



RESEARCH ARTICLE

IMPACT OF REMEDIAL TRAINING INTERVENTION ON ARITHMETIC ABILITY AND SELF-ESTEEM OF HIGH SCHOOL ACADEMIC POOR PERFORMERS

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ABSTRACT

The research study aimed at identifying the impact of remedial training on arithmetic ability, and self esteem of academic poor performers. For this purpose 100 high school students were selected from Bangalore district. An objective of this program is to investigate the effect of remedial training programme on academic poor performers so as to recommend possible actions to be carried out for improvement. The relevant information is collected by interviewing students, school teachers, parents, and from the school records. Findings show that most of the students belong to low-middle socio economic condition. Implemented remedial training program proved to be effective with an increase from 61.05 to 205.6 and 24.3 to 69.9 in mean scores of students on arithmetic and self esteem respectively. Arithmetic $t = 36.7$ significant at 0.001 level and self esteem $t = 32.1$ significant at 0.001 level. The results of post tests after remedial training intervention showed that students made more progress in arithmetic ability. In addition, the remedial intervention strengthened self esteem than textbook based class. There were significant differences with regard to academic performance in pre and post remedial training. Children scored higher in post test arithmetic and self esteem as compared to pre test. This finding further indicates that remedial training intervention has a positive impact on students' arithmetic ability and self esteem.

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INTRODUCTION

Although India is amongst the ten fastest growing economies in the world, it still has a third of the world's illiterates. According to global education report of 2004, India's ranking was 106th out of 127 countries in the education sphere. With 34% of the illiterate population in the world, India has the largest number of illiterates by far – with second placed China at 11 per cent. Sixty years after independence, with 40% of its population under 18, India has the highest population of illiterate adults, 287 million; 37% of the total population of such people across the world. According to UNESCO's Education for All (EFA) Global Monitoring report states "a third of primary school aged children reached grade-IV and learned the basics. A further third reached that grade but did not learn the basics. One third did not reach grade-IV and will not have learnt the basics either". This means fewer than half the children in India are learning the basics, it said. A similar finding was highlighted by Annual Status of Education Report (ASER) published by education non-profit organization Pratham, India (2014 annual report) is now confronting the perils of its failure to educate its citizens.

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Academic poor performance is a complex, challenging and is a never-ending issue facing parents, educators and the community. According SERC (Special Education Review Committee) and previous reports many factors contribute to academic poor performance, and they include school policies, leadership, school culture, parent attitudes, and circumstances in the home, peer influence, low self-esteem, low self-efficacy, psychological wellbeing, motivation and so forth. Academic poor performance continues to be of concern to communities across the world. All students have the desire to be successful in school, but some simply do not know how (Heacox, 1991). In academic poor performers one of the main characteristics is low self-esteem. High self-esteem is regarded as something that causes positive outcome in life in general and in specific situations. Self-esteem reflects a person's overall self-appraisal of own worth. Psychologists, teachers, parents and educationists are commonly concerned about students' performance and self-esteem. It's significance is often exaggerated to the extent that low self-esteem is the cause of all unworthy and high self-esteem is the cause of the worthy (Manning and Minke, 2006). Consider the claim that feeling good about one-self is linked to a variety of constructive life choices or at least to the absence of destructive behaviors. Self-esteem is associated with depression, anxiety, motivation and general satisfaction with

one's life (Harter, 1986; Rosenberg, 1986). Given these associations, children and adolescents who lack self-esteem may be more dependent on their parents and have lower academic and vocational goals. Given these associations, children and adolescents who lack self-esteem may be more dependent on their parents and have lower academic and vocational goals. Moreover the belief is widespread that raising an individual's self-esteem (especially that of a child or adolescent) would be beneficial for both the individual and society as a whole. Conditions for children in today's schools are quite different from those of students of even two generations ago. A very high percentage of children presently live in urban environments and attend urban schools, resulting in many factors associated with urban living that contribute to self-esteem difficulties for today's young children. Often the ecology of the child's life is not necessarily positive. The home or school may be situated in an unattractive, noisy environment, making it difficult for a child to relax and feel at ease (Rutter, 1981, p. 614).

Negative self-esteem is related to low self-confidence, insecurity, underachievement, anxiety, depression, acting-out behavior, sleep problems and being a loner (Yarnell, 1999). A study by Jensa and Monsa (2014) on children with poor academic performance showed positive correlation between self esteem and academic achievement. The belief that higher self-esteem causes positive outcomes (Blascovich and Tomaka, 1991) has therefore resulted in intervention programs in some areas with the intention to increase self-esteem (Baumeister, Campbell, Krueger, and Vohs, 2003). Many of these intervention programs have been directed towards improving school performance. Academic achievement or poor performance is considered as a key criterion to judge one's total potentialities, capabilities, and self-worth. Therefore it is more pressing for the students to have high academic achievement. The term achievement refers to the degree or the level of success attained in some specific school tasks especially scholastic performance, in this sense academic achievement means the attained ability to perform school tasks, which can be general or specific to a given subject matter. Academic achievement could be defined as self-perception and self-evaluation of one's objective academic success. Academic achievement generally indicates the learning outcomes of pupil. Achievement of those learning outcomes requires a series of planned and organized experiences. Good (1973), has defined, "academic achievements knowledge attitude or skill developed in the school subject usually designed by test scores or by marks assigned by teacher or by both".

Several studies show that self-esteem influences academic performance (Haarer, 1964; Jones and Grieneekz, 1970; Lamy, 1965; Morse, 1963; Smith, 1969; Wattenberg and Clifford, 1964). Further research confirmed that self-esteem is a better predictor of academic success than measured intelligence (Morse, 1963; Smith, 1969; Wattenberg and Clifford, 1964). Successful academic performance enhances self-esteem (Bills, 1959; Carlton and Moore, 1966; Diller, 1954; Robinson, Kehle, and Jenson, 1986). Similarly, poor academic performance tends to grind down students' level of self-esteem (Centi, 1965; Gibby and Gibby 1967).

Objective

The objective of the present study is to examine the impact of arithmetic remedial program on arithmetic ability and self-esteem of high school students who are academically poor performers.

Hypotheses

There is no significant difference in arithmetic ability of academic poor performers before and after remedial training intervention. There is no significant difference in self esteem of academic poor performers before and after remedial training intervention.

METHODS

A total of 100 (50 boys and 50 girls) high school students studying in grade 8th and 9th children, with age ranging from 12 to 16 years who were poor at academics were selected for the present study. All the subjects were from government schools in and around Bangalore, Karnataka, India and poor academic performers according to their records (marks sheet). Apart from this information gathered in regard to their performance from class teachers.

Tools

Arithmetic Diagnostic Test

Developed by Ramaa (1994) was used to measure basic Arithmetic Ability. The test covers four major areas of arithmetic, namely number concept, arithmetic processes (operations)-Addition, Subtraction, Multiplication, Division, and Arithmetic Reasoning.

Self Esteem Scale

Developed by Coppersmith (1987). The full SEI consisting of 58 items. Higher the score higher the self esteem. It consists of 100 items to be responded on a 4 point rating scale ranging from 'strongly agree' to 'strongly disagree'. The scale gives global measures of self esteem. The highest obtainable score is 100 and the lowest score is 0. Higher the score higher the self esteem.

Procedure

The study involves government high school students. The principal of the school was approached, nature and the significance of the study was explained. Later permission was taken to conduct the study. Subsequently teachers of grade 8th and 9th were also explained the purpose of the study and information about poor academic performers was collected. Purposive sampling method was used to select the subjects for the study. Suitable testing schedule was fixed and rapport was developed with all the subjects. All the subjects were distributed socio demographic data and instructed to fill the same. Pre-test administration, remedial training and post-test were done in three sessions/stages. Arithmetic diagnostic test and psychological well being tests were administered individually in a quiet room in a school premises.

Stage 1: In this stage arithmetic diagnostic tool and psychological well being tests were administered. Each tool was administered in two sessions.

Stage 2: Arithmetic remedial program was done for one academic year. Subjects were divided into ten different batches. Each batch consisted of ten children. Remedial training was given all weekdays which last for 40 minutes.

Stage 3: Arithmetic diagnostic tool and psychological wellbeing tests were re administered individually to test the impact of remedial training.

RESULTS AND DISCUSSION

Above table shows mean scores of arithmetic ability and self-esteem. In general the performance on arithmetic ability was poor and the scores on self-esteem indicated low self-esteem before introducing the arithmetic remedial program (table 1). Whereas, it can be observed after the arithmetic remedial program the scores on both arithmetic ability and self-esteem scale improved drastically (see table 1).

Table 1. Standard deviation and t-value of high school children on arithmetic test and self-esteem

Variables	Pre-test (N=100)		Post-test (N=100)		t
	Mean	SD	Mean	SD	
Arithmetic Test	61.05	15.8	205.6	37.1	36.7***
Self-esteem Scale	24.3	6.9	69.9	13.8	32.1***

***Significant at $p < 0.001$ level

Further paired t test was employed to examine the impact of remedial training on arithmetic ability and self-esteem among high school students who were poor academic performers. Results revealed that there was a significant impact of remedial teaching on both arithmetic ability ($t = 36.7, p < .001$) and self-esteem ($t = 32.1, p < .001$). In arithmetic ability components, there was a marked improvement in number concept, addition, subtraction, multiplication and division when compared to arithmetic reasoning. There are many reasons for the positive outcome. This includes specialized instruction, peer tutoring, small group, approach, method, material, support, motivation, special attention. significant improvement observed in the group that underwent remedial teaching proved the effectiveness of the remedial program employed in the study. Similarly this study result supported by Gowramma and Ramaa(2002). Structured remedial intervention is more effective and impacted on children performance. They suggested structured intervention will also very helpful for other students for other reasons, other than dyscalculia. Dyscalculics improved a lot after the remedial teaching. Post test performance showed effectiveness of remedial intervention.

The obtained result is supported by earlier study, Razario and Kapoor, 1992, they used intervention strategies to remediate problems in four basic operations and result showed significant improvement in the performance of arithmetic tests in post test after remediation. This indicates that remedial training had significant positive impact on arithmetic ability. Similarly a perusal of self esteem scores indicates that there is a remarkable change after remediation. Perhaps self-esteem

improved because of their enhanced performance in arithmetic ability after remediation and also individual's attitude about him or herself, involving self- evaluation along a positive negative dimension (Baron and Byrne, 1991). A majority of other researchers have reported the same findings in their research. Higher self-esteem causes positive outcomes (Blascovich and Tomaka, 1991), Negative self-esteem is related to low self-confidence, insecurity, underachievement, anxiety, depression, acting-out behaviour, sleep problems and being a loner (Yarnell, 1999). Children and adolescents who lack self-esteem may be more dependent on their parents and have lower academic and vocational goals. (Harter, 1986; Rosenberg, 1986). consequently remedial training intervention enhances self esteem in academic poor performer.

Conclusion

Most of the students failed to complete basic arithmetic operations in pre-test though they are in high school and need to do higher mathematical operations This study shows the remedial training impacted on arithmetic and self esteem. Significantly low self esteem and poor performance makes a lot of behavioural, emotional and physiological problems for the children. When performance improves, automatically self esteem and other psychological conditions will also improve. This finding suggests that appropriate remedial training programmes may help those children with poor performance to overcome their problems.

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