the intervention was stopped.

6.1 Findings of the study:

1. It was found that scheming play based training was effective for students with intellectual disabilities (mild and moderate) for learning functional math skills of addition, subtraction, time concept and money concept.
2. Use of scheming training in math skill area upon children with mild and moderate intellectual disabilities was found to be retained till ten days after the intervention was stopped.
3. It was found that scheming play based training was effective for students with intellectual disabilities (mild and moderate) for learning adaptive skills in the area of play and leisure.
4. It was found that the effect of scheming play based training upon students with intellectual disabilities (mild and moderate) for learning adaptive skills in the area of play and leisure was retained till ten days after the intervention was stopped.
5. It was found from statistical results that there is very less or no effect of scheming based training upon children with mild and moderate intellectual disabilities in adaptive skill area in the area of fine motor and receptive domain skills.

6. Both children with mild and moderate intellectual disability were benefited by the scheming play training method that can be seen in table 4.3 and fig.4.1. This shows that children of both levels showed comparable levels of improvement.
7. Study found that for all functional math skills selected and for play & leisure skill of the daily life skills group, scheming play based training was more effective than the conventional method. This is so because in this study, the researcher himself administered both the methods thereby removing teacher-related extraneous variables between the groups.

6.2 Limitations of the study

1. This study uses a small sample size as there are very few special schools in the state of Jammu and Kashmir and these schools have less numbers of children with intellectual disability.
2. Some of the children included in this study were also a part of the previous study by the research (Maqbool, 2015), which could have caused the high variability seen in changes in fine motor skills and receptive skills.

6.3 Delimitations of the study

1. The study has focused on the effect of scheming play training package on the development of selective adaptive skills among children with mild and moderate intellectual disabilities and the study does not include children with other levels of retardations like severe and profound.
- 7 The scheming play based activities developed in this study are restricted to selected adaptive behavior skills. It does not cover entire range of adaptive behavior skills.

6.4 Future directions

1. Effectiveness of scheming play based training for other neurodevelopment disorders need to be studied such as autism and attention deficit hyperactivity disorder.
2. The effect of scheming play based training on development of fine motor and receptive skills among children with mild and moderate intellectual disabilities needs to be studied further using larger sample sizes and with students who do not have prior experience with such activities.
3. The effect of scheming play based training on development of functional mathematical and daily life skills in areas other than those included in this study need to be done in future.
4. Future studies need to include non-disabled children to observe the attitudinal changes among non-disabled towards the children with disabilities.

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