Performance of Students in Katha Lab School

An Evaluative Study

Educational Technology and Management Academy
T-6/1701, Orange County, Valley View Estate
Gwal Pahadi, Gurgaon-Faridabad Road,
Gurgaon – 122001 (Haryana: India)

Preface

Katha School is an innovative institution. Unique in its placement; situated in the Govindpuri slum in South Delhi, Katha School services the educational needs of the urban slum dwellers. There are several innovative features ranging from admission to conceptualization of curriculum to pedagogy to student assessment. Whatever are the innovative features, test of its efficacy is in student learning outcome.

Katha commissioned ETMA to evaluate students' performance in grades VII, V and III in two subjects – Mathematics and Hindi. Performance assessments were to be done on the courses covered during the first few months – July to October, 2009. ETMA undertook the study with all earnestness. The first set of findings were presented in a meeting at Katha. On the basis of the discussion, a second level exercise was also undertaken.

Study has now been completed. ETMA is happy to present its findings in this report.

Prof. Madhu Parhar, Member of ETMA Trust was the chief architect; she designed and guided the implementation of the study; there were several others who helped in constructing and validating the tests; administering the tests, creating the draft report, reviewing and finalizing the report; and all that just for love of labour. I am thankful to Prof. Parhar and all those who assisted her in accomplishing this task.

I am grateful to Mr. Dharmarajan and Mrs. Geeta Dharmarajan for entrusting the work to ETMA and their enormous patience to wait for the report. Their zeal to help the urban poor children is an inspiring example for others to emulate. I hope the report will help taking their cause further.

25 March, 2010
ETMA: Gurgaon

Prof. Marmar Mukhopadhyay
Hony. Director

Executive Summary

1. Katha a social non profit organization has a mission to enhance the joy of reading and quality learning among the r children in urban India.

2. Katha fulfills its mission through its various programmes. Katha lab School is one such initiative which was started in 1990 in Govindpuri- a slum in Delhi.

3. Katha has developed a unique story pedagogy and Viduniya curriculum.

4. Educational Technology and Management Academy, a non-governmental trust institution was called upon to conduct an external evaluation of Katha Lab School in 2009.

5. The major objective of the evaluation was to look at the performance of students of Katha School enrolled in the 3rd, 5th and 7th grade in Hindi language and mathematics.

6. Researchers from ETMA visited the Katha lab school, visited classes, discussed with the Principal of the school and understood the teaching learning process of the school.

7. Curriculum was obtained for all the three grades in Hindi and mathematics.

8. Achievement test was designed by ETMA for 3rd, 5th and 7th grade in Hindi and mathematics on the syllabus and topics covered during the current session provided by Katha School.

9. Test was vetted by two experts in the respective subjects for the content. Few test items were changed and redrafted.

10. The sample of this evaluative study was all the students enrolled in 3rd, 5th and 7th grade in the year 2009-10.

11. Prior appointment was taken from the principal to administer the test. The test was administered in one day in all the three grades.

12. Two researchers from ETMA administered the test. Help was taken from the teachers of the Katha school.

13. The test results were tabulated and analyzed. Mean, range and standard deviation were calculated.

14. Findings revealed that the average mean scores in Hindi in grade 3rd, 5th and 7th were 14.87, 13.25 and 18.3 respectively (maximum score was 25).

15. In mathematics, the average mean scores in class 3rd, 5th and 7th were 20.38, 8.55 and 12.43 respectively (maximum score was 25).

16. As agreed upon, Katha re-anlysed the scores of children admitted in 2009 as 'New' and those admitted in 2006 to 2008 as 'Old'. Those admitted earlier scored significantly higher than the new ones.

17. Students in grade III scored on an average 69% in Hindi and 67% in mathematics; grade VII scored 83% in Hindi and 83% in Mathematics.

Introduction

Katha is a social nonprofit organization whose mission is "to enhance the joy of reading and quality learning for children in urban India and to ensure that every child in an urban slum lives a productive life". To fulfill this mission; Katha has:

- Katha Schools in Delhi Slums
- Katha Learning Centers
- Katha Schools in Tribal Villages of Arunachal Pradesh
- Publishes Quality Books for Children, and
- Provides Teacher Education

Katha Lab School

The Katha Lab School which is a slum school, was started in 1990 in Govindpuri, New Delhi. In the last twenty years,

- More then 1,20,000 children have benefited from Katha Programmes;
- More then 40,000 children are weaned away from labour;
- 13,000 children have shifted to Formal school;
- More then 2500 students are registered with NIOS;
- Students retention rate has increased, and
- Students attendance rate have gone up.

Teaching Learning Process in Katha School

Katha's child-in-community educational system brings the community into classrooms, encouraging students to work cooperatively so as to become contributing members of their families and communities and responsible, responsive citizens.

The students learn traditional and non-traditional subjects like genetics and nanotechnology, often through what is relevant to their present and future lives.

Katha believes that if children are to be happy in school, they need to be self-propelled drivers who can make sense of their lives so that their families and communities can also benefit.

The Katha learning system protects student performance through vigilant community participation; and in return the students train the adults in computer skills and help them increase family earnings.

The Community-Based Education Model of Katha pushes the economic resurgence of the community as well as students upward mobility. This forms part of the school curriculum. Katha Schools educate children in quality ways in the 3Rs, even while they encourage the involvement of communities in strengthening themselves inside out. The invigorating presence of the community's welfare in the daily life of the students nourishes both ways.

The Katha Lab School enrolls students through out the year, though they emphasize on child's 12 year regular education. Before enrolling teachers make sure that the students belong to the community Katha works for, they encourage students from poorer families; attract children from single mothers and troubled families. Katha encourages students to come regularly to school through their own innovative fees system.

Katha has developed a unique story pedagogy and Viduniya curriculum. Through its uniqueness, the school has achieved excellent Performance,

Attendance and Retention (PAR) standards. PAR has the Katha ideology as fulcrum; excellence and ethics, C9 values and LIFE Skills as the four pillars. The ratio used for PAR assessment is:

Class Work	30%
Trimester Test	30%
Work/ Portfolio:	20%
Viva voce, art, music and other curricular activities:	20%

The evaluation in the Lab school is conducted at the time of admission, one month after the admission, monthly cognitive assessments, trimester and end of trimester evaluation. Katha uses tools like student portfolio, desired learning goals, continuous evaluation, records and documents to track performance of students.

External Evaluation of Katha Lab School

The activities of Katha are supported by many agencies. Presently the school has been supported by two main partners which are MSDF and TMF. As part of the agreement with one of the partners, Katha is required to conduct an external evaluation of the Katha Lab School students. There have been two evaluations already conducted by other agencies earlier. These are:

- Education Initiatives in 2006 and
- A team of Delhi University in 2008.

Education Initiatives conducted the study in 2006 on 100 randomly picked students, 51 in class 4 and 50 in class 6. The study reveals that the overall performance in math's is very good, with students in class 4 scoring 96.9% and class 6 students scoring 94.9%. In language, class 4 students scored 87% and class 6 students scored 82%. The quality far exceeds what is found in municipal schools.

Govinda, Arvind and Ranganathan also conducted a study in 2008 on learning achievement in language and mathematics of the students of Katha School. The study was to assess the achievement in Hindi and mathematics for classes 4th and 6th. The achievement tests prepared by the researchers were based on the standardized tests designed by NCERT under the Sarva Shiksha Abiyan. The items were adapted as Katha has a different pedagogic practice and curriculum. Study shows that in Hindi in class 4th, almost eighty percent of the children were able to complete the tasks assigned to them whereas in class 6, fifty percent of the students were able to complete more then half the tasks. In the math's subject, almost all students in class 4 were successful in completing most of the tasks and in class 6, the mean marks of girls were much lower then the mean marks of boys. These students required more time to perform the test.

Educational Technology and Management Academy

ETMA is a non governmental trust set up by three educationists to create synergy between sciences of human learning and human management, for optimization of human and organizational potential. ETMA is guided by ETMA Council. A brief note on ETMA is given in the annexure.

Objectives of the Study:

The main aim of the evaluation was to assess the performance of students mainly in Hindi (Language) and Mathematics. Hence the objectives of the present study were:

- To construct achievement tests for class 3rd, 5th and 7th in Hindi Language and Mathematics;
- To study the achievement of students of class 3rd, 5th and 7th in Hindi language;
- To study the achievement of students of class 3rd, 5th and 7th in Mathematics

Methodology of Evaluation

Evaluation Design

The evaluation aimed at measuring the achievement of students of class III, V and VII in mathematics and Hindi. The evaluation pertains to Katha Lab School, where the teaching Learning process is different from other public and private schools. The students were to be assessed only on the topics/themes covered in the class in the current session – July to October, 2009.

Sample

The evaluation was to be conducted only for the students enrolled in three classes. Thus all the students enrolled in these three classes were included for the evaluation. The final sample consisted of

S. No.	Class	N
1.	3	54
2.	5	36
3.	7	54

Research Instruments

The main research instrument used for data collection for this study was achievement tests in Hindi and mathematics for class 3rd, 5th and 7th grade specially developed for the purpose. Achievement tests attempt to measure what an individual has learnt, and gets reflected through his or her present level of performance.

The Katha School provided the syllabus of Hindi and mathematics which were completed during the period July to October 09. These syllabuses are drawn by the Katha School itself; Katha does not follow the NCERT or any other syllabus offered by any other school board.

Test in Mathematics

To design the achievement test in Mathematics, the topics covered in the syllabus were checked against the curriculum of NCERT. The NCERT books of mathematics for class 3, 5 and 7 were consulted in designing the achievement test.

The purpose of testing is to determine the extent to which the predetermined objectives are fulfilled. ETMA was concerned with the educational objectives both which related to the total process of education and were related to the subject. Each item of the test was related to one or the other of the educational objectives. The test items were constructed keeping in view the weightages as regards objectives for the level of learning namely knowledge, understanding and application. Mathematics test was constructed on the basis of the topics covered by the Katha School during the period July 09 till October 09 (details of the topics are given in table 1)

Table 1:Topics of Maths covered in first trimester (July to October, 2009)

Unit wise division of topics

Class-III	Class-V	Class-VII
1. NUMBER SEQUENCE UPTO 500 • Reads and writes 3-digit numbers. • Expands a two digits number w.r.t. place value • Compares numbers of two digits. • Forms greatest and smallest numbers using given digits.	**1. NUMBERs and operations** • Finds place value in numbers beyond 1000.	**1. Number System** • Multiplication and division of • Integers (through patterns). Division by zero is meaningless numbe*rs* • Fractions and rational • Multiplication of fractions • Reciprocal of a fraction • Division of fractions • Representation of

		rational number as a decimal.
2. ADDITION AND SUBTRACTION • Adds and subtracts numbers by o writing them vertically in the o following two cases: • without regrouping. • Solves addition and subtraction problems in different situation presented through pictures and stories.	**2. Data Handling** • Collect two-dimensional quantitative data. Represent the data in the form of a table. • Draw a pictograph to present a data.	**2. Ratio and Proportion** • Percentage- an introduction. Understanding percentage as a fraction with denominator 100 • Converting fractions and decimals into percentage and vice-versa.
3. **MULTIPLICATION** • Identifies the sign of multiplication. • Constructs the multiplication tables of 2, 3, 4, 5 and 10	**3. Measurement:** Perimeter and area of square and rectangle.	**3. Commercial mathematics:** Simple interest
Measurement • Appreciates the need for a standard unit. Measures length using appropriate standard units of length by choosing between		

centimeters and meters. • Uses a ruler • Relates centimeter. and meter.		
TIME • Reads a calendar to find a particularly and date. • Reads the time correct to the hour. • Sequences the events chronologically.		

But to construct the test, the NCERT textbooks of 3rd, 5th and 7th grade were also consulted. There were total 5, 3 and 3 topics in 3rd, 5th and 7th grades respectively. Table 1 shows that the topics were further subdivided into smaller units.

Each concept was studied carefully and the content analysed. It was kept in mind that each level of the testing of educational objective to be assessed was included in the test. Though a detailed blue print is more scientific in test construction, but a simplified plan for constructing the test items was adopted

The test items were drafted and reviewed by another expert. Based on the comments received, improvement was made in the items. These items were translated into Hindi as the medium of instruction in Katha School was Hindi. The test for all the classes was designed in such a way that students could complete the test in half an hour. All the test items were of objective type. Weightages given to each test item was either one mark or two marks. Although test items were objective type, students responded on a separate sheet provided by the Katha School.

Tests in Hindi

The test items were constructed keeping in view the weightages as regards objectives for the level of learning namely knowledge, understanding and application. The test was constructed on the basis of the topics covered by the Katha school during the period July 09 till October 09. But to construct the test the NCERT textbooks of 3rd, 5th and 7th grade were also consulted.

Each concept was studied carefully and the content analyzed. It was decided to test each level of educational objectives. Though a detailed blue print is more scientific in test construction, but a simplified plan for constructing the test items was adopted.

Again, as in Mathematics, test items in Hindi were drafted and reviewed by another expert. Based on the comments received, improvement was made in the items. The tests for all the classes was designed in such a way that students could complete the test in half an hour. All the test items were of objective type. Weightages given to each test item was either one or two marks.

Data Collection

Since the study was to evaluate the students of the Katha Lab School, achievement test was administered to the students of classes 3rd , 5th and 7th grade of Katha school. Students were made to sit for the examination by Katha School. ETMA did not sample from among the students in the concerned class.

Data were collected in one day. The date and time was fixed collectively by the Principal of Katha School and the Principal Investigator from ETMA. Before administering the test, it was ensured that the students were physically comfortable, though there were no desks and chairs for students to sit and write. Students sat in rows on a mat. There was a little gap between the two students.

From ETMA two researchers administered the test. Help was taken from the teachers of the Katha School to invigilate during the test. Each class (3rd, 5th and 7th) had two teachers from the school as invigilators. Researchers from ETMA supervised the test.

First, Mathematics test was administered in all the three classes followed by the test on Hindi language. There was a gap of 15 minutes between the two tests.

Findings

The main agenda of this evaluation was to assess student achievement in Hindi and mathematics enrolled in 3rd, 5th and 7th grade. In this section the main findings with respect to students' achievement have been presented.

Hindi

Table: Mean. Range and SD in Hindi of three classes

Class	N	Range	Mean	Mode	S.D
3rd	54	6 - 25	14.87	14	4.88
5th	36	0 - 20.5	13.25	15.75	4.98
7th	54	0 - 25	18.3	20	4.9

The details of the Hindi data/scores class wise are given in table 1. As the table reveals, in class 3rd there were 54 students, in class 5th there were 36 and 7th there were 54 students.

The tests in Hindi were of 25 marks in each class.

The mean scores of students of

- Class III was 14.87,
- Class V was 13.25, and
- Class VII was 18.3.

The Standard Deviation for the class 3rd, 5th and 7th was calculated as 4.88, 4.98 and 4.9.

The range of marks of Hindi in

- Class III was from 6-25;

- Class V was from 0 -20.5; and
- Class VII was 0 –25.

This means that the level of performance of students in Hindi in class V is very low. The performance of students was little better in IIIrd standard and best in VIIth class.

The second major finding is that in class III, majority of the students scored 14 marks out of 25 where as in 5th and 7th class majority scored 15.75 and 20 marks respectively out of the total 25.

Mathematics

The details class wise mean, S.D. and range of scores in Mathematics is presented in the table below:

Table: Mean, Range and SD in math's in three classes

Class	N	Range	Mean	Mode	S. D.
3rd	54		20.38	23.92	8.35
5th	36		8.55	6.35	3.48
7th	53		12.43	15.34	4.56

The test was of 25 marks.

The mean scores of students in mathematics in

- Class III were 20.38,
- Class V was 8.55, and
- Class VII was 12.43.

The standard deviation of the scores of

- Class III was 8.35
- Class V was 3.48, and
- Class VII was 4.56.

It is interesting to note that for class 5th not only the mean score in maths is low but also the standard deviation. This implies consistency in low performance

Follow up

SINCE Katha has undertaken an innovative project, an innovative pedagogy for educating the socially deprived ones, and also in terms of practices in evaluation of such development initiatives, ETMA decided to undertake a participative approach to the evaluation. As mentioned in the chapter on research methodology, ETMA professionals visited the school more than once to understand and appreciate the ambience and the special features of the school. After considerable discussion with the principal of Katha school and Katha leaders, an agreed upon framework for the evaluation was developed. For example, evaluation of performance was to be conducted only on such topics that have been covered by the school. Tests were constructed and on appointed date, tests were administered in the three classes – VII, V, and III. Invigilation was done by Katha teachers; staff from ETMA had done the overall supervision.

Answer sheets were scored, data were tabulated and analyzed by the principal investigator from ETMA. Before submitting the report, Director and the Principal Investigator (ETMA) met Director of Katha, Principal of Katha School, and other staff members, and presented the findings. There was a long and meaningful discussion on the results of the tests. Results were not as per expectations, also not comparable to the performances in the previous external assessments mentioned earlier.

Katha was naturally keen to find out the causes for poor performance of the students. One assumption was: though Katha School authorities chose the children to take the tests in the three grades, some children who have appeared in the examination might not belong to that level; instead they belong to lower grades. Though incompatible, ETMA sought from Katha School, the names of such children so that recalculations may be made to diagnose the problem.

The names of the children belonging to lower grades but appearing in higher grade examination were not available to ETMA. Instead, Katha analyzed the data itself.

Katha follows an innovative cluster concept and practice. Though not labeled as free-progress, it resembles that innovative approach. For example, in grade VII, there are students who had joined Katha School in 2006, 2007, 2008 and 2009. Those who joined in 2009, did not have adequate exposure to Katha pedagogy nor did they have enough time to learn. Those who joined Katha School in 2006, 2007, 2008 were fully familiar and adept to Katha pedagogy. Over and above, since Katha does not admit on the basis of any admission test, the entry behaviour of learners belonging to the same grade vary widely.

In the revised analysis, Katha identified each student on the basis of their year of entry and duration of their stay at Katha School. All those who were admitted in 2009 (the year of assessment) were classified as New; all those who joined earlier were classified as Old.

Katha made separate calculations for the 'Old' and 'New'. The break up between the 'Old' and the 'New' is given in the table below.

The average performance, in terms of percentage, of the old students are given below.

Classes	Mathematics	Hindi	Number of Old students	Number of New students
III	69.28%	67.27%	26	27
V	28.61%	72.30%	18	18
VII	83.02%	83.02%	36	18

As evident, the level of performance of the students who have spent at least one year with Katha School is substantially high in grades III and VII. The results in grade V remained almost unaltered. On the basis of the revised analysis, it can be concluded that students who spend considerable time in Katha School are able to perform well both in Hindi and Mathematics.

Conclusion

Given the setting in which Katha School is located and the kind of students it serves, Katha is doing a commendable job. Performance of students in Katha School is better than that of the other government schools.

While the emphasis of external evaluation has so far been on students' performance in mathematics and Hindi, the scope of such evaluation needs to be enlarged. It is necessary to conduct a detailed ethnographic study on Katha pedagogy, evaluate, document and disseminate at a larger scale. In absence of such an evaluation and documentation, such an important innovative practice may remain confined to museological importance.

Similarly, ETMA that has pioneered quality management in education in the country recommends a comprehensive study on quality assessment of such innovative school. This is in tune with emerging emphasis in the policy of quality assessment and accreditation of schools. The comprehensive quality assessment research will automatically include student performance and qualitative study of the Katha pedagogy.

Annexure I

Educational Technology and Management Academy

(**E**TMA) is a non-government educational Trust institution. **E**TMA pioneers in innovative intervention for quality improvement in education through ICT, leadership development, and capacity building in new learning paradigms. ETMA offers innovative programmes for teachers on Personal Effectiveness and Excellence, Skills in Communication, Instructional Designs, Smart Learning, Action Research in Education, etc. Large number of leading public schools, institutions of higher and professional education has benefited from its courses.

ETMA's pioneering initiative is assisting youth through its Assessment Centres, choose their courses and career on the basis of their aptitudes, potentialities, interests and learning styles as tested through standardized psychological tests used globally.

It is credited with hosting World Conference commemorating 50 years of Indian independence in 1997 and International Conference on Universal Quality School Education in 2007. Such conferences have been participated and contributed by Indian Prime Minister, Finance Minister, Members of Indian Academia and world leaders from universities and institutions in Australia, Canada, Greece, Japan, New Zealand, South Africa, UK, USA and other countries. Leaders of major international institutions like Commonwealth of Learning, International Institute of Educational Planning also participated in such events. ETMA has received collaboration of UNICEF, UNESCO, GOI Institutions and corporate organizations in its various activities.

ETMA is guided and supported by an extraordinary team of scholars and experts that include Prof. P. V. Indiresan (former Director, IITM), Prof. Udai Pareek (Former L&T Chair Professor, IIMA), Prof. Satish Kalra (MDI), Prof. M. M. Pant (former PVC, IGNOU), Dr. Kailash Khanna (former Head of Education, LIC, DU), Prof. Madhu Parhar (Director, IUC, IGNOU), Prof. Marmar Mukhopadhyay (former Director, NIEPA) and others.