

IMPACT OF A REMEDIAL STRATEGY ON TRIGONOMETRICAL ERROR PATTERNS- A CASE STUDY

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Abstract

Mathematics in daily life, to a large extent is problem solving. Problem solving approach which is core of teaching and learning of Mathematics, depends upon trial and error theory. The errors committed by students cannot be eliminated but reduced to certain extent by studying their causes. Teaching is a process in which a teacher follows various steps out of which two major steps are to discover the errors of students and to provide the remedy for the errors. An attempt was made in the present investigation to study the causes in case of a subject which showed minimum reduction of errors. It found that the perceptual errors in case of the subject were totally eliminated.

Key-words: Entry behavior errors, Perceptual errors, Conceptual errors, Computational errors

Remedial teaching is the application of special teaching techniques to overcome specific difficulties in learning, such as difficulties in forming concepts or faulty learning habits etc. The researchers like Serow et. al. (1980), Gurusamy (1990), Dash (1996), Swarnlekha (1997), Singh (2003) and Augele et. al. (2010) by and large have compared remedial program with traditional method. Remedial teaching is used after diagnosing the errors committed by students. Error is an act, assertion or belief that unintentionally deviates from what is correct, right or true. It is the condition of having incorrect or false knowledge and is the act or an instance of deviating from an accepted code of behavior.

The present study is the case of Jhirmiljeet Singh which is a part of the broader study "Impact of A Remedial Strategy on Trigonometrical Error Patterns in relation to Cognitive Styles and Cerebral Dominance". In the study Effect of Remedial Strategy on trigonometrical error patterns in relation to Cognitive Styles and Cerebral Dominance was studied. For qualitative analysis, case studies of Amandeep Kaur (Best improver in Experimental Group), Gurpreet Singh (Least improver in Experimental Group), Kuljeet Kaur (Best improver in Control Group) and Kuldeep Kaur (Least improver in Control Group) and of Jhirmiljeet Singh of Experimental Group (Exemplatory improvement in his behavior) has been undertaken .

The subject was in the experimental group of the investigator. The subject showed exemplary improvement in behaviour.

Newman (1977), Casey (1978), Clements (1980), Raman (1989) classified errors in different types. In the

present study, the classification given by Raman (1989) was taken. The study was experimental in nature. Percentage of reduction in errors committed by the students was studied and analyzed statistically.

The subject was in tenth class of Govt. Sen. Sec. School, Khosa Randhir of Moga district. The school is affiliated to PSEB, Mohali. The health of the subject was normal and he was not affected from any serious disease. The vision, hearing and speech of the subject was also normal as observed by the investigator. Father of the subject is a farmer and mother is house wife. He has one brother and one sister. There congenial environment at home. Parents and siblings enjoy healthy relationship among themselves.

Subject usually watches television in his free time and also spends time in playing kabaddi. He took part in sports organized by school. The conduct of the subject was good and he behaved very well with his peers and elders. He was very supportive with the peers.

Previous Achievement in Mathematics:

He got 33 out of 100 marks in Mathematics in IX grade annual exams.

Diagnosis:

A self prepared diagnostic test of Trigonometry was administered to diagnose the errors committed by the subject in four categories i.e. Entry Behaviour errors, Perceptual errors, Conceptual errors and Computational errors.

On the diagnostic test comprising of 60 items, the subject committed total 43 errors in pre test out of which 9

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were Entry Behavior, 11 Perceptual, 13 Conceptual and 10 Computational errors.

Treatment:

Jhirmaljeet was subjected to the remedial teaching of thirty five sessions of thirty five minutes duration each. After the treatment a post-test had been administered to the subject.

Results:

In the post test comprising of 60 items, the subject committed total 15 errors out of which 2 were Entry behavior, 4 Conceptual and 9 Computational errors. No perceptual error was reported in the post test. It found that there was significant reduction in Entry Behavior errors and conceptual errors. A little reduction in Computational errors was reported by the subject in Trigonometry which is evident from the comparison of pre and post test scores and percentage reduction of errors given in Table 1.1.

Table 1.1: Comparison of Type wise and overall errors committed by Jhirmaljeet in pre and post tests

Types of Errors	Test	Errors Committed	Percentage Reduction
E ₁ (Entry Behaviour)	Pre Test	9	77.8%
	Post Test	2	
E ₂ (Perceptual)	Pre Test	11	100%
	Post Test	0	
E ₃ (Conceptual)	Pre Test	13	70%
	Post Test	4	
E ₄ (Computational)	Pre Test	14	10%
	Post Test	9	
E(Total no. of errors)	Pre Test	43	65.1%
	Post Test	15	

From the Table 1.1 it is clear that the percentage reduction in Entry Behaviour errors was 77.8%. Percentage reduction in Perceptual errors was reported 100% and that in Conceptual errors was 70%. The least percentage reduction was reported in case of Computational errors which was 10%. The percentage reduction in total no. of errors was reported 65.1%.

Follow Up:

Mathematics teacher of the subject was guided about drill work technique in Mathematics so that ha can continue to offer support in the school. Two months after the

treatment researcher visited the school again to witness the progress made by the subject and her mathematics teacher told that her performance in classroom was better than before the experiment. The performance of the subject in class tests of Mathematics has also been improved. The scores in class tests after the experiment were given in the Table 1.2.

Table 1.2: Comparison of performance of Jhirmaljeet in Mathematics before and after the Experiment

Before Experiment	May 2010	July 2010	August 2010
	11/20	13/20	08/20
After Experiment	Jan 2011	Feb 2011	March 2011
	14/20	13/20	13/20

Opinion of sibling

The sister of the subject reported that before the experiment he wasted a lot of time by straying and playing. Sometimes he helped in house chores. But during and after the experiment, he used to do his homework. He now also plays kabaddi but for an hour as mentioned in the daily time table, he made during the experiment.

Opinion of parents

The parents of the subject reported that he was not fond of watching T.V. He used to stray after comeback to home after school. But after the experiment, he firstly did his home work. He helped in house chores sometimes. In the days of experiment, he started behaving obediently to the elders and solved his worksheets daily.

Opinion of Mathematics teacher

His mathematics teacher told the investigator that performance of Jhirmaljeet Singh was average in the class. He was not punctual before the experiment. But after the experiment, he became punctual. Before the experiment he did not participate in the discussions in the classroom. i.e. there is no interaction with the teacher in the classroom. But after the experiment, he used to interact with the teacher during discussions in classroom. The performance of the subject in class tests was average. He has clarity about the topics related to trigonometry. After experiment, he committed less mistakes in problems related to fundamental rules and pythagorus theorem. He is now making less mistakes in fundamental rules, Pythagoras theorem etc.

Opinion of peer group

His peer group reported that the topics of talk are about kabaddi players. There is not any type of narcotic indulgence of Jhirmaljeet Singh. He is very much changed now. He keeps silence most of the times. He encourages his peer group to come to school in time. Now he is taking more interest in study along with games.

Conclusion

The mathematics teacher of the subject told the investigator that he should not take the subject in the experiment as he was not punctual. The investigator took it as a challenge and started observing the subject during the experiment. The investigator noted that he was very punctual in the whole experiment as he came five minutes advance in classroom and never miss the class. He also encouraged his classmates to come to school in time. He also reduced his errors gradually during the experiment. Thus overall behavior of the subject was changed very much with the help of experiment.

General behavior

- The subject started giving respect to his elders.
- The subject encouraging his classmates to come to the school in time.

Study Habits

- The subject was very punctual during and after the experiment.
- He used to come in class five minutes before.
- The subject never missed the class during the experiment.
- The subject made a time table for his study and games.

Errors

- There was significant reduction reported in Entry Behavior errors, Conceptual errors and Computational errors.
- The Perceptual errors were totally eliminated.
- The subject teacher also reported that there was reduction in mistakes in his note book of Mathematics.

Introspection Report by the Subject

It was good to be a part of experiment group. Prior to the experiment, no one paid proper attention to me. I have more interest in games than in studies. Moreover I was unable to understand mathematics. But during the experiment, I found mathematics an interesting subject. I remained punctual in the class as well as in solving worksheets. I started encouraging my classmates to come to school in time. Conversion of word problems into diagrams specifically seemed to be very interesting.

Suggestions

- Specific individual treatment need to be given to the subject as he wants attention from the teacher.
- He should be made aware of the sports and studies as the complimentary in nature to achieve the life goals.

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