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Assistance to Basic Education: All Children Reading (ABE-ACR)

ABE-ACR Tanzania National EGRA Pilot Study Report



*Standard 3 students in Dar es Salaam show their exercise books during a practice Classroom Inventory.
Photo credit: RTI staff*

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List of Abbreviations

| | |
|---------|---|
| 3Rs | reading, writing, and arithmetic |
| ABE-ACR | Assistance to Basic Education: All Children Reading |
| EGMA | Early Grade Mathematics Assessment |
| EGRA | Early Grade Reading Assessment |
| IRR | inter-rater reliability |
| NECTA | National Examinations Council of Tanzania |
| SSME | Snapshot of School Management Effectiveness |
| TOCOR | Task Order Contracting Officer's Representative |

The Tanzania National Early Grade Reading Assessment (EGRA) aims to gather data about the progress of Standard 2 students¹ against the national benchmarks developed and adopted in 2014 and to collect contextual information about the implementation of the 3Rs (reading, writing, and arithmetic) reforms for early grade teachers in Tanzania. The pilot study is an important part of the life cycle of the study because the information collected helps us improve several aspects of our data collection for the full survey. This report will provide an introduction to the pilot study, describe the analyses conducted, discuss quality control measures implemented during the pilot, and explain how the assessment instruments were finalized based on the pilot study data.

1 Introduction and Protocol

The pilot study for the Tanzania National EGRA was held on Monday, January 25, 2016. The pilot study was conducted by the 202 assessors and supervisors who were trained during the Regional Assessor Training Workshops, which were held in five regional locations (i.e., Arusha, Mbeya, Morogoro, Mtwara, and Mwanza) during the week of January 18, 2016. There were two purposes of the pilot study. First, the study provided researchers the opportunity to evaluate the assessment instruments (i.e., the EGRA, the Early Grade Mathematics Assessment [EGMA], and the Snapshot of School Management Effectiveness [SSME]) to ensure the instruments were functioning well in the field (i.e., to determine whether the instruments were really testing the information desired in the study). Second, the pilot study provided the assessors and supervisors with an additional opportunity to gain more practical experience before data collection to ensure that they fully understood the protocols at the schools and were prepared as strong, competent assessors to collect high-quality and reliable data. For the Tanzania National EGRA, the instruments were based heavily on the instruments designed and administered during the *2013 National Baseline Assessment for the 3Rs Using EGRA, EGMA, and SSME*. RTI International developed two new passages for the 2016 and 2018 rounds of data collection under the Tanzania National EGRA. During the pilot study, trials were conducted on these passages, and the pilot data were used to determine which of the two passages should be selected for inclusion in the final EGRA instrument. Selection was based on which passage performed better and provided the most useful data.

During the pilot study, the assessors assumed the roles they would have during the full data collection. The supervisors were responsible for introducing the assessors at the schools, sampling the students, arranging the assessment locations in the school, and coordinating other necessary logistics at the school. The RTI and DataVision (our subcontractor) teams worked together to ensure that the schools selected to participate in the pilot study were not included in the list of sampled and replacement schools to be visited during the data collection.

¹ Please note that new Standard 3 students are assessed early in the year as a proxy for end of year Standard 2 students. Standard 2 students were assessed at the end of the school year when developing the benchmarks, but collecting data from Standard 2 students at the end of the school year was not possible in this study because of the national elections.

All instruments used in the full data collection effort were employed in the pilot study. For the pilot study, the SSME assessors used the Teacher Questionnaire, Classroom Inventory, Kiswahili lesson Classroom Observation, and mathematics lesson Classroom Observation to collect data from Standard 2 teachers and classrooms. Supervisors conducted a Head Teacher Questionnaire and two student assessments (EGRA + EGMA and a Student Questionnaire²) with Standard 3 students. Each EGRA/EGMA assessor conducted a minimum of three student assessments and student questionnaires with Standard 3 students³.

The goal at the outset of the pilot study was to conduct a minimum of 200 student assessments to ensure that sufficient data were available so the pilot analyses could be conducted with confidence. It is important to note that the actual number of student assessments conducted was 332. This number of assessments was possible because at that point in their training and preparation, the assessors were very confident and efficient with using the assessment instruments. Having more pilot test cases provided more practice to the assessors and supervisors and more observations, which allowed the statisticians and instrument developers to be more confident in their decisions to keep, edit, or remove each question during the review process.

2 Analysis

The assessors used Google Nexus 7 tablets to collect the pilot data, and then uploaded the data to the RTI server as soon as they reached an Internet connection. A few assessors encountered a minor glitch when attempting to upload the data from their tablets, and this slightly delayed a small portion of the data being uploaded. This glitch was resolved quickly and the data were included in the full pilot data set. Then, RTI statisticians at RTI's home office in the United States cleaned the data. Less than two full days after the last data were collected, the cleaned data were sent to Dr. Tracy Kline (an RTI psychometrician) for psychometric analyses. Such efficiencies are possible by using the tablet and Tangerine® technology. Given the tight timeline of the overall project, these efficiencies are important.

The major pilot analysis of the EGRA and EGMA data is the psychometric measure of Cronbach's alpha, as detected through Rasch analysis. This analysis provides insight regarding the internal consistency or reliability of each subtask in the EGRA and EGMA instruments, as well as the difficulty of the items within the subtask as they compare to the other in the subtask. Overall, the items showed high internal consistency. Generally, a Chronbach's alpha of 0.7 is considered minimally acceptable, 0.8 is good, and 0.9 or above is excellent. The Chronbach's alpha was 0.97 for the EGRA, 0.85 for the EGMA, and 0.94 for the EGRA and EGMA combined.

During the design meetings in November 2015, a decision was made to develop and pilot two new reading passages for EGRA. The reading passage from the 2013 EGRA instrument would be retained, and for the full data collection in 2016, one new passage would be

² Note that the version of the Student Questionnaire administered by the supervisors included the Life Skills Questionnaire, whereas the version of the Student Questionnaire for the EGRA and EGMA assessors did not include the Life Skills Questionnaire.

³ Please note that this number of student assessments is different than what will be gathered during the full data collection.

selected for a total of two reading passages in the EGRA. The pilot Rasch analysis provided insights for passage selection.

The major aspect of analysis for the SSME suite of instruments involved analyzing the responses on the Head Teacher Questionnaire, Teacher Questionnaire, Student Questionnaire, and Classroom Inventory. The first step was to analyze the “Other/Specify” responses to determine whether the answers provided in the open response fields of these items contained a significant number of common answers that would be appropriate additions to the set of response options for a particular item. The second step was to evaluate the response frequencies on the items to determine whether there was a large proportion of “Do not know/no response” answers and to determine whether any items had overwhelmingly uniform response, thus not yielding insightful data. If such an item were found, then the item would be considered for revision or removal.

3 Quality Control Measures

Field Inter-Rater Reliability (IRR) or “quick check” was included as a quality control measure in the pilot study. The quick check will also be implemented during the data collection activities as a quality control measure. During this IRR approach, the two EGRA and EGMA assessors on each data collection team administer the first EGRA assessment side-by-side with one student during the school visit. This student is sampled in addition to the required number of sampled students at each school. One assessor is responsible for talking while the other listens. Both assessors mark the student’s responses on the tablet. When the student is finished with the quick check EGRA instrument then he or she is dismissed, and then the assessors review the responses they recorded and discuss with the team supervisor whether there are any major discrepancies. This method ensures that the assessors are administering the assessments consistently throughout the entire data collection period. This method also provides an opportunity to highlight any items that might have frequent discrepancies between the two assessors. The RTI and DataVision teams can then quickly act to clarify any of these discrepancies.

The quick check data provide a useful step to address quality control assurances; however, it is important to note that these quality control data are separate from the data sets that will be used for the findings of the study, so as not to contaminate the data.

4 Finalizing the Instruments

The RTI technical experts for EGRA and EGMA used the pilot data and pilot analyses to inform their review of the instruments. These refined instruments would become the final instruments for the full survey.

According to the results of the pilot data analyses, the instruments proved to be stable, so very few changes were necessary. As previously mentioned, one of the two reading passages that recently completed the trial was selected for the EGRA. In the Student Questionnaire, additional response options were included on a small number of items. These options appeared frequently enough in the pilot data to warrant being added to the finalized list of response options.

The final instruments to be included in the full data collection are as follows (Note: The italicized items were dropped after pilot data analyses):

- **EGRA:** Syllable Names, Non-Word Reading, *Oral Reading Passage 1*, Oral Reading Passage 2, Oral Reading Passage 3, *Reading Comprehension 1*, Reading Comprehension 2, Reading Comprehension 3, and Dictation Sentence
- **EGMA:** Number Discrimination, Missing Number, Addition, Subtraction, and Word Problems
- **SSME:** Student Questionnaire (subset including Life Skills), Teacher Questionnaire, Head Teacher Questionnaire, Classroom Inventory, Classroom Observation Kiswahili, and Classroom Observation Mathematics.

After the final adjustments were made to the instruments, RTI staff updated and finalized the instrument protocols and student stimulus sheets. RTI completed this task for the paper version of the instruments and for an updated version of the Tangerine instruments for the tablets. Once this task was completed, RTI sent hard and soft copies of the final instruments to Dr. Charles Msonde, Executive Director at the National Examinations Council of Tanzania (NECTA), for his final review and approval. Along with the finalized instruments, the RTI technical team prepared and submitted a brief report describing the justification for any changes to the instruments and responding to earlier comments from NECTA regarding the initial versions of the instruments, which were used during the pilot study. NECTA staff provided their final approval of the instruments and expressed their appreciation of the comments in the report. RTI sent the final versions of the instruments to DataVision team members who were responsible for uploading the final version of the instruments onto the tablets, printing paper versions for back up, and updating the student stimulus packets to include the finalized instruments.

The success of the pilot study was largely due to a highly coordinated effort between partners and stakeholders, the dedicated assessors and supervisors, organization of technical experts and statisticians, and commitment from government counterparts to allow assessors into the schools and to provide feedback and approval of the final instruments.