Proposing Benchmarks for Early Grade Reading and Mathematics in Tanzania

BACKGROUND

In November 2013, the Ministry of Education and Vocational Training (MoEVT), with support from the U.S. Agency for International Development (USAID) and technical assistance by RTI International, conducted the National Baseline Assessment for the 3Rs (Reading, Writing, and Arithmetic) Using Early Grade Reading Assessment (EGRA), Early Grade Mathematics Assessment (EGMA), and Snapshot of School Management Effectiveness (SSME) in Standard 2 in Tanzania. The purpose of this study was to provide data that can be translated into an evidence base to inform policy decisions and interventions. The baseline assessment also provides rich performance and contextual data that can be used for comparison with midline and endline studies after the introduction of new reforms or interventions under the 3Rs campaign or the larger Big Results Now (BRN) initiative.

The findings of the National Baseline Assessment for the 3Rs show quite clearly that although the early grade education program in Tanzania is doing a good job with laying a foundation for learning, there is still much work to be done.

The generally low levels of zero scores on the reading and writing subtasks of the EGRA (Kiswahili) assessment are encouraging. That said, only 8% of the Standard 2 students are reading with comprehension—the goal of reading instruction.

The trend on the EGMA is also very clear. Although students perform reasonably well on the more procedural tasks (i.e., basic addition and subtraction facts), they struggle to apply this procedural knowledge to solve tasks that are more conceptual in nature.

Standard 2 students are not, on average, attaining a level of reading skills adequate to ensure full comprehension of what they read. This begs the question, “What is an acceptable level of reading achievement for Tanzanian students in the early grades of primary school?”

With additional assistance from USAID, the Benchmark Setting Workshop was held February 27–28, 2014 to address this question.

Ministry of Education (MOE) officials, district education officers, and a cross-section of stakeholders attended this workshop to begin Tanzania’s efforts to define standards for student performance in key areas of reading and mathematics skill development in Standard 2.

Only a handful of developing countries have taken on the challenge of setting benchmarks for reading skills in the early grades. Mexico did so several years ago, and Kenya did recently. Egypt and Liberia have defined benchmarks, and Kenya has officially adopted a standard for oral reading fluency in both English and Kiswahili.

The results of the National Baseline Assessment for the 3Rs Using EGRA, EGMA, and SSME in Standard 2 in Tanzania provides an evidence base from which to discuss what benchmarks may be most appropriate for the current Tanzanian context.

THE BENCHMARK SETTING WORKSHOP

The two-day Benchmark Setting Workshop brought together MOE officials, district education officers, donor agency representatives, and nongovernmental organizations (NGOs) active in the education sector to begin a process of defining benchmarks for specific skill areas of early grade reading. The objectives of the workshop were to

- Share the most recent assessment results from the National Baseline Assessment for the 3Rs Using EGRA, EGMA, and SSME in Standard 2 in Tanzania

- Orient and engage a cross-section of Tanzanian stakeholders in a participatory process of setting reading and mathematics benchmarks for Standard 2.

During the first session of the workshop, data from the National Baseline Assessment for the 3Rs Using EGRA, EGMA, and SSME in Standard 2 in Tanzania were shared and discussed with the participants.

After the presentation, the participants were engaged in a discussion of benchmarks that included what they are and how to set them by combining empirical data from Tanzania, working knowledge of Tanzania's education sector, and common sense.

The objective of the benchmarking process was to determine the

- Benchmark value for the indicator for each identified subtask in reading and mathematics
- Percentage of students who would be meeting that benchmark in five years
- Percentage of students who would be scoring zero on that indicator in five years.

Small working groups took on the challenge of analyzing the available information, discussing and debating what seemed possible, and then defining an initial set of benchmarks for Standard 2.

The groups' suggestions were recorded, and the areas of convergence and divergence in recommended benchmarks were identified and discussed so as to generate further convergence.

THE READING SUBTASKS

The workshop helped define benchmarks for three reading subtasks evaluated using EGRA. The three EGRA subtasks include the following:

- **Non-word Fluency.** This subtask evaluates a student's ability to decode unfamiliar words. This subtask is timed, so the resulting measure is the number of non-words decoded correctly per minute.

- **Oral Reading Fluency.** This subtask evaluates how well a student reads aloud a short passage of connected text. This subtask is also timed and, therefore, produces a measure that is the number of words of text correctly read per minute.

- **Reading Comprehension.** For this untimed subtask, students are asked questions about the text that they read aloud for the oral reading fluency portion of the assessment. The resulting measure is the percentage of correct responses.

THE MATHEMATICS SUBTASKS

The workshop helped define benchmarks for two mathematics subtasks evaluated using the EGMA. The two EGMA subtasks include the following:

- **Addition and Subtraction Level 2.** This untimed subtask evaluates a student's ability to apply his or her basic addition and subtraction facts assessed during the Level 1 subtask to more conceptually demanding 2-digit addition and subtraction problems. The resulting measure is the percentage of correct responses.

- **Missing Number (pattern completion).** This untimed subtask evaluates a student's ability to discern and complete number patterns by determining the missing number in a pattern of four numbers, one of which is missing. Patterns involve counting forward and backward by ones, fives, tens, and twos. The resulting measure is the percentage of correct responses.

THE BENCHMARK SETTING PROCESS

Data that expressed the linkage between the respective reading and mathematics subtasks were provided. For example, a scatter plot of oral reading fluency and comprehension showed that students who demonstrated comprehension at 80% or better were for the most part reading with oral fluency of between 45 and 65 words per minute. Similar data were used to demonstrate the linkage between students' decoding abilities (as measured by non-word reading) and their levels of oral reading fluency. In the case of mathematics, participants had to rely on their expectations of students' performance on the subtasks in relation to the expectations of the curriculum to set benchmarks.

THE BENCHMARKING RESULTS

Table 1 summarizes the results of the groups' work to define benchmarks for all three reading and two mathematics subtasks for Standard 2.

INSTITUTIONALIZING THE BENCHMARKS

The results of the Benchmark Setting Workshop were presented to the participants of the National Symposium on the Teaching and Learning of Reading, Writing, and Arithmetic, which was organized by the MoEVT and held in Dar es Salaam on April 14, 2014.

The results of the benchmarking workshop were presented at a meeting in Dar es Salaam on April 15, 2014 to the Permanent Secretary (Prof. Sifuni Mchome), the Commissioner of Education (Prof. Eustella P. Bhalalusesa), and members of the Education Board. Representatives from USAID and the Global Partnership for Education also attended the meeting.

During the meeting, the proposed benchmarks for the various subtasks were accepted by the stakeholders in attendance. In addition, the five-year targets, with respect to the number of students achieving the benchmarks and the number of students scoring zero on the subtasks, were adopted.

After a lively discussion, annual targets were set as milestones to achieving the five-year targets.

Although benchmarks were set for three reading and two mathematics subtasks, the representatives agreed that the benchmarks would help support the work of the MoEVT and others in measuring progress; however, for reading, only the comprehension benchmarks and targets would be used in public pronouncements and communications. In the case of mathematics, the addition and subtraction benchmarks and targets would be used.

Table 1. National Benchmarks and Targets for the 3Rs (Reading, Writing, and Arithmetic) in Tanzania.

		Percentage of Standard 2 Students at Benchmark						
Early Grade Reading Assessment (Kiswahili)	**Benchmark**	**2013 Actual**	**2014**	**2015**	**2016**	**2017**	**2018**	**5-Year Target**
Oral Comprehension	80%	8%	10%	13%	17%	24%	40%	40%
Oral Reading Fluency	50 Correct words per minute	12%	14%	17%	21%	28%	45%	45%
Non-word Reading	40 Correct words per minute	1.5%	2%	3%	5%	8%	15%	15%
Early Grade Mathematics Assessment	**Benchmark**	**2013 Actual**	**2014**	**2015**	**2016**	**2017**	**2018**	**5-Year Target**
Addition and Subtraction Level 2	80% on the Addition and Subtraction Level 2 subtask	8%	10%	13%	16%	22%	36%	35%
Missing Number	60% on the Missing Number (pattern completion) subtask	8%	10%	13%	16%	22%	36%	35%
Early Grade Reading Assessment (Kiswahili)	**Zero Scores**	**2013 Actual**	**2014**	**2015**	**2016**	**2017**	**2018**	**5-Year Target**
Oral Comprehension	__	40%	39%	37%	35%	31%	21%	20%
Oral Reading Fluency	__	28%	27%	26%	24%	21%	14%	14%
Non-word Reading	__	28%	27%	26%	24%	21%	14%	14%
Early Grade Mathematics Assessment	**Zero Scores**	**2013 Actual**	**2014**	**2015**	**2016**	**2017**	**2018**	**5-Year Target**
Addition and Subtraction Level 2	__	43%	42%	40%	37%	32%	21%	20%
Missing Number	__	10%	10%	10%	9%	8%	6%	5%