

Problems Faced by Special Education Teachers in Teaching Mathematics to Students with Deafness

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ABSTRACT

This qualitative paper aimed to identify the problems of special education teachers in teaching modified curriculum of Mathematics to students with deafness from Grade 6 to 10. It was also intended to suggest measures for the improvement of the said curriculum. Population of study consisted of special education teachers of government sector who were teaching mathematics to students with hearing impairment from grade 6 to 10. A sample of twelve teachers was selected conveniently from Government Deaf and Defective Hearing schools working in Lahore, Gujranwala, Rajanpur, Hassan Abdaal, Sialkot, Multan and Bahawalpur. The math teachers were interviewed to know their problems in teaching present modified math curriculum to students with deafness and to take their suggestions for the improvement of this curriculum. The results of the study showed that teachers were facing problems in basic concept formation in teaching mathematics to students with deafness because the curriculum of mathematics was not modified according to the special educational needs of students with deafness. So it is recommended that curriculum may be modified keeping in view special educational needs of students with deafness. Teacher training workshops on teaching Mathematics to students with deafness should be conducted.

Keywords: Students with deafness, mathematics teachers, Government Deaf and Defective Hearing Schools

INTRODUCTION

Every successful system of education is founded on the sound footing of curriculum. To keep pace with ever changing scenario of the world, it is utmost important to revise and update curriculum periodically. So far as the curriculum of mathematics is concerned, it must inculcate in students rational and logical thinking, and enable them to get knowledge, skills and ability to confront with problems of daily life. Students with deafness show under achievement in mathematics in comparison with students without deafness (Frostad, 1998; Magne, 1991; Moores, 2000). In contrast to this, researchers are of the view that students with deafness do not lag behind their hearing counterparts in cognitive abilities (Martin, 1991).

Children with deafness have been found at significantly lower levels in reading, writing, and mathematics than other children with normal hearing (McAnally, Rose, & Quigley, 1999; Ahmed & Rehman, 2006; Zulfikar & Kousar, 2006). It becomes problematic in learning these skills in their classrooms. In addition to this, their teachers and class fellows give them differential treatment thinking that deafness is linked with low intelligence or ability to learn which may become a cause of delayed learning (Stein, 2012).

Hearing loss impedes knowledge acquisition in children with deafness, due to which they have to encounter certain problems in learning reading, writing, and mathematics. Their

proficiency, particularly, in mathematics suffers more than their hearing counterparts (Frostdad, 1996). A significant research has concluded that mathematical performance of students with and without deafness is not influenced by their cognitive abilities. The differences in achievement are due to delays in language acquisition and experiences of students with deafness (Serrano Pau, 1995; Titus, 1995). The reasons behind this disparity between hearing and deaf students are not clear. Some researchers refer to comparisons of cognitive strategies (Titus, 1995; Zwiebel & Allen, 1998), others put stress on the effects of sign language on the development of cognitive strategies (Frostdad, 1999). It has been noted that language affects the achievement of students with deafness in mathematics (Zevenbergen, 2000), which shows that they have to undergo problems similar to their hearing class mates.

OBJECTIVES OF THE STUDY

The study was conducted to achieve the following objectives:

1. To identify the problems of teachers in teaching adapted/modified curriculum of Mathematics to students with deafness from Grade 6 to 10.
2. To take opinions of teachers for the improvement of adapted/ modified curriculum of Mathematics for students with deafness from Grade 6 to 10.
3. To suggest measures for the improvement of adapted/ modified curriculum of Mathematics for students with deafness from Grade 6 to 10.

METHOD

Description of method is as under:

Population

Population of study consisted of special education teachers of government sector teaching Mathematics to students with deafness from grade 6 to 10.

Sample

A sample of twelve teachers (males=4, females=8) was selected conveniently from Government Deaf and Defective Hearing schools working in Lahore (four teachers), Gujranwala (two teachers), Rajanpur (one teacher), Rawalpindi (one teacher), Sialkot (two teachers), Multan (one teacher) and Bahawalpur (one teacher). Out of twelve, three teachers were teaching mathematics to 6th class, two teachers to 7th class, two to 8th class, three to 9th class, and two to 10th class. All of the teachers were having master's degree in special education.

Instrumentation

After reviewing the related literature and taking guidance from experts in the field of deaf education, a structured interview protocol consisting of eleven close ended questions was developed. The questions were about problems of teachers in teaching present modified curriculum of mathematics to students with deafness. It was also intended to take their suggestions for the improvement of this curriculum.

Data Collection Procedure

First of all, special education teachers who were teaching mathematics to classes from 6th to 10th were contacted. The researchers briefed purpose of study to them. The meeting time was scheduled keeping in view their easiness and availability of time. The researchers personally visited Government Deaf & Defective Hearing Schools in Lahore, Gujranwala, and Sialkot

and interviewed the selected eight teachers. The remaining four teachers had come to attend a training course at Government In-Service Training College for the Teachers of disabled Children, Lahore. The researchers took their appointments and interviewed them in their free hours. The subjects were assured that information taken from them will be kept confidential and anonymous and will only be used for research purposes.

Data Analysis

After gathering data from special education teachers through a self-developed and validated interview protocol, the responses of all teachers were presented precisely in tabular form for each class separately. Common themes were derived and results were reported in narrative form.

MAJOR FINDINGS

The detail of responses is being given along with questions:

Q.1: Which problems are you facing during the teaching of present curriculum of mathematics?

Ans: Most of the teachers (80%) responded that they were facing problem in teaching basic concepts which was due to the limited language skills of children. Teachers of class 9th and 10th expressed their problem in teaching Algebra and Geometry.

Q.2: Has the present curriculum been modified according to the special educational needs of students with deafness?

Ans: In answer to this question, majority of the teachers (90%) reported that the curriculum of mathematics had not been modified keeping in view the special educational needs of students with deafness.

Q.3: Which topics would you like to add to the present modified Curriculum of mathematics for students with deafness?

Ans: In response to this question, most of the teachers (70%) answered that there was no need to add more topics to this new modified curriculum. Some of the teachers (20%) suggested that generalization of different mathematical concepts, real life problems, topics of mean, median, mode, sampling, ascending and descending order could be added to the existing curriculum.

Q.4: Is it easy for students with deafness to understand topics already included in the curriculum?

Ans: Most of the teachers (90%) responded that children were having problem in understanding statement questions along with ratio and proportion.

Q.5: Can students with deafness do calculations in daily life after studying curriculum of mathematics?

Ans: All of the teachers (100%) reported that children could only do simple calculations. They had good concept of money and they could use calculators.

Q.6: Which teaching methods do you use during teaching mathematics to children with deafness?

Ans: Most of the teachers (80%) reported that they used total communication method, and drill method with the help of audio visual aids during teaching mathematics to children with deafness.

Q.7: Which activities do you include in the teaching of mathematics to children with deafness?

Ans: The teachers (80%) answered that they used real objects, play activities and did create simulated situations during teaching. Most of the teachers (70%) also responded that they used to involve students during teaching mathematics.

Q.8: Which objectives do you keep in mind during teaching Mathematics to children with deafness?

Ans: Majority of teachers (90%) answered that they focused on enabling students to implement learnt concepts in their daily life, success in exams, and coverage of course within stipulated time.

Q.9: Do children with deafness study mathematics with interest either through books or through activities?

Ans: All of the teachers reported that children with deafness studied mathematics with interest through activities.

Q.10: Do children have ability to solve the mathematical problem or do they learn it through cramming?

Ans: Most of the teachers (90%) answered that the children used to do cramming when mathematical concepts were not made clear to them.

Q.11: Are refresher courses arranged for teachers, to teach Mathematics to children with deafness?

Ans: All of the teachers reported that refresher courses on teaching of mathematics were not being arranged regularly.

CONCLUSIONS

The special education teachers were facing problems, as reported by them, in teaching present adapted/ modified curriculum of mathematics to children with deafness on account of following reasons:

1. Due to absence of books on adapted/modified curriculum, children with deafness had got deprived of many activities which had been included in the books of mathematics published by Punjab Textbook Board, Lahore.
2. During adapting/ modifying national curriculum on mathematics for children with deafness, many important chapters and topics were left over which were resulting in problems in concept formation.
3. The children with deafness were learning mathematical concepts through cramming which was due to teachers' inability to clarify concepts to them as reported by some teachers.
4. Refresher and training courses on teaching mathematics were not being conducted to guide teachers in teaching mathematics to children with deafness.
5. The strength of children in one class was greater than the standard which was causing problems for teachers in paying individual attention to each child during teaching of mathematics.
6. Due to deficiency of children with deafness in language development, it had become difficult for teachers to teach statement questions.

7. Special education teachers who were teaching mathematics to these children were not having expertise in teaching of mathematics.
8. Deficiency in the provision of audio visual aids was creating problems for teachers in making certain concepts clear to children with deafness.
9. Multi-grade teaching on account of lack of teaching staff was also causing problems for teachers in teaching mathematics properly.
10. Admissions remained open whole year so children did not get a chance to study complete syllabus.
11. The mathematics curriculum for grade 9th and 10th had not been changed for the last twenty six years. Many new concepts and chapters had been added to the national curriculum of mathematics which were not included in the curriculum of children with deafness.

RECOMMENDATIONS

The following recommendations can be made on the basis of study:

1. Adapted/modified curriculum should be compiled into attractive, colorful, and activities oriented books for the ease of both teachers and taught.
2. All necessary chapters and topics included in national curriculum of mathematics should be added to adapted/modified curriculum for children with deafness.
3. Cramming of mathematical concepts and steps involved in calculations can be avoided by appointing subject specialists in mathematics and conducting in-service trainings for math teachers to increase their proficiency in teaching methodology.
4. Strength of children with deafness in one class should not be more than the set standard to avoid discipline maintenance problems.
5. Proper attention should be paid to the language development of children with deafness from the early years of life to lessen the problems of teachers in teaching those mathematical concepts which require developed language skills in children.
6. Provision of instructional material for the teaching of mathematics should be ensured.
7. Appointment of special education teachers in deaf schools should be made on emergent basis to avoid multi-grade teaching.
8. Additional classes on mathematics should be arranged for those children who remain behind their classmates due to their late admission in school.
9. Mathematics curriculum for grade 9th and 10th should be revised and updated taking into consideration national curriculum on mathematics.

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