

Numeracy in Bangladesh: Terminal Competencies of Mathematics at Primary Education

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Introduction and background

- The education system of Bangladesh is divided into three major phases: Primary Education, Secondary Education and Higher Education.
- Primary Education: comprises 5 years of formal schooling (Grade 1 to 5)
- At present there are 10 types of primary level education institutions. All institutions use the government curriculum and textbook, but only government schools receive the textbooks free.
- The secondary stage of education comprises 7 (3+2+2) years of schooling. It is subdivided into three substages: Junior Secondary, Secondary and Higher Secondary.
- Higher Education: university education
- Over the past decade Bangladesh has made important gains in its efforts towards reaching the goal of 'Education for All'. At present the gross enrolment rate at primary level is 97.5% (Directorate of Primary Education, 2002) and the literacy rate (adults) is now estimated at 62% (DPE, 2001).

The different types of primary level institutions

Fig.1: The different types of primary level institutions

The different Types of Institutions	Number of Institutions
Government Primary School (GPS)	37,671
Experimental School attached to Primary Training Institute (PTI)	53
Registered Non-Government Primary School (RNGPS)	19,428
Community School	3,268
High School Attached Primary Section (H/A PS)	1,576
Non-Registered Non-Government Primary School (NGPS)	1,971
Kindergarten (KG)	2,477
Ebtedayee Madrasah (EM); for religious education	3,843
High Madrasah Attached Ebtedayee Madrasah (H/A MAD)	3,574
NGO-run Full Primary School	170
Total	74,031

Numeracy- what does it mean?

- In practice, the term may signify any one of a number of things including basic computational arithmetic, essential mathematics, social mathematics, survival skills for everyday life, quantitative literacy, mathematical literacy and an aspect of mathematical power. These descriptions span a spectrum of personal abilities from basic skills to high-level cognitive abilities such as problem solving and interaction with, and attitudes to the society.
- The research literature contains no universally accepted definition of numeracy. Its initial use in 1959 was in the UK Crowther Report where it was named as the mirror image of literacy.
- Most definitions of numeracy have emphasized the use of mathematics in real-life situations, and the notion that these can be used or addressed by a person in a goal-oriented way, dependent on their needs and interests within some particular contexts (home, community, workplace, etc.), as well as on their beliefs and attitudes.
- It is clear from these definitions that numeracy does not refer only to operating with numbers as the word might suggest, but to a much wider range of skills.

Competency-based Primary Education in Bangladesh

- The Ministry of Primary Education in Bangladesh is concerned about competency-based education rather than talking about numeracy. In competency-based education students' acquisition of specific competencies is the focus. Such an educational program includes a set of learning objectives that are clearly specified so that their accomplishment can be understood in the form of specific learner behaviours and knowledge.
- This idea was first introduced in America in the late 1960's in teacher education programs, and was later adapted for other professional educational, and vocational training programs in UK and Germany.
- In Bangladesh, since 1992 a curriculum with 53 competencies has been introduced at the primary education level and identified as the Essential Learning Continuum. The Essential Learning Continuum (ELC) is a listing of competencies, which serves as a guide to determine what to teach and measure among the pupils at the primary level.
- Competency was defined in this way 'the acquired knowledge, ability and viewpoint when those could be applied in real life at the right time could be called competency' (translated from the original by the author).

Competency-based Primary Education in Bangladesh (continued)

- These competencies are based on the age, physical capability and psychological maturity of the children, on changes happening in our society, demands for the future, existing physical facilities in schools, and on the preparation of teachers at the school level.
- The children are expected to acquire these competencies in the five-year long primary education, and they are referred to as the ‘terminal competencies of primary education’.
- Out of the 53 competencies, there are five mathematical ones, which together we can consider to be the Bangladesh version of numeracy.

These are:

- To gain the basic ideas of number and to be able to use them.
- To know the four fundamental operations and to be able to use them.
- To apply the simple methods of computing/calculating in every-day life problem solving.
- To know and to use the units of money, length, weight, measurement and time.
- To know and understand the geometrical shapes and figures.

Some surveys have been carried out to assess competency in Bangladesh and these are outlined below:

Survey-1:

- This survey was done by the Campaign for Popular Education-2001, '*A Question of Quality, State of Primary Education in Bangladesh*'. A total of 2,509 randomly selected students from 186 schools were assessed in October-November 2000. The mathematics performance of the students is described on the basis of the five terminal competencies.

The research results (survey-1) are summarized below:

Fig.2: Pupils' achievement

Terminal competencies	Pupils' achievement (%)
(a) Basic number skills	71.2
(b) Four fundamental rules	42.1
(c) Every-day life problem solving	25.0
(d) Measurement units	43.0
(e) Geometric figures	55.1

Some of the test items (survey-1) are shown below:

- Four basic rules in Mathematics

- (a) Addition: (b) Subtraction (c) Multiplication (d) Division
55025 8603 864 1421 ÷ 7
4180 519 206
344 ----- -----

- (e) Simplification:

$$36 \div 12 \times (64 \div 8 - 2) + 9$$

- Every-day life problem solving

(a) Mr. Khaleque's monthly income is 8500 taka. He pays 3000 taka for his house rent and 2075 taka for other expenditures. How much of his money is left?

Survey-

2:

- *'An Assessment of the Achievement of Pupils' Completing Grade-4 of Primary Education* was done by Rahman, S. (1999). The main objective of the study was to assess the level of achievement of Grade-4 students in the subjects Bangla, English, Mathematics, Social Science and Science. The researcher selected 24 Upazilas (sub-regions) and 2 metropolitan cities as being representative of the entire country. Consequently, a total of 3,663 sample pupils (boys 1789 and girls 1874) enrolled in Grade 5 were drawn randomly from 244 schools.

The research results (survey-2) are summarized below:

Fig.3: Pupils' pass rate

Subject	Pupils' pass rate, % (who obtained 50% and above marks)
(a) Mathematics	51.41
(b) Bangla	30.36
(c) English	24.38
(d) Social Science	83.73
(e) Science	59.30

Conclusion

- To tell the truth, Bangladesh has not yet any explicit official definition of numeracy.
- According to many practitioners and researchers, numeracy has a great role to play for individuals throughout their whole life, from childhood to death, and has implications for their education and lifelong learning in schools and in their professions.
- On the other hand, ‘terminal competency’ implies that it is the outcome of 5 years of compulsory schooling that can be applied in real life.
- According to the few survey results, like those above, pupils’ performance is found unsatisfactory in all the five mathematics competencies. Especially pupils are weak in solving problems in real life, in the four fundamental rules and in measurement.
- In conclusion, we can simply say that pupils’ acquired levels of competencies in mathematics are far below those expected in Bangladesh.

Conclusion (continued)

- So finally, I find myself asking this question: what is/are the best way/s to overcome this problem:
 - by developing an agreed definition of numeracy throughout education?
 - by initiating a regular centralized evaluation system for primary school children?
 - by emphasizing a greater focus on numeracy in the textbooks?
 - by emphasizing the concept of numeracy in teacher training program?

THANK YOU SO MUCH