

A Comparative Study of Multi-grade Teaching on the Achievement Levels in Hindi and Mathematics of Second Standard in Government and NGO Schools

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ABSTRACT

India has been striving to achieve 100 per cent literacy in primary education. 86th amendment of the Indian Constitution makes education a fundamental right for all children aged 6-14 years. Sarva Shiksha Abhiyan and Right to Education (RTE) Act of April 2010 aim to achieve the goal of Universalisation of Elementary Education. But despite the enormous efforts, India still struggles with the challenges in achieving 100 per cent literacy even in the primary education. 59 million children out of 200 million children in India in the age group 6-14 years are not attending school even today. Multi-grade Teaching has emerged as an alternate system of education the world over to achieve the goal of Education for All. It has been defined variously but essentially it is an education system in which students of two or more adjacent grade levels are taught in one classroom by one teacher, i.e. technique of simultaneous teaching of more than one grade by a single teacher. It was intended to study the efficacy of Multi-grade Teaching vis a vis conventional methods of teaching. The study focused on the effects of Multi-grade teaching on the overall achievement levels of the students in Hindi and Mathematics. The Study was carried out on 1000 students of second standard from primary schools. The study also aimed at determining the classroom processes and awareness of teachers towards MGT. Normative survey method was used for the Study. Self-constructed and standardised achievement test in Hindi and Mathematics along with a Reading Proficiency Test and Classroom Process Index scale developed by Dr. Lalit Kishore were as tools for the Study.

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Introduction

The Dictionary defines Multi-grade Teaching as a 'technique of simultaneously teaching more than one grade by a single teacher. Gupta, Jain and Bala (1996) define Multi-grade Teaching as 'a school condition wherein a teacher has to develop classroom activities for learners comprising of different grades in a single setting simultaneously'. According to Delos Anglese-Bautista (1994), the multi-grade schools are those 'which have classes that combine students of different ages and different abilities in one classroom'.

Multi-grade Teaching can also be defined as a class in which students of two or more adjacent grade levels are taught in one classroom by one teacher. Such multi-grade classes are embedded within the traditional graded system: students retain their grade labels and are promoted through the school with their grade level (Mason and Burns, 1996; Veenman, 1995).

Little, A. W. in the research paper titled "Multi-grade Teaching — A Review of Research and Practices", published in Education Research Paper Number 12 in 1994, describes Multi-grade Teaching as: "The teaching of students of different ages, grades and abilities in the same group is referred to variously as multi level, multi-grade, multiple class".

Multi-grade Teaching should be distinguished from multiage-within-grade teaching which occurs when there are wide variations in age within the same grade.

Evolution of Multi-grade Teaching in India

Though Multi-grade Teaching, as a concept, has existed for a long time now, India has witnessed growing interest in it only during the last two decades or so, though it is still restricted to a few schools run by individuals, NGOs and international organisations, with some help from the State/Central Government.

A large number of primary schools in rural India are single teacher schools where Multi-grade Teaching is a pervasive reality. In such schools, multi-grade situations exist but the Multi-grade Teaching, in the classic sense, does not take place, largely due to lack of knowledge by the teachers about the concepts of Multi-grade Teaching. Mono-grade teaching practices are followed in multi-grade situations. There is a need, therefore, to study the prevalence of various Multi-grade Teaching initiatives in India, examine the impact of Multi-grade Teaching on learners' achievements, and have a fresh look on the efforts of universalisation of elementary education for

affecting quality improvement and providing an added dimension to research in the area of elementary education.

Review of Related Studies

Brown, K. S., and Martin, A. G., 1989 in their study in eight elementary schools of Canada compare the achievement levels of students in Multi-grade Teaching schools with the students of single grade schools. No significant differences were found.

Eames, F. H., 1989 in his study compared the reading achievement scores of fourth graders in traditional, single grade setting with the combined fourth and fifth graders in multi-age, multi-grade schools. No significant differences were found.

Jean Russell, Kenneth J. Rowe and Peter W. Hill, Centre for Applied Educational Research, Faculty of Education, The University of Melbourne, in the study conducted in 1998 compared the effects of multi-grade classes on student progress in literacy and numeracy, including study of the perceptions of teachers and school leaders. Study found that multi-grade classes are used sometimes by choice but at other times as a result of the combined pressures from staff-student ratios and enrolment numbers at particular grade levels.

Kishore, Lalit, 2003 in his study found that most single teacher' schools in Government sector across India have become multi-grade schools by default, without adequately trained teachers, support system and teaching material. In NGO sector, Multi-level Learning is by choice and system gains maturity with a minimum time of three years in an evolutionary mode.

From the results of related studies as mentioned above it is found that practically a few work has been done in the field of multi-grade teaching in India. Hence the present study has been undertaken by the researcher.

Objectives of the Study

- To study the difference in the achievement levels of the students of Government and NGO schools in Hindi and Maths.
- To study differences in classroom processes of multi-grade schools vis-à-vis graded schools.
- To study the background/awareness of teachers related to multi-grade teaching vis-à-vis graded schools.
- To study the philosophy of imparting multi-grade teaching by different NGOs.

Hypotheses of the Study

There is no significant difference in:

- The achievement levels of the students of Government and NGO schools in Hindi and Mathematics.
- In classroom processes in Government and NGO schools.
- In background/awareness of teachers regarding multi-grade teaching of Government and NGO schools, and
- In the philosophy of imparting multi-grade teaching by different NGOs.

Research Method

The Normative Survey Method was adopted to collect the relevant information/data about the achievement levels of students in Government and NGO schools in the present study.

Sample

The student sample of the present study consists of 1000 students of Class II from primary schools 500 students each from Government and NGO schools of Jaipur District of Rajasthan, i.e. 300 boys and 200 girls. Students were selected on the basis of purposive sampling technique. Studies were conducted on two NGO schools, i.e. CULP and *Bodh Shiksha Samiti*, imparting elementary education to slum dwellers and weaker sections of the society of Chaksu Block of Jaipur District and Jaipur City respectively. Government schools selected for sampling were a mix of rural and urban schools of Jaipur District. For checking the classroom processes and awareness of teachers, 20 teachers each from Government and NGO schools were selected.

Tools Used

Self Constructed and Standardised Achievement Test in Hindi and Maths developed by the Researcher. A 'Reading Proficiency Test' was also developed for Hindi, and *Classroom Process Index Scale* developed by **Dr. Lalit Kishore**.

Statistical Techniques

To test the hypothesis of the Study the statistical techniques used for analysing the data included Mean, Standard Deviation, t-test, and Skewness.

Results

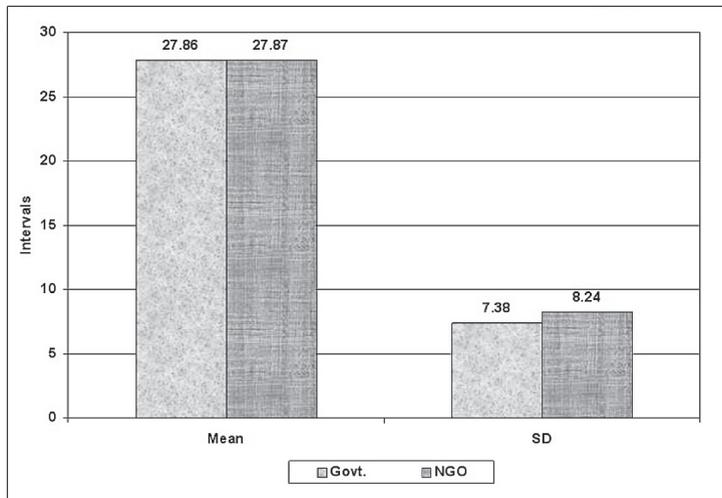
The Study found no significant difference in the achievement levels of the students of Government and NGO schools in Hindi and Mathematics; classroom practices adopted by NGOs school teachers are better than the Government schools; there is significant difference in the awareness of teachers towards the Multi-grade Teaching; and there is no significant difference in the philosophy of different NGOs imparting the Multi-grade Teaching.

Achievement Level of Students of Government and NGO schools in Hindi

No significant differences in the achievement levels between boys and girls of Government and NGO schools in Hindi were observed, though reading proficiency of students of Government schools is marginally lower than the NGO schools, as indicated in the table and the graph below.

Table 1: Achievement Level of Students of Government and NGO Schools in Hindi

Group	Number	Mean	S.D.	't' Value
Government	500	27.86	7.38	0.02
NGO	500	27.87	8.24	



Graph 1 : Achievement level of students of Government and NGO schools in Hindi

Achievement of Students of Government and NGO schools in Reading in Hindi

School	No of Students	Word Recognition			Creative Aspect		
		A1	A2	A3	B1	B2	B3
		Hijje (spell a word in parts)	Whole Word	Fluency	Punctuation Marks	Expres- sion	Stress on Words
Govt.	100	61	36	21	14	27	9
NGOs	100	53	44	30	22	28	8

Out of the sample of 1000 students, 100 students each of the Government and NGO schools were selected randomly to test the proficiency of the students on the aspect of reading Hindi language. On an average a mix of five students per school were selected for reading.

The scores at the Table show that out of 100 students of Government schools, 61 per cent could not read/ pronounce the whole word together, e.g. pronouncing Jaipur as J- - y- - pu - r. Only 36 per cent could recognise the whole word. Amongst NGOs students, a comparatively lesser number, i.e. 53 per cent could not read the whole word. A larger percentage of NGOs school students, i.e. 30 per cent against 21 per cent of Government schools, were found to be more fluent in Hindi.

This shows that reading proficiency of students of Government schools is marginally lower than the NGO schools. This could possibly be attributed to inadequate practice to the students in reading out the words and sentences, or more emphasis on writing practice vis a vis reading practice. On the other hand, NGO schools use flash cards to develop sight vocabulary. During interaction, teachers at NGO schools reported that the students who do not have developed sight vocabulary suffer from the same weakness in reading Hindi as in Government schools.

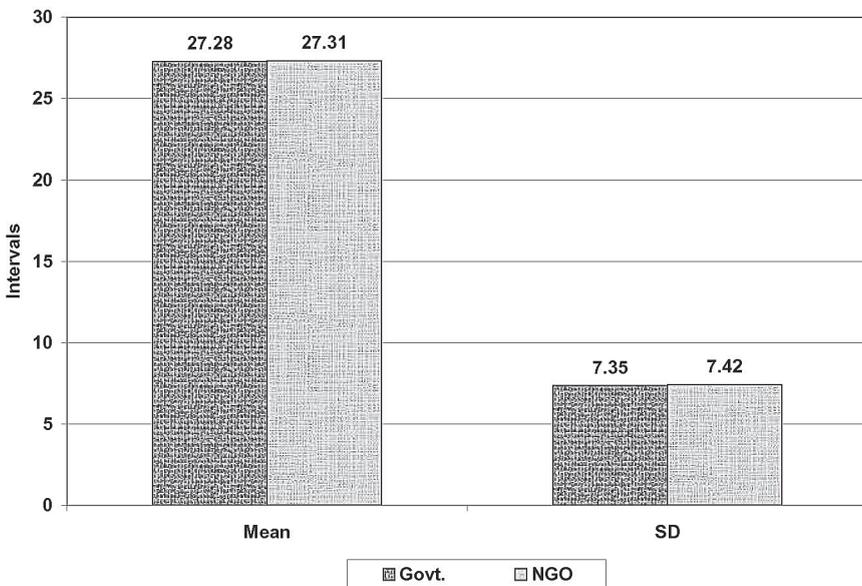
The results achieved are in consonance with the results achieved through other surveys conducted recently. Assessment Survey Evaluation Research Centre (ASER), New Delhi Report 2010 states that during a survey of students of Class 4 in UP, only 1/3rd children could read standard II level text fluently; another quarter or so were comfortable reading simpler standard I level texts; almost half the children of standard IV in Government schools cannot even read the simple text of standard II.

Achievement Levels of the Students of Government and NGO schools in Maths.

No Significant Difference in the Achievement Levels of Students of Government and NGO schools in Maths was observed. To study/examine the Hypothesis in greater details, Researcher conducted tests to check the ‘Achievement Levels of Boys and Girls Students of **Government Schools** in Maths’, and ‘Achievement Levels of Boys and Girls Students of **NGO schools** in Maths’. Results indicate significant difference in the achievement levels between boys and girls of both Government and NGO schools in Maths where girls have outperformed the boys. However, the hypothesis that there is no significant difference in the achievement levels of students of Government and NGO schools in Maths still holds good.

Table 2: Achievement Levels of the Students of Government and NGO schools in Maths

Group	Number	Mean	S.D.	't' Value
Government	500	27.28	7.35	0.06
NGO	500	27.31	7.42	



Graph 2 : Achievement Levels of the Students of Government and NGO schools in Maths

This result is almost similar to the previous studies. Several studies on multi-grade teaching showed that no significant differences were found in the achievement in Maths of students of graded and multi-grade schools.

Rule, J. G. (1983) compared the Maths achievement of third to sixth graders in multi-grade classes with the achievement of those instructed in single grade classes. No significant differences were found.

Mobley, C. F. (1976) investigated the effect of single-age and multi-age grouping on reading and Maths achievement of children in their first, second and third years of schools. Results significantly favored multiage grouping.

Stone (1986), Knight (1988) examined possible effects of multi-grade classes on Maths, Science, reading and language. The result showed no significant difference between multi-grade and single grade students in overall achievement.

Finley, Carmen J. and Thompson, Jack M. (1963) examined the comparative achievement of multi grade and single graded rural elementary schools children in California. No differences in achievement between single and multi-grade classes were found when tested in Maths, English and other subjects.

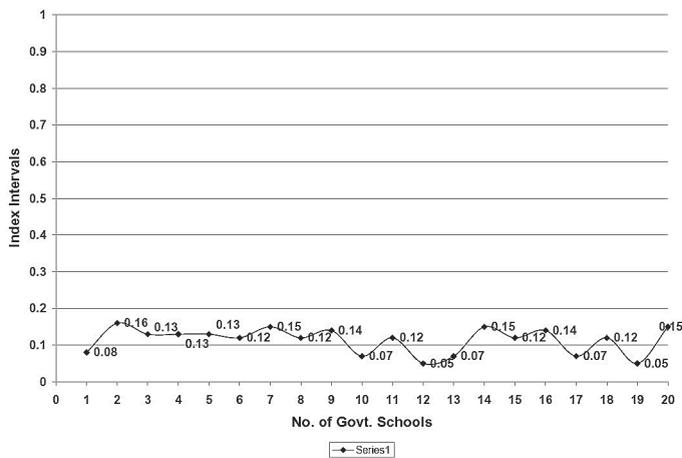
These studies lend support to the present research that there is no significant difference in the achievement levels of students of Government and NGO schools in Maths. The NGO schools who are imparting multi-grade teaching showed similar achievement levels of students in Maths as shown by Government schools students.

Classroom Process Index (CPI)

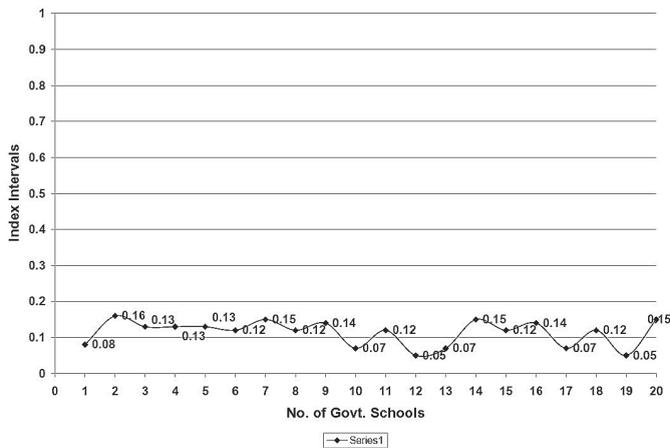
There is no significant difference in the Classroom Process Index values of both Government and NGO schools. In the case of NGO schools, the most schools are very near the 'mediocre' range but only one school out of 20 had shown a high level of positive index range and it is very near to the 'normal' distribution curve, as indicated by the value of skewness. Study of effectiveness of teaching process indicated a significant difference in the background/awareness of teachers in NGOs school vis a vis graded schools. NGOs school teachers are well aware of the concept. The views of the Government school teachers emerge as the training needs of the teachers and should be incorporated in the in-service training programmes of the *Sarva Shiksha Abhiyan* (SSA).

No significant difference in the philosophy of multi-grade and multi-level teaching by different NGOs has been observed since their

basic assumptions about children and learning are the same even though the methodology varies, either by choice or as a problem solving method. Some NGOs follow the concept of multi-grade teaching while others follow the concept of multi-level teaching; some are aimed at educating only girl child whereas others target both boys and girls; some impart education only till primary level whereas others conduct classes till 12th standard. The basic philosophy of multi-grade teaching remains the same—let the child self learn at his own pace.



Graph 3: CPI of Govt. Schools



Graph 4: CPI of NGO schools

Background awareness of teachers related to multi-grade teaching vis a vis graded schools.

Study of various aspects of the effective teaching process indicated a *significant difference in the background/awareness of teachers in NGOs school vis a vis graded schools*. NGOs school teachers are well aware of the concept.

Philosophy of imparting multi-grade teaching by different NGOs.

No significant difference in the philosophy of multi-grade and multi-level teaching by different NGOs has been observed since their basic assumptions about children and learning are the same even though the methodology varies, either by choice or as a problem solving method. Some NGOs follow the concept of multi-grade teaching while others follow the concept of multi-level teaching; some are aimed at educating only girl child whereas others target both boys and girls; some impart education only till primary level whereas others conduct classes till 12th standard. The basic philosophy of multi-grade teaching remains the same—let the child *self-learn* at his own pace.

Recommendations

Mono-grade Teaching in Multi-grade Situations. A large number of schools in rural areas in developing countries like India are *single teacher*, with low student population. In such schools, though multi-grade situation exists, multi-grade teaching does not occur. Such schools continue to follow mono-grade teaching in multi-grade situations. Teachers can be trained the nuances of Multi-grade Teaching.

Multi-grade Teaching—Not a Second Class Solution. In a vast country like India, with large rural population and high *dropout* rates, Multi-grade Teaching is perhaps the only way to achieve the target of 'education for all'. Multi-grade schools should not be considered a *second class solution* anymore.

Multi-grade Teaching — A Success Story. Multi-grade Teaching is based on the pedagogically established facts. In most NGOs, the initiatives on Multi-grade Teaching are successful as far as the learners' achievement is concerned. Students learn in a fear free environment, perform as well as students in Government schools. Indeed in certain fields, the students of the NGO schools outperform the students from Government schools.

Multi-grade Teaching—An Alternate Education System. During the last few years in India and various developing countries, Multi-grade Teaching is being increasingly considered as an alternate education system to achieve 100 per cent literacy rate, at least at the primary level. Various Multi-grade Teaching initiatives have been launched successfully in Government schools, in collaboration with the NGOs, supported by international organisations.

Training the Trainers. Teacher is the most significant and critical figure in the multi-grade situation. Despite the prevalence of Multi-grade Teaching situations in India, evidently no serious effort has been made to include Multi-grade Teaching in training curriculum of teachers. Though teachers are generally aware of the concept of Multi-grade Teaching, ironically, Multi-grade Teaching neither forms part of syllabi for students of Bachelor of Education, nor for teachers training of Government schools.

Language Training. Students both from Government and NGO schools did not perform well in test conducted on *Hindi Reading*. Current classroom practices must therefore be reviewed and revised to make teaching-learning in languages more effective and interesting.

Awareness Campaign. Conferences/ seminars/ workshops must be organised at district, state and national level to create awareness about the Multi-grade Teaching.

Conclusion

Multi-grade schools are often the only way to ensure quality education in rural and remote areas with low and scattered population. The choice in favor of multi-grade schools is often a choice between education and no education. A large number of primary schools in rural areas, particularly in developing countries, are one-teacher schools. In rural areas multi-grade instruction is not a new educational trend, but a necessity imposed, in part, by economic and geographic conditions, paucity of teachers and few students in the class.

Multi-grade Teaching is emerging as a form of schooling in many countries in the Asia and Pacific Region as they strive to meet their commitment to provide education for all.

Multi-grade Teaching has a number of advantages over graded schools like greater cross-age interactions, leadership and followership skills, absence of unhealthy competition due to

children of different ages; there are no *dumb groups* since children of different age groups are expected to be at different levels; children are encouraged to learn at their own pace; multi-grade education emphasises wholesome development of the child.

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