

School Attendance supports Mathematics Achievement of First and Other Generation Learners at Primary stage

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Abstract:

Mathematics as a school subject continues to be the tough most subject from primary to secondary/Sr. secondary level and a majority of students perform less in comparison to others school level subjects. Mathematics is the single most subject that affects gross academic achievement of learner. The survey results (from 1975/76 to 1984/85) published by NCERT (Dave, 1992) indicated that achievement of primary grade students in mathematics is excellent in class 1st and 2nd, good in 3rd, and poor in class 4th.

In the light of above backdrop, attempt has been made to examine the mathematics achievement of primary children and comparing achievement level between first generation versus other generation learner is the real challenge for the researcher. The present study was carried out on subjects being drawn from Lakhmipur and Kheri districts of Uttar Pradesh. Findings of the study revealed that Mathematics achievement of a majority of first generation learners is found to be at Level-3(46-60%) in class 2nd, at Level-2 (36-45%) in class 3rd and at Level-3(46-60%) in class 4th; while in case of other generation learners (of a majority) Mathematics achievement is found to be at Level-5(75-90%) in classes 2nd to 4th. Other significant findings include other generation learners are found to be superior in mathematics than first generation learners and school attendance promotes achievement in mathematics among first and other generation learners.

Key words: school attendance, mathematics achievement, learners, primary stage

INTRODUCTION

The Constitution (Eighty-sixth Amendment) Act, 2002 inserted Article 21-A in the Constitution of India to provide free and compulsory education of all children in the age group of six to fourteen years as a Fundamental Right in such a manner as the State may, by law, determine. The Right of Children to Free and Compulsory Education (RTE) Act, 2009, which represents the consequential legislation envisaged under Article 21-A, means that every child has a right to full time elementary education of satisfactory and equitable quality in a formal school which satisfies certain essential norms and standards.

Article 21-A and the RTE Act came into effect on 1 April 2010. The title of the RTE Act incorporates the words 'free and compulsory'. 'Free education' means that no child, other than a child who has been admitted by his or her parents to a school which is not supported by the appropriate Government, shall be liable to pay any kind of fee or charges or expenses which may prevent him or her from pursuing and completing elementary education. 'Compulsory education' casts an obligation on the appropriate Government and local authorities to provide and ensure admission, attendance and completion of elementary education by all children in the 6-14 age group. With this, India has moved forward to a rights based framework that casts a legal obligation on the Central and State Governments to implement this fundamental child right as enshrined in the Article 21A of the Constitution, in accordance with the provisions of the RTE Act.

WHY MATHEMATICS IS CRITICAL AT SCHOOL STAGE:

Mathematics is an important subject in secondary school because it is associated with more academic and career opportunities (Akinsola and Tella, 2003). Ironically, this subject is the basis for scientific, industrial and technological advancement of any country. But it is very sad to note that the performance by the secondary school students are not up to the mark and student's general impression is that it is a dreadful subject. Thus, mathematics learning and student's performance in mathematics receive considerable attention from educators, teachers and parents. It is therefore important to identify which particular school and student's factors influence student mathematics achievement most significantly, in order to help them improve and make substantial academic progress. The student's educational outcome and academic success is greatly influenced by the type of school they attend. Crosnoe, Johnson and Elder (2004) suggested that school sector (public or private) and class size are two important structural components of schools. Private schools tend to have both better funding and smaller class sizes than public schools. The additional funding of private schools leads to more access to resources, which have shown to enhance academic achievement. The relative social class of a student body also effects academic achievement. Student from low socio-economic backgrounds who attend poorly funded schools do not perform well compared to students from higher social classes (Eamon, 2005). Gender, touted to be a significant contributor for mathematics achievement has not been consistent and continue to be a much debated topic (Leder, 1992). Friedman (1989) noted that until age 10 either no differences between genders or differences favoring girls are observed. For the middle school years, some researchers favoured girls (Tsai and Walberg, 1983) and some favored boys (Hilton and Berglund, 1974); other researchers showed no

difference (Fennema and Sherman, 1978; Abiam and Odok, 2006).

Another significant contributor duly acknowledged in literature for mathematics achievement is mathematics anxiety. High and low levels of mathematics anxiety greatly determine student's achievement level in mathematics. In the past, researchers have reported that students with lower level of mathematics achievement tend to have higher levels of mathematics anxiety (Cooper and Robinson, 1989; Morris, Davis and Hutchings, 1981). This negative relationship also appears at the elementary and the secondary school levels (Chui and Henry, 1990; Lee, 1992; Meece, Wigfield and Eccles, 1990). Hembree (1990) reports an average correlation of -0.34 for school students, concluding that mathematics achievement is highly constrained by mathematics anxiety and that reduction in mathematics anxiety is consistently associated with improvement in achievement. However, it should be noted that the observations of Hunsley (1987) using multiple regression and those of Hadfield and Maddux (1988) using analysis of variance, did not indicate a significant relationship between the two.

RATIONALE:

Academic achievement is considered as one of the major factors for sustained participation in the field of education. The search for quality in academic endeavours has raised several questions for educational researchers and practitioners. What factors encourage or promote achievement in learners? To what extent do the different subjects contribute toward good academic achievement? Subject mathematics have been identified as an important subject among all for both the success and failure of a student. Research results are varied, at times they complement and in certain cases they contradict each other. A comprehensive picture of academic achievement still seems to

be eluding the researchers. In Indian context, very few studies are being carried out on mathematics achievement in higher level where as at primary level almost nil. If the goal of our educational system is the achievement of learners, then educational research has to explore the possible ways to understand the subject mathematics and how to make interesting. Therefore, the present study is designed to explore how the mathematic achievement has influence on total academic achievement level of the child by comparing both First and Other Generation learners.

OBJECTIVES:

1. To study the level of mathematics achievement of first and other generation students in primary grades (Class 2nd, 3rd and 4th) in Lakhimpur-Kheri, U.P.
2. To compare level of mathematics achievement of first generation & other generation learners.
3. To corroborate mathematics achievement with school attendance of first and other generation learners.

RESEARCH QUESTIONS:

- What is the status of first and other generation learner in mathematics at primary level?
- Who are good achievers in mathematics?
- Is regular attendance helps in performing better in mathematics?

METHODOLOGY OF STUDY:

In order to achieve above cited objectives, a systematic approach was adopted to assess mathematics achievement of first and other generation learners. The researcher applied descriptive survey method and collected desired data. Further,

the researcher selected 60 students studying in class 5th of three schools in Kheri district of Uttar Pradesh as the sample of this study through purposive random sampling technique. Achievement in mathematics of selected students was recorded retrospectively. The researcher used self made questionnaire for parents, teachers and students and obtained help from school records for systematic conduct of the study. Mathematics achievement scores were categorized into 6 levels based on percentage of marks secured in classes 2nd to 4th, i.e., Level-1(below35%), Level-2(36-45%), Level -3(46-60%), Level-4 (61-74%), Level-5(75-90%) and Level-6 (91% and above).

RESULTS AND DISCUSSION:

In order to assess the level of mathematics achievement of first generation and other generation learner mean, standard deviation and percentage were calculated separately. Results pertaining to the achievement level of first generation and other generation primary school children have been discussed in the Tables 1-5.

Table-1
Mathematics Achievement Status of First Generation Learners (class wise)

Class	Level-1 (≤35%)	Level-2 (36-45%)	Level-3 (46-60%)	Level-4 (61-74%)	Level-5 (75-90%)	Level-6 (≥91%)
2 nd	--	--	27 (90.00%)	3 (10.00%)	--	--
3 rd	3 (10.00%)	20 (66.67%)	4 (13.33%)	3 (10.00%)	--	--
4 th	2 (06.67%)	10 (33.30%)	13 (43.33%)	5 (16.67%)	--	--

Mean=49.43 SD=08.19

It is revealed from table1 that the status of Mathematics Achievement of First Generation Learners at primary grade in Lakhimpur district of U.P. ranges between level 1(Below 35%) to level 4(61-74%) class wise. In class 2nd, majority no. of students' mathematics achievement lies between 46%-60% where as in class 3rd lies between 36% to 45% and class 5th lies between 46%-60%.The average standard of mathematics achievement level of First Generation Learners is 49.13% which is below 50%.

Table-2
Mathematics Achievement Status of Other Generation Learners (class wise)

Class	Level-1 (≤35%)	Level-2 (36-45%)	Level-3 (46-60%)	Level-4 (61-74%)	Level-5 (75-90%)	Level-6 (≥91%)
2 nd	--	--	1 (03.33%)	4 (13.33%)	15 (50.00%)	10 (33.30%)
3 rd	--	1 (03.33%)	5 (16.67%)	8 (26.67%)	9 (30.00%)	7 (23.33%)
4 th	--	3 (10.00%)	9 (30.00%)	6 (20.00%)	10 (33.33%)	2 (6.67%)

Mean =74.24 SD =13.66

Table 2 indicates that the status of the Mathematics Achievement of Other Generation Learners studying at primary grade in Lakhimpur district of U.P. are lies between level 2(36-45%) to level 6(above 91%). Class wise analysis revealed that mathematics achievement of a majority of class 2nd students lies in between 75%-90% followed by class 3rd and class 4th of Lakhimpur, and Kheri districts. The average standard of mathematics achievement level of Other Generation Learners is 74.24% which is near 75%.

Comparative achievement level in mathematics of both First generation and Other generation learners studying in classes II-IV of Lakhimpur, and Kheri Primary schools have been given in table 3.

Table-3

Comparative Achievement Level of First and Other Generation Learners in Mathematics (classwise)

Class	Level 1 (≤35%)		Level 2 (36-45%)		Level 3 (46-60%)		Level 4 (61-74%)		Level 5 (75-90%)		Level 6 (≥91%)	
	First Gen.	Other Gen.	First Gen.	Other Gen.	First Gen.	Other Gen.	First Gen.	Other Gen.	First Gen.	Other Gen.	First Gen.	Other Gen.
2	--	--	--	--	27 (90.00%)	1 (03.33%)	3 (10.00%)	4 (13.33%)	--	15 (50.00%)	--	10 (33.30%)
3	3 (10.00%)	--	20 (66.67%)	1 (03.33%)	4 (13.33%)	5 (16.60%)	3 (10.00%)	8 (26.67%)	--	9 (30.00%)	--	7 (23.33%)
4	2 (06.67%)	--	10 (33.30%)	3 (10.00%)	13 (43.33%)	9 (30.00%)	5 (16.67%)	6 (20.00%)	--	10 (33.30%)	--	2 (06.67%)

Table 3 indicates that the Comparative Mathematics Achievement Level of First Generation and Other Generation Learners in Mathematics at primary grade(classes II to IV) in Lakhimpur district are varies between level 1 to level 6.

In class 2nd, the majority of First Generation Learners students' mathematics achievement lies between 46%-60% where Other Generation Learners lies between 75%-90%. Likewise in class 3rd the majority of First Generation Learners students' mathematics achievement lies between 36%-45% where Other Generation Learners lies between 75%-90%. Similarly in class 4th the majority of First Generation Learners students' mathematics achievement lies between 46%-60% where Other Generation Learners lies between 75%-90%.

Further, the results show that the mathematics achievement of First Generation Learners are decreased in class III and increased in class IV where as mathematics achievement of Other Generation learner from classes II-IV have constant level. The Other Generation learners are superior in mathematics those studying in primary schools of Lakhimpur, and Kheri districts. The study of MarYamHamedani (2006), associate director of Stanford's Centre for Comparative Studies in Race and Ethnicity, is co-author of "A study of factors that lead to success for first-generation college students", Research has shown that first-

generation college students – those who do not have a parent with a college degree – often lag behind other students in grades and graduation rates. They also often struggle socially, finding it hard to fit in and sometimes feeling like they don't belong in college.

For more specific description graphical representation is given below.

Table-4
Comparative Mathematics Achievement between First and Other Generation Learners

Class	Level-1 (≤35%)	Level-2 (36-45%)	Level-3 (46-60%)	Level-4 (61-74%)	Level-5 (75-90%)	Level-6 (≥91%)
Ist Generation	05	30	44	11	-	-
Other Generation	--	04	15	18	34	19
Total	05	34	59	29	34	19

Table-5
Comparative Attendance status between First and Other Generation Learners

Class	Level-1 (≤35%)	Level-2 (36-45%)	Level-3 (46-60%)	Level-4 (61-74%)	Level-5 (75-90%)	Level-6 (≥91%)
Ist Generation	Below 50%	50% and above	50-60%	Below 60%	-	-
Other Generation	-	Below 50%	Above 50%	50-60%	Below 75%	Above 75%

It is revealed from table 4 that the maximum no of first generation learners are coming under level 3 where as maximum no of other generation learners are coming under level 5 category of mathematics achievement. Similarly table 5 indicated the attendance status of both the learners. However, it proved that attendance support the mathematics achievement. In both the category, learners those achieved more percentage in mathematics have high attendance

percentage and similar picture also shown in the case of other generation learners.

Fig. 1: Graphical Representation of Comparative Achievement Level of First and Other Generation Learners in Mathematics in Class 2nd

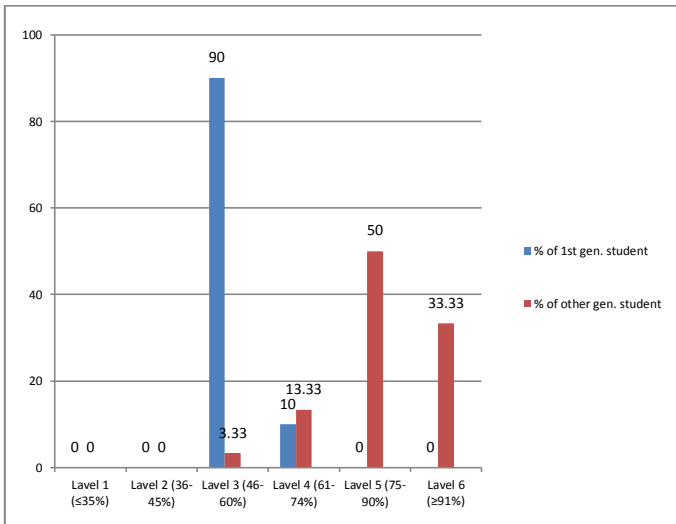


Fig. 2: Graphical Representation of Comparative Achievement Level of First and Other Generation Learners in Mathematics in Class 3rd

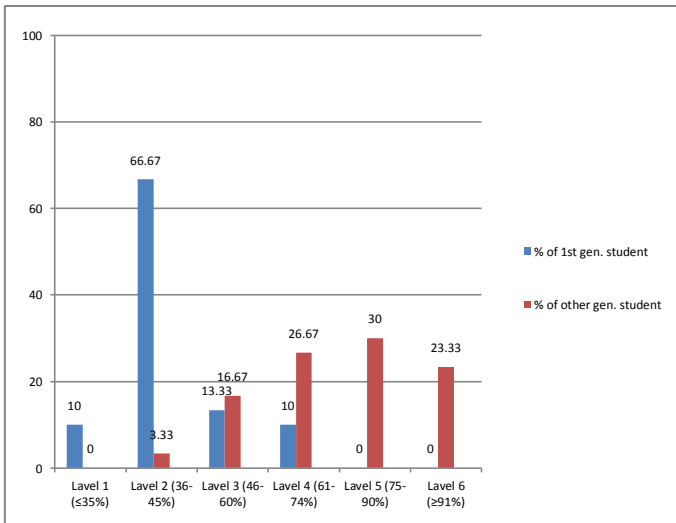
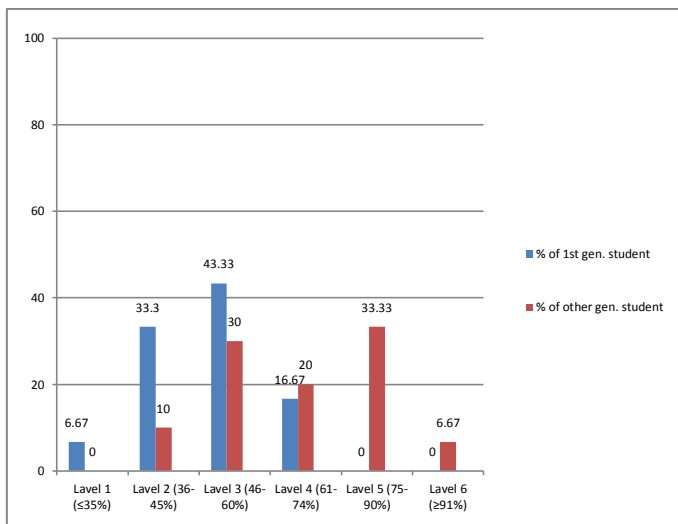


Fig. 3: Graphical Representation of Comparative Achievement Level of First and Other Generation Learners in Mathematics in Class 4th



Findings:

1. Mathematics achievement of a majority of first generation learners is found to be at Level-3(46-60%) in class 2nd, at Level-2 (36-45%) in class 3rd and at Level-3(46-60%) in class 4th.
2. Mathematics achievement of a majority of other generation learners is found to be at Level-5(75-90%) in classes 2nd to 4th.
3. Other generation learners are found to be superior in mathematics than first generation learners.
4. School attendance promotes achievement in mathematics among first and other generation learners.

CONCLUSION

What emerges most noticeably from the above cited results and discussions that mathematics achievement level among first and other generation learner are still below 30% (29.33%) In case of both high and low achieving Muslim concentrated

districts the percentage ranges from 29.33 to 71.16. But every sample district had unique pattern of achievement. For instance, Ghaziabad has consistently increasing the academic achievement level from classes I to classes. Such pattern failed to continue among other four Muslim concentrated districts. But when we analyse the subject wise achievement score we found I that the Muslim girls are doing better and achieved more in subject maths than subject Hindi and subject EVS. However, no. of Muslim teachers, home environment, parents education level indicated as positive factors for their scholastic achievement. Children from poor families are generally deprived of the opportunity for learning at home which affects their achievement level. To overcome such problem in rural set up, children at an appropriate age level are either to be sent to Anganwadis before entering primary school or teachers at primary level can adopt remedial teaching practices for such children in the school. Needless to mention that children from families having low socio-economic status are not special needs children, these children are so, because of their limited exposure to stimulation or enrichment activities at home. Parents of such children should maintain relationship with school as well as other institutions, so that they can learn about their child's progress through formal/informal discussion with teachers. While discussing with parents, issues, such as, development of children in the formative years, students' interest and abilities are to be given more importance. On the other hand, teachers should provide remedial teaching to the children having inadequate family environment and low socio-economic status so that children's academic abilities can be enriched. The results of the present study strengthen the need for inclusive policies for Muslim girls by generating income of the parents through various innovative means. If we showcase our nation as one of the largest democratic set up across the globe, concerted efforts should be initiated to bring underprivileged at par with others.

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