Learning achievement of the students after completion of grade five from BRAC schools

Md. Altaf Hossain
Shaheen Akter
Md. Abul Kalam

November 1999

201

Acknowledgement

202

Contents

Executive summery

The Non-Formal Primary Education (NFPE) programme of BRAC introduced class four and five to its curriculum to mesh with the formal primary education. BRAC launched this primary education programme in its 1000 schools throughout the country on a pilot basis and provided one-year additional schooling to cover classes four and five. At the end of the first cycle, this study is initiated to evaluate the performance of the learners to measure the overall performance of the programme.

Objective of the study
The study aimed to assess the performance of the learners who had completed grade five from BRAC schools.

Methodology
This study was conducted in 30 team offices of NFPE selected randomly from 39 area offices of BRAC NFPE. Two schools from each team office were selected. Fourteen students (7 boys and 7 girls) were selected randomly from these two schools that stood at a total of 420 learners from 60 sample schools. Five test instruments had been developed for assessing the performance of the learners in five different subjects (Bangla, English, math, science, and social studies). All the tests were either constructed or selected response tests and paper pencil in type. The social studies and science tests comprised of multiple choice test items, while the remaining three were short questions (constructed response tests). Two different questionnaires were also developed for collecting background information of the teachers as well as learners in explaining the potent factors of learners' performance

Results
The study reveals that mean score of the learners (out of 100 in each subject) is comparatively higher in science (64.38), social studies (54.85), and Bangla (46.7) subjects than English (34.51) and mathematics (33.90). There is no significant difference in performance between girls and boys.

205

About 79% of the learners got pass marks (33+ marks) in the tests, and this proportion was 30% for the learners who passed securing pass marks in each subject. Nearly 21% of the learners got 60+ marks, 30% got 45-59 marks, and 27% got 33-44 marks. As far as subjectwise pass mark is concerned, the highest proportion (95%) of the learners passed in science subject and it was lowest (46%) for mathematics subject.

There was a wide range of regional variations in performance. Overall performance of Dhaka region was found to be comparatively better than other regions while Feni was the lowest performed region in terms of pass rate and securing higher grade.

In Bangla, learners showed better performance in sentence making (with given words) and following dictation. Comparatively lower performance in writing letter, opposite words and writing essay was evident. Similarly, in English, learners showed somewhat better performance in writing their own address, numbers in words and English to Bangla translation. They performed low in reading comprehension, writing five sentence and dictation where 75.2%, 62.4% and 54.1% of the learners respectively given wrong answer on the related questions.

In mathematics, learners showed good performance in working out relatively easy items of simple addition, subtraction, multiplication and division where 65-81% of the learners answered the relevant questions correctly. But this performance rate was found lower for the higher mathematical knowledge and problem solving skills as 90% of the learners failed to solve problems using unitary method (2) and 83.8% failed to work out Lowest Common Multiple (LCM) of given numbers. The learners also showed very poor performance on the question of 'addition of fraction' and 'converting fraction into decimals'. On the other hand, except one question on electricity, the learners responded to different questions of science subject with 53 to 90 % precision.

206

A large proportion of the learners (54.3%) were found to be fully competent in reading Bangla than writing (34.8%) and listening (23.3%). In English, learners showed comparatively better performance in achieving full competency in writing (15.7%) than reading (8.8%) and listening (3.6%). The learners showed their comparatively better competency in achieving dividing skill (17.4% fully competent and 35.9% partially competent) than addition (12.6% fully competent and 26.9% partially competent), subtraction (8.1% fully competent and 31.4% partially competent) and multiplication (8.8 fully competent and 30.0% partially competent). While a small proportion of the learner showed their aptness in attaining problem solving skills (7.1% fully competent and 15.7% partially competent). The learners did better in achieving full and partial competency in Science and Social Science subjects compared to Bangla, English and mathematics. Therefore the overall performance of the learners that surfaced through the test score attest to moderate performance in general and quite lower in mathematics and English.

The present study shows that the higher level of education of the teachers up the performance level of the learners. The teachers who have more than 8 years of teaching experience in BRAC schools doing better compared to the newly appointed teachers. Involvement of the teachers in more than one school (at a time) did not show any positive correlation between involvement in more than one school and higher performance of the learners. This study found a significant relationship between students' access to the radio, TV and newspaper and their better academic performance. Receiving prolonged days of training by the teachers (including refreshers training) confirms a positive impact on the learners' performance. The study indicates the effectiveness of the master trainers in imparting mathematics training and team trainers' efficiency in providing English training.

207

3

Introduction

The appraisal report of the Non-formal Primary Education (NFPE) phase 1 conducted by Cummings et. al., in 1993 alluded to a moot question of linking NFPE with formal education system (cited in the NFPE phase 2 report, April 1997). In the course of programme implementation BRAC has also experienced that although a good number of NFPE graduates were transferred to class four in the primary schools, but only a small proportion in fact completed primary schooling. The low retention rate of BRAC graduates in formal primary schools due to costs and uninspiring environment is reducing chances for BRAC graduates to complete the five-year primary school cycle in formal schools. Under the circumstances, and considering the demand for a longer school cycle from the society, BRAC launched this semi-formal primary education programme in 1000 BRAC schools throughout the country on a pilot basis in 1995. In completing classes 1 through V in 48 months, BRAC provided one-year additional schooling to its traditional three-years school cycle to cover classes four and five. Thus, for the first time the learners completed their full-fledged primary schooling (five grades) from BRAC schools in January, 1999. At the end of the first cycle of this programme it was necessary to evaluate the overall performance of the programme.

This study aimed to assess the performance of the students who have completed class five from BRAC schools to have a clear understanding whether the students are acquiring the desired competencies, which are, generally expected from primary school graduates. The specific objectives of the study were to:

- evaluate the performance of the learners
- measure the performance of the learners through the National Curriculum and Text Book Board (NCTB) determined terminal competencies
- assess the male-female and regional variations in performance
- determine influence of other socioeconomic factors on the learners' performance

208

4

Methodology

The sample: This study covered a cluster of 30 team offices of BRAC NFPE. One team office from each area office was selected at random from 39 area offices in five different programmatic regions. The regions are Dhaka, Jamalpur, Rajshahi, Jessore, and Feni. Sixty schools were selected at random including two schools from one team office. Aggregating male and female students separately from two schools the study included 7 boys and 7 girls students, at random, from one team office, thus totaling 420 sample students (210 boys and 210 girls). This study also arranged in-depth interview with the 420 parents of the sample students to have a background information for understanding to what extent socioeconomic factors affect the overall performance of the learners.

Instruments: The study team developed five test instruments for Bangla, mathematics, English, social studies and science subjects in measuring students' performance. Each test had different number of items but the maximum score of each individual test was constrained within the limit of 100. This was done to maintain uniformity in analyzing and comparing the performance of the students in different subjects. Thus, 10 items were selected for Bangla, 16 for mathematics, 13 for English, 12 for science, and 13 for social studies. The tests were developed by the researchers on the basis of the text books and questions were devised within the limit of the taught portion of the curriculum. Thus, it was a curriculum-based test instrument. Before preparing the test items the researchers consulted with the monthly class test question papers to incorporate similar questions. Before finalizing the test items a pre-testing was done and most difficult items were replaced by the comparatively easier items. All the tests were 'paper pencil' type. The social studies and science tests comprised of multiple choice test items, while the remaining three were short questions. The test instrument was a question-answer sheet. A comprehensive marking scheme containing the elaborated scoring procedure was developed before administering test. Additionally, two separate questionnaires were developed for collecting background information of the teachers and the learners in explaining the determinant factors of learners' performance.

Administering the test: Thirty five well trained field investigators (including 5 supervisor) conducted the test in the schools. The test took three hours. The field investigators were instructed to help the learners in understanding the questions by giving examples but not to give hints on correct answers.

Results

Students' performance was measured in two ways; the test score and the competency of the learners. These competencies are expected to be acquired by the learners who have completed class five and which are determined by the National Curriculum and Text Book Board (NCTB) of Bangladesh. In determining the competency of the learner, in any subject, 75-100% precision is considered to be the minimum requirement for fully competent, 25-74% as partially competent, and 0-24% precision as not competent.

Before looking at the questionwise result, if we look at the performance of the student as a whole, it clearly reveals students' comparatively better performance in science, social studies, and Bangla subjects than English and mathematics. The mean score for science, social studies, and Bangla are 64.38%, 54.85%, and 46.07% respectively, whereas it is only 33.9% for math and 34.51% for English. There is no significant difference in performance between boys and girls (Table 1).

Table 1. Mean of performance evaluation test score in different subjects.

Subjects	Mean score			Remarks
	Boys (n= 210)	Girls (n= 210)	Both (n= 420)	
Bangla	45.72	46.42	46.07	NS
English	34.49	34.53	34.51	NS
Mathematics	35.23	32.55	33.90	NS
Science	65.39	63.37	64.38	NS
Social Studies	55.53	54.17	54.85	NS

NS= Not significant

If we consider a cut-off score for determining pass marks and different level of the learners, as used in the traditional national examination system, it reveals that 78.6% of the learners passed the examination. But this pass rate is reduced to 30% when it is calculated depending on their acquiring pass marks on each subject separately. Among the total learners, 21% got 60 plus marks, 30.2% 45-59 and 27.4% got 33-44 marks for all subject (Table 2).

211

Table 4. percentage of aggregated subject grades by region.

Grade Bands	Region					Total
	Dhaka	Jamalpur	Rajshahi	Jessore	Feni	
60+	34.29	20.24	19.84	33.93	3.57	21.0
45-59.99	31.43	29.76	28.57	30.36	32.14	30.2
33-44.99	22.86	30.95	26.98	23.21	30.96	27.4
0-32.99	11.42	19.05	24.61	12.50	33.33	21.4
Total	100	100	100	100	100	100

Figure in the parenthesis indicates percentages

Regionwise performance of the learners in different subjects

Bangla: The mean score of the learners in Jamalpur region was found to be highest (49.13%) followed by Rajshahi (47.49%), Dhaka (46.31%), Jessore (44.5%) and Feni (41.74%). This differences are significant only in the case of Jamalpur v/s Feni and Rajshahi v/s Feni region (Table A3).

English: The learners of Jessore region scored highest in English (mean score 41.20) while that of Feni region was lowest (28.32). The differences of the mean scores of Dhaka v/s Rajshahi, Dhaka v/s Feni, Jamalpur v/s Feni. Rajshahi v/s Jessore, and Jessore v/s Feni are significant (Table A4).

Mathematics: Mean score of the learners vary region to region from 28.17 to 40.23, Dhaka being the highest (40.23%) and Feni being the lowest (28.17%). The differences of the mean scores of Dhaka v/s Rajshahi, Dhaka v/s Feni, Rajshahi v/s Jessore and Jessore v/s Feni are found to be significant (Table A5).

Science: The performance of the learners of Dhaka region in science was found highest (mean score 74.40) and lowest in Feni region (mean score 53.77) (Table A6). The differences of the mean scores of Dhaka v/s Jamalpur. Dhaka v/s Rajshahi, Dhaka v/s Jessore, Dhaka v/s Feni, Jamalpur v/s Feni, Rajshahi v/s Feni and Jessore v/s Feni were significant.

214

Social studies: The mean score of the learners of Dhaka region was highest (62.97) followed by the learners of Jamalpur (57.69), Jessore (57.42), Rajshahi (54.09), and Feni (44.69) respectively. The differences of the mean scores of the learners of Dhaka v/s Rajshahi, Dhaka v/s Feni, Jamalpur v/s Feni, Rajshahi v/s Feni and Jessore v/s Feni are significant.

The learners of Jamalpur and Jessore regions scored highest in Bangla and English respectively. The learners of Dhaka region scored highest in mathematics, science, and social studies. The performance of learners in Feni region was lowest in all the five subjects.

Student's performance in achieving competencies

Learners' performance in achieving three broad competencies (reading, writing and listening) in Bangla was examined. A higher proportion of the learners (54.3%) were fully competent in reading than writing (34.8%) and listening (23.3%). The proportion of incompetent learners (according to the definition of competency determined for this study) were found highest in reading (26.9%) competency followed by writing (17.4%) and listening (12.9%). Girls performed slightly better than the boys in attaining reading competency while boys performed slightly better than girls in achieving writing competency (Table 5). On the other hand, a majority of the learners showed their partial competency in listening and about half of the learners was found to be partially competent in achieving writing competency.

215

Table 5. Proportion of learners by their achievement in different competencies in Bangla by sex.

Competencies	Performance level	% of learners		
		Boys (n=210)	Girls (n=210)	Both (n=420)
Reading	Fully achieved	43.3	54.3	54.3
	Partially achieved	19.0	18.6	18.8
	Not achieved	26.7	27.1	26.9
Writing	Fully achieved	37.6	31.9	34.8
	Partially achieved	48.6	47.1	47.9
	Not achieved	13.8	27.0	17.4
Listening	Fully achieved	23.8	22.9	23.3
	Partially achieved	63.3	64.3	63.8
	Not achieved	12.9	12.9	12.9

In English, learners showed comparatively better performance in achieving writing competency (15.7%) than the reading (8.8%) and listening (3.6%)(Table 6). It was found that 56.2% of the learners had no reading competency and this percentage is even higher for the listening competency (76.7%) in English. Girls performed slightly better than boys in achieving reading competency whereas boys performed slightly better than girls in getting listening competency.

Table 6. Proportion of learners by their achievement in different competencies in English by sex.

Competencies		% of learners		
	Performance level	Boys (n=210)	Girls (n=210)	Both (n=420)
Reading	Fully achieved	8.6	9.0	8.8
	Partially achieved	34.8	35.2	35.0
	Not achieved	56.7	55.7	56.2
Writing	Fully achieved	14.8	16.7	15.7
	Partially achieved	49.0	46.7	47.9
	Not achieved	36.2	36.7	36.4
Listening	Fully achieved	3.8	3.3	3.6
	Partially achieved	20.0	19.5	19.8
	Not achieved	76.2	77.1	76.7

In mathematics the learners showed highest competency in dividing (17.4%) and worse in problem solving skill (7.1%). But about 77% of the learners failed to achieve any competency at all in acquiring problem solving skill (Table 7).

216

Table 7. Gender distribution of learners by achievement in different competencies in Mathematics.

Competencies	Performance level	Percentage of learners with right answers		
		Boys	Girls	Both
Addition	Fully achieved	14.3	11.0	12.6
	Partially achieved	25.2	28.6	26.9
	Not achieved	60.5	60.5	60.5
Subtraction	Fully achieved	9.0	7.1	8.1
	Partially achieved	31.9	31.0	31.4
	Not achieved	59.0	61.9	60.5
Multiplication	Fully achieved	9.0	8.6	8.8
	Partially achieved	31.4	28.6	30.0
	Not achieved	59.5	62.9	61.2
Division	Fully achieved	17.6	17.1	17.4
	Partially achieved	40.5	31.0	35.9
	Not achieved	41.9	51.9	46.9
Problem solving skill	Fully achieved	5.7	8.6	7.1
	Partially achieved	17.1	14.3	15.7
	Not achieved	77.1	77.1	77.1

This study selected 4 different competencies to examine student's overall achievement of science knowledge. Identification of cause and effect relationship is one of the four competencies. Data shows that 59.8% of the learners (62.4% boys and 57.1% girls) were fully competent and only 4.5% were quite incompetent in identifying cause and effect relationship in investigating scientific knowledge. While 35.7% learners achieved partial competency in this regard (Table 8).

217

Table 8. Percentage of learners achieved competencies in science subject.

Competencies	Percentage of the learners achieved competency		
	Boys	Girls	All
Cause and effect relationship			
Fully competent	62.4	57.1	59.8
Partially competent	34.3	37.1	35.7
Not competent	3.3	5.8	4.5
Observation and search			
Fully competent	40.5	39.0	39.8
Partially competent	58.5	58.6	58.6
Not competent	1.0	2.4	1.6
Questions and classification			
Fully competent	29.5	31.4	30.5
Partially competent	64.8	61.0	62.8
Not competent	5.7	7.6	6.7
Science and technology			
Fully competent	31.0	28.0	29.5
Partially competent	56.6	51.0	53.8
Not competent	12.4	21.0	16.7

To understand the natural and social environment through observation and research was another competency to be measured where 39.8% of the learners acquired full and 58.6% partial competency while 1.6% found incompetent. Specification of questions and classification of observed matters is one of the major aspect of scientific exploration where the learner were found to be less competent. Here only 30.5% of the learners were fully competent in developing such higher order thinking skills. Use of science and technology knowledge in enhancing the standard of life was another competency where the learners were found to be less competent as 29.5% of the students achieved full competency, 53.8% partial and 16.7% had no competency at all. On the other hand, Table 8 reveals a little lower competency of the girls than the boys for all four competencies measured here as comparatively higher proportion of girls were found in the incompetent groups.

This study includes eight different competencies in measuring learner's level of understanding on social studies and environment. Table 9 shows that the learners have acquired comparatively higher competency with regard to knowledge about national culture, civic sense and responsibility to family (competency number 2, 5 and 8

218

respectively) which are very much basic and cardinal to the better human relationship. This study reveals the learners' comparatively less competency in understanding meaning of balance food and social responsibility (Table 9) where only 17.1% and 16.7% of the learners respectively were found as fully competent. The boys showed more competency than the girls in understanding balancefood, but showed less competency regarding social responsibility. The analysis shows that the learners are away from self-realization regarding some crucial issues. For example, should women go outside for income earning activities? In reply to this question most learners (78.1% boys and 74.8% girls) negated in saying no they should not. What should we do to obtain the entire essential foods required for our body? The correct answer was every one should produce some foodstuffs in their households along with purchased food. But most of the learners were intended to depend upon the low cost diet. The learners shown a moderate performance in acquiring competency in the case of knowledge about the country, disease control, and prevention of resource wastage where 42.1%, 44.3%, and 45.7% of the learners were correct respectively.

219

Table 9. Percentage of learners by their achievement in different competencies of social studies.

Competencies	Percentage of the learners achieved competencies		
	Boys	Girls	All
Knowledge of balance food			
Fully competent	19.0	15.2	17.1
Partially competent	54.3	56.7	55.5
Not competent	26.7	28.1	27.4
National culture			
Fully competent	55.7	56.2	56.0
Partially competent	39.5	37.6	38.5
Not competent	4.8	6.2	5.5
Knowledge about the country			
Fully competent	42.8	41.4	42.1
Partially competent	51.0	50.5	50.8
Not competent	6.2	8.1	7.1
Social responsibility			
Fully competent	15.2	18.1	16.7
Partially competent	54.8	48.1	51.4
Not competent	30.0	33.8	31.9
Responsibility to the family			
Fully competent	65.7	61.4	63.6
Partially competent	-	-	-
Not competent	34.3	38.6	36.4
Disease prevention			
Fully competent	46.2	42.4	44.3
Partially competent			
Not competent	53.8	57.6	55.7
Prevention of resource wastage			
Fully competent	43.8	47.6	45.7
Partially competent			
Not competent	56.2	52.4	54.3
Civic sense			
Fully competent	81.9	73.3	77.6
Partially competent			
Not competent	18.1	26.7	22.4

220

Questionwise result analysis

Table 10 shows the distribution of learners according to their performance (in giving correct, partial correct and incorrect answer) on different question of Bangla subject. The learners showed comparatively better performance on sentence making with given words (32.6%) than dictation (24.8%) and comprehension (13.8%). On the other hand, proportion of the learners who gave incorrect answers to different questions was highest in writing a letter (43.1%) followed by writing opposite words (34.5%), reading comprehension (26.4%) and writing sentences on a given topic (24.3%). It indicates to a poor performance of the learners in writing a letter, opposite words and few sentences on a given topic.

Table 10. Proportion of learners by their performance in different questions in Bangla.

Questions	% of learners		
	Fully correct	Partially correct	Not correct
Reading comprehension	13.8	59.8	26.4
Sentence making with given words	32.6	49.7	17.6
Writing opposite words of given words	6.4	59.1	34.5
Writing ten sentences on a given topic	6.4	69.3	24.3
Writing a letter to friend	6.0	50.9	43.1
Dictation	24.5	71.4	4.0
Listening comprehension	10.0	80.0	10.0

Performance of learners in Bangla subject vary from region to region (Table A8). For reading comprehension, highest proportion of the learners was found to be fully correct in Jessore region (21.4%) followed by Jamalpur (20.2%) and Feni regions (14.3%). But the proportion of the learners who have given incorrect answers was highest (35.7%) in Feni region followed by Jessore (30.4%) and Rajshahi regions (28.6%). Learners' proportion who give fully correct answer in sentence making with given words was highest (40.0%) in Dhaka region followed by Jessore (37.5%), Rajshahi (32.5%) and Jamalpur regions (31.0%) whereas learners' proportion who give incorrect answer was highest (28.3%) in Feni region followed by Jessore (25.0%) and Rajshahi regions (22.2%). In writing opposite words, the proportion of the learners who gave fully correct answers was highest

221

(11.9%) in Rajshahi region followed by Jessore (7.1%), Dhaka (5.7%) and Jamalpur regions (4.8%) while the proportion of learners giving incorrect answers was highest (47.6%) in Feni region followed by Rajshahi (34.9%), Jamalpur (33.3%) and Dhaka regions (30.0%). The proportion of learners in writing ten sentences correctly was highest (17.5%) in Rajshahi region followed by Jamalpur region (15.5%) whereas learners' proportion who gave incorrect answers was highest (34.3%) in Dhaka region followed by Rajshahi (26.2%) and Feni regions (21.4%). In the case of letter writing, the proportion of giving fully correct answer was highest (15.5%) in Jamalpur region followed by Rajshahi region (8.7%) but the proportion of learners who gave incorrect answers was highest (52.4%) in Feni region followed by Dhaka (44.3%), Jamalpur (44.0%), Jessore (41.1%) and Rajshahi regions (36.5%). In dictation, learners' proportion who reproduced fully correct text was highest (38.1%) in Jamalpur region followed by Dhaka (28.6%) and Rajshahi regions (24.6%), but who reproduced incorrect text was highest (8.9%) in Jessore region followed by Feni region (4.8%). The proportion of learners who gave fully correct answers in listening comprehension was highest (16.1%) in Jessore region followed by Dhaka regions (12.9%) but the proportion who gave incorrect answer was highest (19.0%) in Rajshahi region followed by Dhaka region (14.3%).

Table 11 shows the distribution of learners according to their performance in English test. The proportion of learners who gave fully correct answers was highest (54.0%) in writing own address followed by writing numbers in word (35.5%) and English to Bengali translation (23.1%). Learners' proportion who gave incorrect answers was highest (75.2%) in reading comprehension followed by writing five sentences on a given topic (62.4%), dictation (54.1%), completing sentences through filling up the blank with appropriate word from given words (41.7%), and writing own address (35.0%). These indicate learners' poor performance in reading comprehension, dictation, writing five sentences on a given topic, and completing sentences through filling up the blanks with appropriate word from given words.

222

Table 11. Proportion of learners by their performance in different questions in English.

Questions	% of learners		
	Fully correct	Partially correct	Not correct
Translate English to Bengali	23.1	54.7	22.2
Reading comprehension	3.3	21.5	75.2
Writing numbers in word	35.5	43.5	21.0
Completing sentences through filling up the blanks with appropriate word from given words	7.9	50.5	41.7
Writing own address	54.0	11.0	35.0
Writing five sentences on a given topic	10.0	27.6	62.4
Dictation	1.4	44.5	54.1

The performance of learners in English vary from region to region (Table A9). The proportion of learners who give fully correct answer in English to Bangla translation was highest (44.6%) in Jessore region followed by Dhaka region (34.3%) but proportion of giving incorrect answer was highest (29.4%) in Rajshahi region followed by Feni (26.2%) and Dhaka regions (24.3%). In reading comprehension the proportion of learners gave fully correct answer varies from 1.4% to 7.1%. The proportion of learners who gave incorrect answer was highest (85.7%) in Feni region followed by Jessore (83.9%), Dhaka (72.9%), Rajshahi (70.6%) and Jamalpur regions (67.9%). In writing numbers in words, the proportion of learners who gave fully correct answer was highest (44.0%) in Jamalpur region followed by Jessore (37.5%), Feni (36.9%) and Dhaka regions (35.7%), but proportion of giving incorrect answer was highest (30.2%) in Rajshahi region followed by Jessore (25.0%), Feni (19.0%) and Jamalpur regions (16.7%). Learners' proportion who gave fully correct answer in completing sentences through filling up the blanks with appropriate words from given words, was highest (20.0%) in Dhaka region followed by Jessore (12.5%) and Jamalpur regions (9.5%). On the other hand, the proportion of learners who gave incorrect answer was highest (47.6%) in Jamalpur and Feni regions followed by Rajshahi (46.0%), Dhaka (31.4%) and Jessore regions (26.8%). Around 50% of the learners in each region gave fully correct answer in writing own address. The proportion of learners who gave incorrect answer was found to be the highest (45.2%) in Feni region followed by Rajshahi (35.7%). Dhaka (32.9%), Jessore (30.4%) and Jamalpur regions (28.6%). The proportion of learners who gave fully correct answer in writing five

223

sentences on a given topic was found to be the highest (25.7%) in Dhaka region followed by Jessore (14.3%), Jamalpur (8.3%), Rajshahi (6.3%) and Feni regions (1.2%), but the proportion of giving incorrect answer was found to be the highest (71.4%) in Rajshahi followed by Feni regions (69.0%). In dictation none of the learners of Dhaka, Jessore and Feni regions gave fully correct answer. The proportion of learners who gave incorrect answer in dictation, was found to be the highest (65.9%) in Rajshahi region followed by Dhaka (54.3%), Feni (53.6%), Jamalpur (44.0%) and Jessore regions (42.9%).

Table 12 reveals that in mathematics, learners showed good performance in relatively easy items like simple addition, simple subtraction, simple multiplication and simple division. In the cases of simplification (45.0%) and problem solving (multiplication-46.7%, and division-49.8%), learners showed average performance. But in the remaining items their performance was very poor. In almost all the items, boys performed slightly better than the girls except in the case of Lowest Common Multiple (LCM).

Table 12. Percentage of learners with correct response in different items of the mathematics test.

Sl. No	Type of questions	Percentage of learners with correct answers		
		Boys	Girls	Both
1	Simple addition	82.9	81.0	81.9
2	Simple subtraction	77.1	72.4	74.8
3	Simple multiplication	66.2	64.8	65.5
4	Simple division	74.8	73.8	74.3
5	Simplification (shoral)	46.2	43.8	45.0
6	Problem solving (addition + subtraction)	31.9	26.7	29.3
7	Problem solving(multiplication)	49.5	43.8	46.7
8	Problem solving (division)	56.2	43.3	49.8
9	Problem solving (unitary method1)	31.0	24.3	27.6
10	Problem solving(unitary method 2)	11.4	8.6	10.0
11	Problem solving (average 1)	32.4	25.2	28.8
12	Problem solving (average 2)	23.8	23.3	23.6
13	Greatest common factor	29.0	28.6	28.8
14	Lowest common multiple	15.2	17.1	16.2

The learners performance in different items in the mathematics test vary from region to region (Table A10). The percentage of learners giving correct answers was highest in

224

Dhaka region in simplification (55.7%), problem solving (addition + subtraction-35.7%), unitary method-1 (18.6%), average-1 (35.7%) and Greatest Common Factor (GCF) (45.7%). In Jessore region, the percentage of correct answer was highest in simple addition (87.5%), simple subtraction (82.1%), simple division (80.4%), problem solving (multiplication-53.6%), unitary method-1 (48.2%), average-1 (35.7%), avarage-2 (33.9%) and LCM (28.6%) . But in the case of simple multiplication learners from Jamalpur provide the highest correct response (73.8%). In most items, learners from Feni region showed the lowest performance compared to other regions.

Table 13 presents the gender distribution of performance in adding fractions and converting fractions into decimals. The Table shows the result of two independent items relating to fractions. There were three questions (or parts) for each item. It was found that the performance of learners in both the items were very poor - only 8.8% and 1.7% learners responded correctly to all the three parts of the items respectively. It is also found that girls did slightly better than boys.

Table 13. Gender distribution of learners by percentage of correct response in different items of mathematics test.

Type of questions	Performance level (out of three questions)	Percentage of learners with correct answers		
		Boys	Girls	Both
	One correct	10.5	10.5	10.5
Fraction (addition)	Two correct	11.0	10.5	10.7
	All three correct	8.6	9.0	8.8
	One correct	14.3	11.4	12.9
Converting fraction	Two correct	6.7	9.5	8.1
into decimal	All three correct	1.4	1.9	1.7

Table A11 presents the learners' performance in addition to fractions and converting fraction into decimals by region. The Table shows the result of two independent items relating to fractions. There were three questions (or parts) for each items. It was found that about 23% of the learners in Dhaka region answered all the three questions of the fraction items correctly and it was highest among the five regions. Fewer number of learners in Jessore region answered the second item converting fraction into decimal

correctly. However, among the region, highest percentage of learners of Jessore region (3.6%) answered this item correctly.

In the case of science subject this study mainly intends to measure the cognitive knowledge of the learners, like, knowledge of terminology, knowledge of classification, knowledge of specific fact, and knowledge of generalization. In measuring science knowledge of the learners an implicit plan was to include such type of questions those are related to their real life situation. There were 12 questions for assessing science knowledge of the learners and the questions were selected from various difficulty levels ranging from 35 to 90.2%.

The study showed that the boys had outperformed the girls in farming knowledge though not statistically significant. Question 2 (Table 14) was about the basis of determining amount of fertilizer to be used in a specific land. Here boys outperformed the girls as 77.6% of the boys gave correct answer while 68.6% girls been correct in this regard. Question 3 explored the knowledge of the learners about the way for increasing nitrogen in soil. Question 4 examined learners' understanding for improving the agriculture sector as a whole. And in both the cases boys outdone the girls and this indicates their (boys) interest towards acquiring more occupational and employment related knowledge. On the other hand, the girls show little higher performance in the questions related to the knowledge of more specific facts and knowledge of terminology (question 12, 14 and 16, Table 14) although the average performance of the boys was slightly higher than the girls.

226

Table 14. Performance of the learners in science subject on different questions.

Question	Boys	Girls	Both
1. Change in state of matter	58.1	61.0	59.5
2. Use of fertilizer	77.6	68.6	73.1
3. Assessing need for nitrogen in the soil	58.6	57.1	57.9
4. Agricultural development	82.4	73.3	77.9
5. Categorizing animal kingdom	54.3	61.4	57.9
6. Photosynthesis	57.6	49.0	53.3
7. Types of electricity	36.2	33.8	35.0
8. Velocity of light	78.1	74.8	76.4
9. Preparation of hydroelectricity	68.6	61.0	64.8
12. Plant kingdom	56.7	58.1	57.4
14. Heat and energy	88.6	91.9	90.2
16. State of matter	68.1	70.5	69.3

If we look at the regional variation in performance of the learners in science knowledge it shows outperformance of the Dhaka region than all the other regions and Feni region performed lowest in all questions (Table A12).

In social studies there were several questions to assess the attitudinal changes of the learners. These questions were mostly related to the life skills and knowledge of the learners and which were essentially required for improving their standard of life. There were also some other questions about the national history, culture, and heritage. Overall performance of the learners was comparatively higher for social studies than the other subjects. Except for the knowledge of local union council election (81.9% boys and 73.3% girls were correct) there was no significant difference in performance between boys and girls (Table 15). Learners showed poor performance on the question: which foods contain more vitamin C? More than 21.4% boys and 20.5% girls have given correct answer to the question (question 11, Table 15). Regional variation of score on different questions of social studies showed highest performance of the Dhaka region and lowest of the Feni region. On a specific question about the sources of vitamin C, only 6% of the learners of Feni region gave correct answer (Table A13).

227

Table 15. Performance of learners in social studies on different questions.

Question number	Boys	Girls	Both
10. Causes of disease	46.2	42.4	44.3
11. Source of vitamin C	21.4	20.5	21.0
13. Sense of community	63.3	59.0	61.2
15. National events	88.1	87.1	87.6
17. National history	48.6	46.2	47.4
18. National culture	91.4	86.2	88.8
19. National diversity	59.5	63.8	61.7
20. Knowledge of balance food	71.0	66.7	68.8
21. Gender awareness	21.9	25.2	23.6
22. Familial responsibility	65.7	61.4	63.6
23. Environment	19.0	24.8	21.9
24. Prevention of resource wastage	43.8	47.6	45.7
25. Political knowledge	81.9	73.3	77.6

Determinants of students' achievement

Influence of teachers' educational background: Educational background of the teachers is grouped into three categories for the present study. The categories are: below SSC, SSC and HSC. Data show that higher level of teachers education had a positive influence on students' performance on different subjects as the mean score of the learners goes higher with the higher educational qualification of the teachers (Table 16). Except for science this difference is statistically significant between the performance of the learners taught under the below SSC and HSC-passed teachers.

Table 16. Mean score of the students in different subjects by their teacher's education.

Subjects	Mean score of the students under the teachers			Statistical significance
	Below SSC (n=130)	SSC (n=211)	HSC (n=79)	
Bangla	44.38	45.53		NS
	44.38	-	50.30	P< 0.02
		45.53	50.30	NS
English	31.86	33.54		NS
	31.86	-	41.44	P< 0.00
		33.54	41.44	P< 0.01
Math	33.95	32.29		NS
	33.95	-	38.07	NS
		32.29	38.07	P< 0.03
Science	63.71	63.90		NS
	63.71	-	66.77	NS
		63.90	66.77	NS
Social studies	52.07	54.68		NS
	52.07	-	59.88	P< 0.00
		54.68	59.88	P< 0.03

Although the difference between the mean scores of the learners taught by below SSC and SSC-passed teachers is insignificant, but this difference is statistically significant between the learners taught under 'below SSC' and 'HSC-passed' teachers in the four subjects (Bangla, English, mathematics and social studies). This study also found a statistically significant correlation between teacher's higher academic qualification and better performance of the students in terms of receiving higher average marks in the

examination controlling length of service of the teachers and teachers' involvement with more than one school at a time. This clearly indicates the need for immediate attention of the programme regarding recruitment of more qualified teachers for better performance of the learners.

Experience of the Teachers : This study has experienced the teachers from various tenure ranging over 2 months to 13 years on the basis of their teaching experience in BRAC school. To vet into the influence of teachers' experience on the learners' achievement they (teachers) are categorized into three groups. First group consists of teachers teaching in BRAC schools for 1 month to 4 years and the second group contains the teachers teaching for 5-8 years in BRAC schools and the teachers who are teaching in BRAC schools for more than 8 years. This study identifies the length of service of the teachers in BRAC school is one of the influential determinant factors on learners' performance although this difference is not very consistently pronounced between 1-4 years and 5-8 years group. But the mean difference in performance between 1-4 years and more than 8 years teaching experience was statistically significant in all subjects (Table 17). The study revealed a significant correlation between number of school cycles completed by the teachers (three-year-school cycle used as a dummy variable for length of service of the teachers) and average marks received by the students controlling teacher's education and involvement of teachers in more than one school at a time. This relationship underpin the previous idea of teachers' involvement in BRAC school for longer time make them more efficient and potentiate higher student performance.

230

Table 17. Mean score of the students in different subjects by their teachers' experience.

Subjects	Mean score of the students under the teachers teaches in BRAC schools			Statistical significance
	1-4 years (n=186)	5-8 years (n=167)	9-13 years (n= 67)	
Bangla	46.10	42.45		NS
	46.10	-	55.01	P< 0.00
		42.45	55.01	P< 0.00
English	33.06	32.91		NS
	33.06	-	42.49	P< 0.00
		32.91	42.49	P< 0.00
Math	30.77	34.59		NS
	30.77	-	40.80	P< 0.00
		34.59	40.80	NS
Science	61.73	64.42		NS
	61.73	-	71.64	P< 0.00
		64.42	71.64	P< 0.01
Social studies	52.56	53.75		NS
	52.56	-	63.94	P< 0.00
		53.75	63.94	P< 0.00

Although teachers involvement in more than one school (at a time) did not show any difference in performance of the learners in any subjects. Rather in the case of math, science and social studies the mean score of the learners was lower for the student who had been taught under the teachers involved in more than one school (Table A14).

Family background

Influence of brother/sisters' education: The study shows a significantly higher performance of the learners who have their own brothers or sisters studying in upper class than the learners who did not have any (Table 18).

231

Table 18. Mean score in different subjects by brothers/sisters continuation in upper class.

Subjects	Brothers/sisters studying in upper class Mean (n=170)	brother/ sisters not studying in upper class Mean (n=250)	Statistical significance
Bangla	49.34	43.84	P< 0.00
English	39.34	31.22	P< 0.00
Math	37.03	31.76	P< 0.01
Science	67.35	62.36	P< 0.01
Social studies	58.59	52.30	P< 0.00

Here the mean of the performance evaluation test score of the learners in each subject is significantly higher for the learners who had their brothers or sisters study in upper class than the other group. This also means that the students who had their brothers/sisters read in upper class might have taken some help from them unlike the learners of one to three grade of the NFPE schools who are said to be taught in the classroom almost everything. This difference is more pronounced in English test score than other subjects as the level of significance is higher ($p<0.00$). The correlation coefficient between brothers/sisters studying in upper class and average marks of the students also showed a significant correlation between these two variables controlling education (father and mother), land, labour selling status of the household and NGO membership.

Father's occupation and performance of the learners: Father's occupation especially labour selling status of the household head was found as one of the influential factors of student's performance (Table 19).

Table 19. Mean score in different subjects by household's labour selling status.

Subjects	Household sell labour Mean (n=198)	Household do not sell labour Mean (n=222)	Statistical significance
Bangla	43.65	48.21	P< 0.01
English	31.98	36.71	P< 0.02
Math	32.68	35.01	NS
Science	61.27	67.11	P< 0.00
Social studies	53.49	56.00	NS

In the case of Bangla, English and science subject, learners got significantly higher mean score whose families were not related to the labour-selling activities than the learners from labour-selling households. A lower level of negative correlation was also found between average marks of the learners and labour-selling status of the household head which indicates comparatively lower performance of the poor children controlling land, parental education, NGO membership and brother/sisters' study in upper classes. It looms probability of higher performance of the learners from non target households although amount of land alone is not found to be a factor for learners' higher performance (Table A15).

Influence of parent's education on performance: There is a wide range of literature in support of the positive impact of mothers education on the children's schooling. This study also shows higher mean score of the learners having educated mother than those having non-educated mothers, but except for social studies this difference was not statistically significant (Table A16). On the other hand, father's education plays a significant role on the performance of the learners in English and social studies (Table A17). Mean score of Bangla, mathematics, and science are also higher for the children of educated fathers though not statistically significant. Although controlling other factors this study does not find significant correlation between father or mother's education and performance of the children. Again NGO membership is not found to be a factor for learners performance (Table A18).

Involvement with the mass media and performance of the learners

Radio: This study reveals that the students who listened to the radio programme regularly secured significantly higher mean score in Bangla, English, mathematics and social studies subjects and it supports a strong relationship between listening to the radio programme and higher academic performance of the learners (Table 20). Although this relationship is found quite insignificant controlling the effect of television. news paper. novels. and BRAC library on the students.

233

Table 20. Mean score in different subjects by student's access to radio.

Subjects	Students listen to the radio Mean (n=205)	Did not listen to the radio Mean (n=215)	Statistical significance
Bangla	49.00	43.28	P< 0.00
English	37.84	31.33	P< 0.00
Math	36.67	31.24	P< 0.01
Science	65.00	63.79	NS
Social studies	57.07	52.73	P< 0.02

TV: Impact of television programme on the learners was found to be conducive to get a better performance. Mean score of the learners who watch TV programme was significantly higher in all subjects compared to the learners who did not watch it (Table 21). The influence of TV programme seems more effective in English, Bangla, and math than science and social studies. The study shows a significant correlation between watching TV programme and average marks of the learners controlling newspaper, radio, BRAC library and reading novels.

Table 21. Mean score in different subjects by student's access to television.

Subjects	Student watch TV Mean (n=231)	Students did not watch TV Mean (n=189)	Statistical significance
Bangla	49.15	42.30	P< 0.00
English	38.18	30.02	P< 0.00
Math	38.44	28.33	P< 0.00
Science	66.16	62.21	P< 0.04
Social studies	56.74	52.54	P< 0.03

Reading newspaper has something to do with the learners' performance. Table 22 shows a significantly higher mean score for the learners who read newspaper compared to the non-reader learners in English, math, science and social studies. The difference is more pronounced in the case of social studies where probably learners get more useful information from newspaper at large. But this relationship turn into insignificant obviating effects of other factors like radio, television, novels and BRAC library. The

234

reason being the learners who read newspaper were mostly user of radio, television and library.

Table 22. Mean score in different subjects by student's access to newspaper.

Subjects	Student read newspaper Mean (n=51)	Students did not read newspaper Mean (n=369)	Statistical significance
Bangla	50.17	45.33	NS
English	41.21	33.30	P< 0.00
Math	38.50	33.06	P< 0.05
Science	71.35	63.13	P< 0.00
Social studies	61.89	53.58	P< 0.00

Performance of the learner depends partly on various supporting materials those are not usually included in the school curriculum. Reading novels and other story books is such types of learning aid-giving activity, which has a great influence on the learners' performance. This study found a significant difference between the performance of the learners who regularly read novels and other story books than those who did not read (in all subjects). This difference was much pronounced in Bangla and math scores (Table 23). A significant correlation coefficient between reading novels and getting higher average marks also substantiates the above relationship between these two variables controlling other variables. It means additional reading materials play a contributive role in enhancing learners performance level although impact of BRAC library was found quite insignificant in this regard (Table A19).

Table 23. Mean score in different subjects by student's access to novels and story books.

Subjects	Students read novels Mean (n=170)	Students do not read novels Mean (n=250)	Statistical significance
Bangla	51.70	42.24	P< 0.00
English	38.31	31.65	P< 0.00
Math	39.07	30.37	P< 0.00
Science	67.30	62.40	P< 0.01
Social studies	58.37	52.46	P< 0.00

31

Training

It was mentioned earlier that the programme did not get enough time to harness it with adequate inputs at the very outset of the programme. Some training courses for the teachers on English and mathematics subjects were arranged. In addition, the programme launched a massive training programme for the teachers at area level. The programme developed some master trainers (MT) and some other team trainers (TT) to cope with the crisis. These MTs and TTs were supposed to impart training for effective dissemination of information related to the teaching techniques of mathematics and English. The teachers received different types of training and special refreshers' training for math and English ranging over 1 to 30 days inclusively. Data reveals that the teachers who received more than 20 days of training (including TARC training and area level refreshers) performed significantly better compared to the teachers who received less than 20 days' training. The mean score of the learners who were taught by those teachers who got training for more than 20 days in mathematics and English was 44.35 and 53.27 respectively. Whereas this figure was 26.80 and 26.03 for the learners who were taught by teachers received training 11-20 days and 34.10 and 36.46 for the learners who were taught by those who got training for less than 10 days (Table 24).

Table 24. Mean score of the learners by length of training received by the teachers.

Subject	Mean score			Statistical significance
	1-10 days (n=197)	11-20 days (n=155)	21 and above (n=68)	
English	34.10	26.80		P< 0.00
	34.10		53.27	P< 0.00
		26.80	53.27	P< 0.00
Mathematics	36.46	26.03		P< 0.00
	36.46		44.35	P< 0.01
		26.03	44.35	P< 0.00

This study has explored the impact of training on the learner's performance from a different perspective where it tries to compare the effectiveness of the training and the trainers as well. Table A20 shows that learners did well in mathematics whose teachers got training either from the MTs or from the TTs as the mean score was found lowest for the learners taught by the non-trained teachers. This study found comparatively higher

performance of the MTs in improving mathematics score than the TTs and the difference is significant. There was no school in this study sample without trained English teacher. The teachers were trained either by the MTs or by the TTs. Performance of the learners in English manifests TTs significantly higher performance compared to the MTs (Table A21). MTs did better in mathematics and TTs in English teaching.

33

Discussion and conclusion

It is found from the study that about 79% of the learners got pass marks (33+ marks) in the tests and this proportion was 30% for the learners who passed in the test securing pass marks in each subject individually. In spite of the overall high pass rate of the learners, more than half of the sample students failed to secure it in mathematics and English subjects. Overall performance of Dhaka and Jessore regions was found to be better as to securing pass marks and higher grades than the other regions and Feni was the lowest performed region in this regard. The present study did not show any significant difference in performance between boys and girls.

In Bangla, learners showed better performance in sentence making (with given words) and following dictation but comparatively lower performance in writing a letter, opposite words and writing an essay. This actually indicates that the learners are still to achieve higher level of language skill in terms of writing their own understanding in a few sentences and the school has a great deal of responsibility to improve it. Similarly, in English, learners showed somewhat better performance in writing their own address, writing numbers in words and English to Bangla translation but performed staggeringly low in reading comprehension, writing five sentence and dictation where 75.2%, 62.4% and 54.1% of the learners respectively given wrong answer on the related questions.
In mathematics, learners showed good performance in working out relatively easy items of simple addition, subtraction, multiplication and division where 65-81% of the learners answered the relevant questions correctly. But this performance rate was found lower for the higher mathematical knowledge and problem solving skills as 90% of the learners failed to solve problems using unitary method (2) and 83.8% failed to work out Lowest Common Multiple (LCM) of given numbers. The learners also showed very poor performance on the question of 'addition of fraction' and 'converting fraction into decimals'. On the other hand, except one question on electricity, the learners responded to different questions of science subject with 53 to 90% precision. Although the performance level of social studies subject was found quite satisfactory still required some special attention on specific issues like environmental protection, gender awareness

and sources of vitamin C, where the learners evinced surprisingly lower performance. Therefore the overall performance of the learners that surfaced through the test score attest to the low performance of the learner in general and mathematics and English in particular.

The study reveals that the performance of the learners, who had been taught under the teachers of higher educational level, is significantly better than the students of less educated teachers. This indicates that if the programme commits to provide quality education through its non-formal primary education programme, it therefore should recruit and retain qualified teachers with good educational background. The teachers who are working with BRAC for long time should be recruited for the next school cycle since the learners taught under the experienced teachers (more than 8 years in BRAC schools) revealed significantly better performance in the test than those of the newly recruited teachers. The learners who read novels and other story books performed significantly better than those who did not. The study did not show such difference in performance between the BRAC library users and non-user learners. The study also showed that length of training (including refreshers training) had a positive influence on learners' performance.

The study intended to formulate a simple model that can suggest the probable way of student's better performance through multiple regression. One of such models suggests that if the school is run by the teacher having minimum qualification of HSC with certain experience of teaching and the students with an access to mass media and having senior brother or sister studying in upper class, the performance level of the students is expected to be significantly higher than the learners who do not have these facilities.

Considering the rudimentary experience of the programme in operating full-fledged primary education programme, various constraints bearing on the first-time annexation of the programme (teachers and staff training, material development and supply, supervision. etc.) and finally the devastating flood in 1998 that caused closure of many schools for months, the programme performed satisfactorily though not up to par.

239

Annex

Table A1. Percentage distribution of the learners by their test score.

Range of scores	Percentage of the learners		Both
	Boys	Girls	
0- 9.99	.5	1.4	1.0
10- 19.99	4.3	6.2	5.2
20- 29.99	15.7	17.6	16.7
30-39.99	21.4	22.9	22.1
40-49.99	23.3	15.7	19.5
50-59.99	19.0	17.6	18.3
60-69.99	9.5	9.5	9.5
70-79.99	3.3	7.1	5.2
80-89.99	2.9	1.4	2.1
90-100	-	.5	.2
	100	100	100

240

Table A2. Percentage of learners achieved grade level on different subjects by regions.

Subjects	Regions				
	Region 1	Region 2	Region 3	Region 4	Region 5
Bangla					
60+	30.0	27.4	28.6	23.2	16.7
45-59.99	22.9	29.8	25.3	32.2	26.2
33-44.99	21.4	23.8	17.5	19.6	21.4
0-32.99	25.7	19.0	28.6	25.0	35.7
English	-	-	-	-	-
60+	22.9	15.5	11.9	17.8	4.8
45-59.99	22.9	17.9	14.3	28.6	14.3
33-44.99	12.9	16.6	12.7	28.6	19.8
0-32.99	41.3	50.0	61.1	25.0	61.9
Mathematics	-	-	-	-	-
60+	28.6	20.2	13.5	19.6	3.6
45-59.99	5.7	8.4	10.4	19.6	15.5
33-44.99	20.0	9.5	19.8	19.6	21.4
0-32.99	45.7	61.9	56.3	41.2	59.5
Science	-	-	-	-	-
60+	82.8	46.4	57.1	66.2	32.1
45-59.99	8.6	35.7	23.8	19.6	41.7
33-44.99	4.3	14.3	15.1	7.1	16.7
0-32.99	4.3	3.6	4.0	7.1	9.5
Social studies	-	-	-	-	-
60+	62.9	51.2	45.2	53.6	29.8
45-59.99	20.0	21.4	27.8	25.0	25.0
33-44.99	15.7	11.9	13.5	5.3	11.9
0-32.99	1.4	15.5	13.5	16.1	33.3

241

Table A3. Learners' mean scores in Bangla by region.

Dhaka	Jamalpur	Rajshahi	Jessore	Feni	Statistical Significance
46.31	49.13	-	-	-	NS
46.31	-	47.49	-	-	NS
46.31	-	-	44.50	-	NS
46.31	-	-	-	41.74	NS
-	49.13	47.49	-	-	NS
-	49.13	-	44.50	-	NS
-	49.13	-	-	41.74	P<.00
-	-	47.49	44.50	-	NS
-	-	47.49	-	41.74	P<.02
-	-	-	44.50	41.74	NS

Note: P<. 05 has been considered as statistically significant

Table A4. Mean score of the learners in English by region.

Dhaka	Jamalpur	Rajshahi	Jessore	Feni	Statistical Significance
38.84	36.80	-	-	-	NS
38.84	-	31.74	-	-	P<.03
38.84	-	-	41.20	-	NS
38.84	-	-	-	28.32	P<.00
-	36.80	31.74	-	-	NS
-	36.80	-	41.20	-	NS
-	36.80	-	-	28.32	P<.00
-	-	31.74	41.20	-	P<.00
-	-	31.74	-	28.32	NS
-	-	-	41.20	28.32	P<.00

Note: p<. 05 has been considered as statistically significant

242

Table A5. Learners' mean scores in mathematics by region.

| Mean scores by region | | | | | Statistical |
Dhaka	Jamalpur	Rajshahi	Jessore	Feni	Significance
40.23	33.71	-	-	-	NS
40.23	-	32.24	-	-	P<.02
40.23	-	-	38.57	-	NS
40.23	-	-	-	28.17	P<.00
-	33.71	32.24	-	-	NS
-	33.71	-	38.57	-	NS
-	33.71	-	-	28.17	NS
-	-	32.24	38.57	-	P<.05
-	-	32.24	-	28.17	NS
-	-	-	38.57	28.17	P<.00

Note: P<. 05 has been considered as statistically significant

Table A6. Learners' mean scores in science by region.

| Mean scores by region | | | | | Statistical |
Dhaka	Jamalpur	Rajshahi	Jessore	Feni	Significance
74.40	63.39	-	-	-	P<.00
74.40	-	65.08	-	-	P<.00
74.40	-	-	67.71	-	P<.05
74.40	-	-	-	53.77	P<.00
-	63.39	65.08	-	-	NS
-	63.39	-	67.71	-	NS
-	63.39	-	-	53.77	P<.00
-	-	65.08	67.71	-	NS
-	-	65.08	-	53.77	P<.00
-	-	-	67.71	53.77	P<.00

Note: P<. 05 has been considered as statistically significant

243

Table A7. Learners' mean scores in social studies by region.

Mean scores by region					Statistical
Dhaka	Jamalpur	Rajshahi	Jessore	Feni	Significance
62.97	57.69	-	-	-	NS
62.97	-	54.09	-	-	P<.00
62.97	-	-	57.42	-	NS
62.97	-	-	-	44.69	P<.00
-	57.69	54.09	-	-	NS
-	57.69	-	57.42	-	NS
-	57.69	-	-	44.69	P<.P<.00
-	-	54.09	57.42	-	NS
-	-	54.09	-	44.69	P<.00
-	-	-	57.42	44.69	P<.00

Note: p<. 05 has been considered as statistically significant

Table A8. Proportion of learners by their performance in different questions in Bangla and region.

Questions	Performance level	% of learners				
		Dhaka	Jamal pur	Rajshahi	Jessore	Feni
Reading comprehension	Fully correct	10.0	20.2	7.9	21.4	14.3
	Partially correct	71.4	61.9	63.5	48.2	50.0
	Incorrect	18.6	17.9	28.6	30.4	35.7
Sentence making with given words	Fully correct	40.0	31.0	32.5	37.5	25.0
	Partially correct	54.3	59.5	45.2	37.5	51.2
	Incorrect	5.7	9.5	22.2	25.0	28.3
Writing opposite words of given words	Fully correct	5.7	4.8	11.9	7.1	0.0
	Partially correct	64.3	61.9	53.2	71.4	52.4
	Incorrect	30.0	33.3	34.9	21.4	47.6
Writing ten sentences on a given topic	Fully correct	8.6	15.5	17.5	7.1	9.5
	Partially correct	57.1	65.5	56.3	73.2	69.0
	Incorrect	34.3	19.0	26.2	19.6	21.4
Writing a letter to friend	Fully correct	0.0	15.5	8.7	0.0	1.2
	Partially correct	55.7	40.5	54.8	58.9	46.4
	Incorrect	44.3	44.0	36.5	41.1	52.4
Dictation	Fully correct	28.6	38.1	24.6	14.3	14.3
	Partially correct	68.6	59.5	72.2	76.8	81.0
	Incorrect	2.9	2.4	3.2	8.9	4.8
Listening comprehension	Fully correct	12.9	6.0	9.5	16.1	8.3
	Partially correct	72.9	92.9	71.4	78.6	86.9
	Incorrect	14.3	1.2	19.0	5.4	4.8

Table A9. Proportion of learners by their performance in different questions in English and region.

Questions	Performance level	% of learners				
		Dhaka	Jamal pur	Rajshahi	Jessore	Feni
Translation from	Fully correct	34.3	19.0	18.3	44.6	10.7
English to Bengali	Partially correct	41.4	69.0	52.4	42.9	63.1
	Incorrect	24.3	11.9	29.4	12.5	26.2
Reading	Fully correct	1.4	7.1	3.2	1.8	2.4
comprehension	Partially correct	25.7	25.0	26.2	14.3	11.9
	Incorrect	72.9	67.9	70.6	83.9	85.7
Writing numbers	Fully correct	35.7	44.0	27.8	37.5	36.9
in words	Partially correct	55.7	39.3	42.1	37.5	44.0
	Incorrect	8.6	16.7	30.2	25.0	19.0
Completing	Fully correct	20.0	9.5	3.2	12.5	0.0
sentences through	Partially correct	48.6	42.9	50.8	60.7	52.4
filling up the	Incorrect	31.4	47.6	46.0	26.8	47.6
blanks with						
appropriate words						
from given words						
Writing own	Fully correct	52.9	66.7	46.8	62.5	47.6
address	Partially correct	14.3	4.8	17.5	7.1	7.1
	Incorrect	32.9	28.6	35.7	30.4	45.2
Writing five	Fully correct	25.7	8.3	6.3	14.3	1.2
sentences on a	Partially correct	21.4	35.7	22.2	32.1	29.8
given topic	Incorrect	52.9	56.0	71.4	53.6	69.0
Dictation	Fully correct	0.0	4.8	1.6	0.0	0.0
	Partially correct	45.7	51.2	32.5	57.1	46.4
	Incorrect	54.3	44.0	65.9	42.9	53.6

245

Table A10. Regional distribution of learners according to the percentage of correct answers to mathematics test items.

Sl. No	Type of questions	Percentage of learners giving correct answers				
		Region				
		Dhaka	Jamal pur	Rajshahi	*Jessore*	*Feni*
1	Simple addition	87.1	81.0	75.4	87.5	84.5
2	Simple subtraction	70.0	77.4	77.0	82.1	67.9
3	Simple multiplication	61.4	73.8	63.5	67.9	61.9
4	Simple division	80.0	71.4	77.0	80.4	64.3
5	Simplification (shoral)	55.7	40.5	52.4	35.7	35.7
6	Problem solving (addition + subtraction)	35.7	21.4	34.1	14.3	34.5
7	Problem solving (multiplication)	51.4	46.4	46.0	53.6	39.3
8	Problem solving (division)	52.9	54.8	41.3	60.7	47.6
9	Problem solving (unitary method-1)	25.7	32.1	23.8	48.2	16.7
10	Problem solving (unitary method −2)	18.6	10.7	10.3	7.11	3.6
11	Problem solving (average-1)	35.7	29.8	25.4		22.6
12	Problem solving (average-2)	30.0	21.4	21.4	33.9	16.7
13	Gratest common factor	45.7	26.2	24.6	32.1	21.4
14	Lowest common multiple	25.7	9.5	18.3	28.6	3.6

Table A11. Regional distribution of learners according to the percentage of correct answers to mathematics Test items.

Type of questions	Performance level (out of three questions)	Percentage of learners giving correct answers				
		Dhaka	Jamal pur	Rajshahi	Jessore	Feni
Fraction (addition)	One correct	11.4	3.6	10.3	23.2	8.3
	Two correct	10.0	9.5	9.5	12.5	13.1
	All three correct	22.9	15.5	2.4	1.8	4.8
Fraction into decimal	One correct	25.7	9.5	7.9	17.9	9.5
	Two correct	5.7	10.7	6.3	19.6	2.4
	All three correct	1.4	00	3.2	3.6	00

Table A12. Regional variation of performance on different questions of science.

Questions	Region				
	Dhaka	Jamalpur	Rajshahi	Jessore	Feni
1	62.9	50.0	66.7	62.5	53.6
2	84.3	76.2	73.8	80.4	54.8
3	75.7	64.3	50.0	48.2	54.8
4	81.4	84.5	79.4	71.4	70.2
5	58.6	57.1	66.7	58.9	44.0
6	72.9	40.5	54.0	69.6	38.1
7	45.7	33.3	38.9	44.6	15.5
8	72.9	77.4	79.4	82.1	70.2
9	82.9	59.5	64.3	62.5	57.1
12	75.7	56.0	43.7	78.6	50.0
14	95.7	89.3	92.1	92.9	82.1
16	84.3	72.6	72.2	60.7	54.8

Table A13. Regional variation of performance on different questions of social studies.

Questions	region				
	Dhaka	Jamalpur	Rajshahi	Jessore	Feni
10	40.0	54.8	46.0	48.2	32.1
11	42.9	22.6	16.7	23.2	6.0
13	82.9	54.8	55.6	73.2	50.0
15	88.6	94.0	81.7	89.3	88.1
17	47.1	40.5	57.9	51.8	35.7
18	90.0	88.1	91.3	85.7	86.9
19	77.1	72.6	61.9	60.7	38.1
20	77.1	67.9	67.5	73.2	61.9
21	31.4	35.7	17.5	25.0	13.1
22	64.3	72.6	62.7	73.2	48.8
23	37.1	23.8	24.6	3.6	15.5
24	54.3	39.3	42.9	51.8	45.2
25	85.7	83.3	77.0	87.5	59.5

Table A14. Mean of performance evaluation tests score of the students in different subjects by their teacher's involvement in more than one school.

Subjects	Teacher teach in more than one school Mean (n=160)	Teacher teach in only one school Mean (n=260)	Statistical significance
Bangla	45.66	46.32	NS
English	33.21	35.31	NS
Mathematics	36.36	32.37	NS
Science	66.56	63.04	NS
Social studies	56.97	53.55	NS

44

Table A15. Mean of the test score in different subjects by land of the household.

| Subjects | < .50 decimal land | >.50 decimal land | Statistical significance |
	Mean (n=224)	Mean (n=196)	
Bangla	46.91	45.11	NS
English	33.45	35.71	NS
Mathematics	32.81	35.13	NS
Science	62.87	66.11	NS
Social studies	53.39	56.51	NS

Table A16. Mean score in different subjects by mother's education.

| Subjects | Some education | No education | Statistical significance |
	Mean (n=133)	Mean (n=287)	
Bangla	46.57	45.84	NS
English	36.60	33.54	NS
Math	33.77	33.95	NS
Science	64.47	64.34	NS
Social studies	59.22	52.82	$P < 0.00$

Table A17. Mean score learners in different subjects by father's education.

| Subjects | Some education | No education | Statistical significance |
	Mean (n=178)	Mean (n=242)	
Bangla	47.37	45.11	NS
English	38.23	31.77	$P < 0.00$
Math	36.11	32.26	NS
Science	65.40	63.63	NS
Social studies	57.26	53.08	$P < 0.03$

45

Table A 18. Mean score of the learners in different subjects by NGO membership.

Subjects	HH involve in NGO activities Mean (n=190)	HH do not involve in any NGOs Mean (n=230)	Statistical significance
Bangla	47.20	45.13	NS
English	33.83	35.07	NS
Math	35.07	32.92	NS
Science	66.22	62.86	NS
Social studies	56.39	53.57	NS

Table A 19. Mean score of the learners in different subjects by student's access to BBRA Library.

Subjects	Student use BRAC Library Mean (n=129)	Students do not use BRAC Library Mean (n=291)	Statistical significance
Bangla	47.61	45.39	NS
English	34.25	34.62	NS
Math	35.72	33.08	NS
Science	66.73	63.34	NS
Social studies	58.55	53.21	$p < 0.01$

Table A20. Mean score of the learners in mathematics by training provided by the Master and Team Trainer.

Subject	Mean score of the student					Statistical significant
	Master trainer (own team) (n=182)	Master trainer (designated team) (n=56)	Master trainer (other team) (n=70)	Team trainer (own team) (n=28)	Without training n=84	
Mathematics	35.32	32.57	-	-	-	NS
	35.32	-	42.60			P< 0.03
	35.32			31.42		NS
	35.32				25.23	P< 0.00
		32.57	42.60			P<0.00
		32.57		31.42		NS
		32.57			25.23	P< 0.01
			42.60	31.42		P< 0.03
			42.60		25.23	P< 0.00
				31.42	25.23	NS

Table A21. Mean scores of the learners in English by Training provided by the Master and Team Trainer.

Subject	Mean score of the learners				Statistical significant
	Master trainer (own team) n=84	Master trainer (designated team) n=98	Master trainer (other team) n=98	Team trainer (own team) n=140	
English	31.72	36.46			P< 0.04
	31.72		23.60		P< 0.00
	31.72			56.19	P< 0.00
		36.46	23.60		P< 0.00
		36.46		56.19	P< 0.00
			23.60	56.19	P< 0.00

47

Table 1: Mean and standard deviation of the of the learners in different subjects

Subject	Boys		Girls		Both		Remarks
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	
Bangla	45.72	19.06	46.42	19.24	46.07	19.13	NS
English	34.49	21.27	34.53	22.04	34.51	21.63	NS
Mathematics	35.23	21.35	32.55	21.93	33.90	21.66	NS
Science	65.39	19.66	63.37	20.83	64.38	20.26	NS
Social studies	55.53	18.71	54.17	21.55	54.85	20.17	NS