

Improving Educational Quality (IEQ) Project

CURRICULUM-BASED STUDENT PERFORMANCE ASSESSMENT

IEQ undertaken by:

American Institutes for Research

**in collaboration with
The Academy for Educational Development
Education Development Center, Inc.
Juárez and Associates, Inc.
The University of Pittsburgh**

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1999

Contract No. HNE-I-00-97-00029-00

Table of Contents

CURRICULUM-BASED STUDENT PERFORMANCE ASSESSMENT.....	1
Rationale: Why Improve the Quality of Education.....	1
IEQ Framework.....	1
Quality Linked to Learning.....	2
Actions.....	2
Conclusion.....	2
WHAT IS LEARNED: CURRICULUM-BASED STUDENT PERFORMANCE ASSESSMENT.....	4
Demonstrating Impact on the Ground Through Assessment of Learning.....	4
Cases from the Classroom.....	5
Why is Assessment Underutilized?.....	5
Fundamental Absence of Evaluation Culture.....	6
How is Curriculum-Based Assessment Different?.....	6
THE ROLE OF ASSESSMENT IN TWO IEQ-COUNTRIES: GHANA AND MALAWI.....	8
Background or IEQ in Ghana and Malawi.....	8
Purpose and Activities.....	9
ACHIEVEMENTS.....	11
Guidelines to Prepare, Administer, Score and Report Curriculum-Based Assessment.....	11
Rationale for Selecting Test Items.....	11
General Guidelines for Preparing Tests.....	12
ASSESSMENT SERVES TWO PURPOSES: INSTRUCTIONAL AND IMPACT.....	13
Instructional Value.....	13
Monitoring Impact and Growth.....	13
APPENDICES.....	17
Appendix A.....	19
Appendix B.....	44
REFERENCE AND RESOURCE LIST.....	49

Curriculum-Based Student Performance Assessment

RATIONALE: WHY IMPROVE THE QUALITY OF EDUCATION

Investments in education yield results that extend well beyond the walls of the classroom. Education promotes democracy, social and economic development. Through schooling children acquire skills that are fundamental to their success throughout life. Educated children are able to solve problems and make informed decisions, join the workforce, and become productive members of society. Governments and donors have supported efforts to reform education in developing countries. Access to education is insufficient, if that education does not provide the opportunity to learn.

Educational quality has become the central issue at the heart of the reform efforts in many developing countries. The United States Agency for International Development initially funded IEQ, a five-year, five-country project, in 1991. This project, continuing now as IEQ II, has followed almost a decade of attention to issues linked to access and efficiency. That experience led to the recognition that increasing the number of children entering primary school and advancing in grade level was insufficient, if children left school without at least basic literacy and numeracy skills. IEQ was a vehicle for shifting the Agency's focus to the quality of learning. Specifically, the IEQ project promotes an approach to educational quality that:

- Relies on real information about what children are or are not learning, and documents actual teaching and classroom management techniques;
- Engages school and community level actors in reflection on how the school and home environment, as well as classroom teaching practices impact children's learning;
- Uses the above information to inform policy makers.

IEQ FRAMEWORK

The Improving Educational Quality (IEQ) Project provides a framework for addressing quality in developing countries. It builds on experiences learned in implementing IEQ I Project in five countries: Ghana, Guatemala, Mali, South Africa and Uganda over the five years.

Discussion of educational quality focuses on examining issues of quality in the classroom and their impact on educational reform in the host countries. By addressing the key questions of:

- What happens in the classroom, who learns, what is learned, and how is it learned;
- How to reach consensus on approaches to improve the quality of teaching and learning; and
- How to translate what is being learned about the quality of teaching and learning in classrooms into effective policies and practices.

Underlying this discussion is the acknowledgment that all children have the right to a quality education and capable of learning to the highest standards.

QUALITY LINKED TO LEARNING

The framework of addressing educational quality focused on what happens in the classroom and examined it in terms of who learns; what is learned; and how it is learned. In each country in which IEQ worked, the process began by defining quality being linked to learning outcomes within a framework of a “work in progress,” which recognized the need for some minimum school standards. These standards included defined levels of numeracy and literacy; an environment that enables learning to take place; instructional resources available to all teachers and pupils; and teachers with levels of education qualified to facilitate student learning.

The IEQ project is engaged in a continuing dialogue about what constitutes educational quality, i.e., the translation of “quality” into meaningful knowledge that engages educators to dynamically examine and evaluate quality at all levels of an education system. In each of the five participating countries: Ghana, Guatemala, Mali, South Africa and Uganda, IEQ engaged the stakeholders in a discussion of the means of improving learning. The process focused on the specific national educational priorities and involved people throughout the education system, such as those responsible for setting policy, developing tests, training teachers, preparing textbooks, teaching pupils, and supervising teachers.

ACTIONS

Teachers and students are at the heart of educational reform. Efforts to improve the quality of education in developing countries must consider the everyday realities of the classroom. Solutions to learning problems must involve educators at all levels of the system, especially teachers. Improving the quality of education in the classroom must be based on knowledge and resources from the school and the community.

CONCLUSION

IEQ provides the basis for drawing a conceptual framework for educational quality in the developing countries. The process consists of three phases, the first being assessment of who learns, what is learned, and how it is learned. Classroom observations, achievement measures, and interviews provide

rich data on individual and group experiences in schools and classrooms. In the second phase, the community and education systems are helped to assimilate the findings from the assessment through meetings, dialogue, seminars, and conferences. At these events, assessment data are presented to generate a discussion of their implications for the quality of the education system, e.g., teacher practices in classrooms, teacher training, policy development, and textbook preparation and distribution. The third phase is the action taken after having assimilated this information. Such action focuses on improving learning throughout the system, e.g., a policy shift that does not hold teachers accountable for damaged texts, a community learning center to help pupils with school work, the use of folk tales to improve oral communication.

What Is Learned: Curriculum-Based Student Performance Assessment

DEMONSTRATING IMPACT ON THE GROUND THROUGH ASSESSMENT OF LEARNING

At the heart of the Improving Educational Quality Project is a “rhythm of reform” --a cycle of assessment-assimilation-action occurring throughout the life of an educational reform project-- designed to assess and improve impact as the project is being implemented. Although multiple sources and kinds of assessment are useful for analyzing and enhancing project impact, this paper seeks to demonstrate that direct assessment of student achievement using local curriculum is crucial because of its power to guide and motivate action.

Measured changes in student learning are the most direct indicator of the effects of educational investments and the success of efforts to improve educational quality. Yet often success is estimated through proxies--counting the number of teachers who have received training, documenting the number of books that have been distributed, recording student enrollment--all indicators that money has been spent as planned but not whether the goal of the spending was achieved. Even in those projects where student achievement is assessed, it is often an activity that is external to project decision making and typically it occurs when it is too late in the project to take full advantage of the role that achievement information can play in the improvement process.

At least two kinds of interests are served by including on-going direct assessment of student learning as an integral part of educational projects. The first is *monitoring changes in student learning* in order to evaluate project success as well as identify statistical relationships between inputs and improvements. The availability of valid outcome data on student learning makes it possible to estimate and compare the relative contribution of different investments to desired outcomes (in this case, improvement in student learning). A useful by-product is that the early and continued attention to learning outcomes provides a reminder to all involved that the target is student learning.

Another powerful role that direct assessment can play is through the *instructional process*. Faced with timely, actual achievement data on what children can and cannot do--relevant to the local curriculum and stated in meaningful terms educators (policy makers, curriculum developers, teacher trainers, district officers, and teachers) and other stakeholders have something to hold on to--something concrete to work with. These data serve as a powerful stimulus for discussion, problem solving, and, in many instances, corrective action.

 CASES FROM THE CLASSROOM

One of the simplest forms of direct assessment is to ask students to write their names and then to write as many words as they can in 10 minutes. They can be asked in the vernacular and words can be in any language as long as the words are written correctly and the child can tell you what the word is.

Activity: What would you know about the instructional needs in a 5th grade classroom with the following profile? What does the teacher in this classroom need to be doing?

4% unable to write any words--not even their names

14% able to write 1-5 words--their names and perhaps the name of their school or friend

33% able to write more than 5 words but fewer than 16 words

49% able to write 16 or more words (with some writing over 100 words)

Response: The teacher has at least 20% of the students in her 5th grade class who are pre-literate; another third of her students have some beginning skills; about 50% of the students in the class have some written language skills. The teacher needs to have instructional skills and materials to teach at several different levels and needs to be able to manage a multi-ability classroom. If the available 5th grade curriculum assumes that children can read, learning for children who can't yet read is likely to be woefully inefficient. Often teachers in these circumstances make a choice to focus on the 50% of students with some skills, leaving the others frustrated or idle and falling further behind.

Activity: Moving to the next level--what if this is the profile for fifth graders from a large sample of rural and urban classrooms in public primary schools? The syllabus indicates that in grade 5, "Pupils should be able to write short paragraphs on given topics...and write letters to friends and relations." The students who were tested were less than 6 months away from taking the national criterion referenced testing (CRT)--a multiple-choice exam with 100 questions each in English and Mathematics drawn from the curriculum. What are the national implications?

Response: The syllabus is pitched at a level far above at least 50% of the students. Comprehensive intervention and remediation for upper primary non-readers is needed including materials, teacher training, and so on. It should come as no surprise when more than 50% of the students score at or below chance (the level associated with guessing on every question) on the CRT.

These examples illustrate how results from a simple assessment exercise can be used to guide decision-making. The task is one that is meaningful in terms of the curriculum and the results are easily interpretable. A closer look at the performance of children within a classroom (for example, whether the words children wrote were in the vernacular or a second language, whether words were spelled phonetically, whether there were patterns in children's error, and so on) provides useful diagnostic information. National performance patterns at different grade levels provide a rough gauge of emerging written language skills.

 WHY IS ASSESSMENT UNDERUTILIZED?

If assessment is so useful, why isn't it carried out more often? A variety of reasons are given for not assessing student learning. Some of the reasons deal with logistics and practicalities. For example, a frequently given response reflects the lack of available tests. Educators in developing countries are quick to point out that there are no available tests designed for their student population or that even if

some tests are available, it is unlikely that they provide information that is useful for ongoing individual or programmatic decision-making. End of cycle selection or certification tests are not typically available or appropriate for mid-cycle or diagnostic use. Standardized tests used in industrialized countries are unlikely to reflect the current local curriculum. Frequently, even when tests are constructed for a particular purpose or project, there is often the gnawing question of what do the scores mean? A score that cannot be linked to performance on or mastery of specific, locally relevant skills has limited meaning to the practitioner or policy maker.

Assuming the educators agree that assessment would be useful and there is a willingness to conduct it, new forms of resistance emerge in the form of questions like: Who would conduct the assessment (limited local expertise or availability)? Doesn't it take a long time to develop good tests? Wouldn't assessment require a lot of effort and organization? Why devote scarce resources to an activity that at best provides too little too late and at worst brings to light program ineffectiveness?

FUNDAMENTAL ABSENCE OF EVALUATION CULTURE

Typically underlying the reasons or excuses for the underutilization of assessment is resistance based on fear that the results will not be favorable or will point up programmatic weaknesses. Fear on the part of governments to evaluate program effectiveness is often well grounded--politically as well as practically. Reform is difficult and positive results are illusive. The impact on student learning of school improvements is not automatic, often taking months or even years to take effect. Why would a government want to pay for generating potentially embarrassing evidence?

Demand for accountability in the form of student achievement is a relatively recent phenomenon. In years past, it wasn't necessary to measure student learning outcomes in order to demonstrate program success. Documenting numbers of teachers trained, number of schools built, books delivered, and so on was generally enough. Assessment in the form of end of cycle examinations was used for sorting and certifying students but rarely was assessment used to inform practice or policy.

Countering the historical resistance to evaluation and assessment is a growing realization that donor agencies have become results oriented. A willingness to monitor the impact of funding on student outcomes--particularly learning--has become a condition of donor support. Loan agreements specify learning outcome targets that are legally binding.

HOW IS CURRICULUM-BASED ASSESSMENT DIFFERENT?

Fears and resistance don't evaporate with the assessment methods that are described below but the hurdles associated with assessment become more manageable. The kind of assessment is often called curriculum-based assessment (CBA), direct assessment, or some forms of continuous assessment. As

is evident from the above example of direct assessment of writing, CBA is not the typical set of multiple-choice questions that are found on most norm-referenced or criterion-referenced tests. It has the following characteristics:

Curriculum-Based Assessment

- Emphasis is on identifying what children CAN do or have mastered.
- Typically student learning or master is represented on a continuum from pre-academic skills through expected grade level skills.
- Students are asked to perform tasks that have been drawn directly from the local curriculum.
- Tasks are selected, administered, and scored using standardized procedures.
- Assessment process isn't private—teachers and other educators are encouraged to share in the process.
- Results can be interpreted from mastery as well as a norm-referenced perspective.

The Role of Assessment in Two IEQ-Countries: Ghana and Malawi

BACKGROUND OF IEQ IN GHANA AND MALAWI

In 1991, the Improving Educational Quality Project (IEQ) I was launched with the purpose of conducting classroom level research to guide the generation and adaptation of innovations that held promise for improving the quality of primary education. To do this, IEQ formed partnerships with host country colleagues and collaborated with them in efforts to learn about and improve the school and classroom experiences of educators and pupils.

At about the same time the Government of Ghana with support from USAID launched an initiative to strengthen the policy and institutional framework required to insure a quality, effective, equitable and financially sustainable primary education system in Ghana by the year 2000 (Executive Summary, Ghana Primary Education Program (PREP), September 10, 1992).

Major activities included:

- Distributing textbooks and guides to schools in Ghana for 1.8 million school children,
- Organizing a comprehensive in-service training program for approximately 30,000 primary teachers,
- Developing end of primary cycle criterion-referenced testing (CRT) for grade 6 pupils in English and Mathematics, and
- Preparing and implementing an Equity Improvement Plan.

Although strong support for primary education had been available in the schools in the 1960's and early 1970's, in the recent past, it had become necessary to hire many minimally prepared or untrained teachers, educational materials were scarce, and teachers were left to their own devices in their efforts to help children acquire basic literacy and numeracy (King, Glewwe, & Alberts, 1992; Ministry of Education, 1994). For example, in 1990-91, base-year figures showed that only 10% of pupils in primary schools had the basic textbooks (Kraft, 1994). One goal of the Ghana/USAID initiative was to reverse this trend and put sufficient textbooks into the schools for every child to have textbooks in English, Mathematics, Science, and Social Studies. Another goal was to provide training to teachers in instructional content and processes in each of the subject areas.

There was a natural fit between the primary school initiative and the goals of IEQ. Through a partnership between IEQ and the University of Cape Coast, the Centre for Research on Improving

Quality of Primary Education in Ghana (CRIQPEG)¹ was formed to conduct research designed to support and complement PREP innovations. Over a four year period, researchers followed a cycle of assessment-assimilation-action designed to assess factors affecting learning, share findings with stakeholders, collaborate with stakeholders on improvements, re-assess, and so on. CBA-direct assessment of student learning played a central role in this cycle.

Malawi on the other hand, currently faces the challenge of guaranteeing all primary school-age children the right to attend school within a system that has limited resources to meet their instructional needs. USAID supports the Government through the Girls' Attainment in Basic Literacy and Education (GABLE) program, which seeks to increase enrollment and persistence of girls in primary school through social mobilization, increase efficiency within the primary education sector, and increase investments in schools and teacher training facilities.

IEQ/Malawi supports USAID's Strategic Objective of *Increased Access and Quality and Efficiency of Basic Education, Especially for Girls*. IEQ/Malawi collaborates with the Malawi Institute of Education and Save the Children/US to build programs that strengthen their capacity to conduct qualitative research.

IEQ is keyed to Save the Children/US Quality Education Through Supporting Teaching (QUEST) program. QUEST builds upon the popular and successful Village Based Schools, and focuses on the school and classroom with training support to teachers and communities.

PURPOSE AND ACTIVITIES

In Ghana assessment was used within IEQ to monitor impact as an integral part of the instructional planning/improvement process.

IEQ team worked in selected 14 schools representing urban, rural, and semi-urban, including equity schools, designated 7 schools as intensive intervention and 7 as non-intensive.

In order to assess pupils skill levels, curriculum-based assessment instruments were developed for grades 2-6 in oral language (functional expressions, listening comprehension and speaking), reading (pre-reading, decoding, and comprehension), and writing (copying, writing words, dictation, and written expression). Faculty from the University of Cape Coast collaborated with consultants and CBA tasks were developed, pilot tested, and three parallel forms were created for grade levels 2-6. For in-depth information on the development and use of the assessment instruments, see Harris, Okyere, Passigna, & Schubert (1997). Appendix B provides a brief description of the instruments: sample

¹ CRIQPEG is located at the University of Cape Coast. It is coordinated and staffed by faculty, lecturers, and advanced level graduate students from the University. Although it was formed as part of the IEQ Project, the quality of its work has been widely recognized and it continues as part of the University of Cape Coast.

assessment materials taken from the level 4 manual on administering, scoring and recording reading passages and sample interpretations of the scores.

With consultant support, data were collected and analyzed by teams of local educators from the University of Cape Coast. Within 3 months of data collection, results were disseminated by this group to the Ministry, Circuit Supervisors, Head teachers, and teachers.

In Malawi the research team will measure pupil proficiency in Chichewa, English and Mathematics for standards 2-4; identifying teacher knowledge and skills in English and Mathematics; observing classroom teaching and learning; surveying availability of and use of instructional materials; and interviewing teachers, headteachers and community members.

Achievements

GUIDELINES TO PREPARE, ADMINISTER, SCORE AND REPORT CURRICULUM-BASED ASSESSMENT

IEQ/Malawi prepared a manual in collaboration with Save the Children and the Malawi Institute of Education. The manual was adapted from materials developed by the Center for Research on Improving Quality of Primary Education in Ghana (CRIQPEG) as part of the IEQ Project in Ghana.

The manual provides guidelines for the preparation of tests in Chichewa writing tasks, pre-reading tasks, letter names/sounds, and Chichewa-most used words; with directions for administering, scoring, and recording the child's scores. Sample assessment materials are provided in the Appendix A.

RATIONALE FOR SELECTING TEST ITEMS

In recent years, CBA has gained popularity in the US and several studies have investigated the psychometric and statistical properties of a variety of CBA tasks. One of the most promising for consideration in developing countries is what was labeled “decoding” in IEQ-Ghana and “oral reading fluency” in the US research. Studies available from the 1980's demonstrated strong correlation between decoding/oral reading fluency and reading achievement. However, the focus was on reading basal readers or literature based basal readers--i.e., passages sequenced for difficulty. In developing countries little is known about whether and/or how the available curriculum is sequenced. Recent investigations in the US looked at “authentic” materials which basically means stories being used in whole language programs at each level.

The following is a review of some of the findings:

A recent study by Hintz, Shapiro, Conte, and Basile (1997) compared oral reading rates for children on (1) grade appropriate literature based reading series and (2) authentic reading materials (not written for any particular reading level). Average number of words read correctly per minute correlated with the Stanford Achievement Test subtests at an average of .89. Oral reading fluency correlated more strongly with the Reading Comprehension subtest than any of the other measures (Cloze, answering simple questions about the passage, etc.) (Fuchs, Fuchs, & Maxwell, 1988)

In a different study (Jenkins & Jewell, 1993) correlations between oral reading measures and commercially available norm referenced reading measures (Metropolitan Achievement Test, Gates)-ranged from .80-. 88.

Comparisons of the developmental fluency rates appeared stable and linear across curricula, using the more traditional skills, literature-based basals, and “authentic” materials (Fuchs & Deno, 1982; Hintz, Shapiro, Conte, and Basile (1997).

One important caveat--studies were based on English as a first language and the studies examined the sequencing of passages using readability indices. A small substudy done by a graduate student using the CBA data and internationally accepted readability formulae found that the readability indices didn't correlate with actual performance until a minimal level of reading was established. This argues for careful selection of the reading passages and selection of multiple passages.

The review of the literature and the findings of the research on reading and comprehension, support the following:

- Average number of words read correctly per minute correlates strongly with performance on norm referenced standardized reading achievement tests (.80-. 89).
- Oral reading fluency correlates more strongly with Reading Comprehension subtests than other frequently used measures of comprehension.
- Developmental fluency rates appear stable and linear across curricula.
- Guidelines exist for using oral reading fluency to determine whether instructional materials are pitched at the correct level and thereby to improve learning efficiency.

GENERAL GUIDELINES FOR PREPARING TESTS

In preparing test items:

- Involve a broad range of local educators from the outset.
- Build local capacity.
- Focus on what students CAN do--be sure your assessment process includes a full range of prerequisite skills.
- Draw the assessment stimuli from the local syllabus and/or instructional materials. Be aware that curriculum may not be well sequenced--use extra caution in selecting passages.
- Plan ahead--it is much easier to create several parallel tasks/forms initially than it is to create only one form and try to develop equated tasks/forms later.
- Share assessment results with stakeholders as soon as they are available.

Assessment Serves Two Purposes: Instructional and Impact

INSTRUCTIONAL VALUE

In Ghana, findings provided profiles of student performance at each grade level. At each level, actual CBA results were shared with educators and provided the stimulus for problem solving, decisions about what instructional materials were needed, and decisions about what additional training was needed. Profiles clearly indicate what children CAN do. The tasks were drawn from Ghanaian instructional materials and were reported by Ghanaians.

MONITORING IMPACT AND GROWTH

Findings provide a mechanism to monitor impact and growth. In Ghana assessment data, for example provided the following findings:

FINDING 1: WITH A FEW EXCEPTIONS, PUPIL PERFORMANCE IN INTENSIVE AND NON-INTENSIVE INTERVENTION SCHOOLS WAS COMPARABLE AT BASELINE.

Using the baseline data, analyses of variance were computed to determine whether there were significant differences between the Intensive and Non-intensive schools prior to the implementation of the interventions. In grade levels 2, 3, and 4, most comparisons were non-significant and the few significant differences were equally distributed such that half indicated a significant difference favoring the Intensive schools and half indicated a significant difference favoring the Non-intensive or comparison schools. At grade 5, there were 15 non-significant comparisons (excluding composite scores), one significant comparison favoring the Non-intensive schools, and six significant comparisons favoring the Intensive schools. Significant differences favoring the Intensive schools were associated with reading passages and indicated that grade 5 pupils in the Intensive schools were able to read more words per minute than grade 5 pupils in the Non-intensive schools. Also, in two of the four reading passages, grade 5 pupils in the Intensive schools read correctly a greater percentage of the words than did grade 5 pupils in the Non-intensive schools. There were no significant differences with regard to reading comprehension on any of the passages. It should be noted that with this large number of statistical tests, it is expected that a small number of significant findings are likely to be spurious. Thus, for all practical purposes, it appears that baseline achievement of pupils in Intensive and Non-intensive schools in grade levels 2, 3, and 4 was comparable; in grade level 5, while performance in most areas was comparable, there were some differences in reading decoding favoring pupils in the Intensive schools.

FINDING 2: WITH RARE EXCEPTIONS, PUPIL PERFORMANCE IN INTENSIVE INTERVENTION SCHOOLS WAS SIGNIFICANTLY BETTER THAN PUPIL PERFORMANCE IN NON-INTENSIVE INTERVENTION SCHOOLS AT 1 AND 2 YEARS FOLLOWING THE INITIAL INTERVENTION EFFORTS.

Results from analyses of variance comparing pupil performance results from Intensive and Non-intensive schools at baseline (Winter 1994), 1 year after baseline results were shared with educators in Intensive Schools (Summer 1995), and 2 years after results were shared (Summer 1996). These analyses report findings based on the longitudinal data set (only those pupils who had been tested at baseline were included). Analyses completed on pupils who were no longer attending the participating school at the time of the follow-up assessments failed to identify any patterns differentiating Intensive and Non-intensive schools with regard to pupils dropping out or transferring to other schools. Due to resource limitation, only grade 6 pupils were reassessed in Summer 1996.

Children in the Intensive Intervention schools made significantly more academic growth than children in the Non-intensive schools--that is, although children in all 14 participating schools make substantial improvement, the improvement of children in the Intensive schools was significantly greater than the improvement of children in the Non-Intensive schools. This was true for skills associated with oral language, reading, and writing. The only area for which this was not true was expressive writing. This skill was not measured a part of baseline assessment. At follow-ups, only 6th grade pupils were asked to provide samples of their expressive writing (e.g., write letters, stories, etc.). Most of the grade level 6 pupils--regardless of whether they attended Intensive or Non-intensive intervention schools--experienced considerable difficulty with this task.

FINDING 3: DIFFERENCES IN FAMILY BACKGROUND DO NOT SEEM TO ACCOUNT FOR INTENSIVE/NON-INTENSIVE ACHIEVEMENT DIFFERENCES. IF ANYTHING, THE PUPILS FROM NON-INTENSIVE SCHOOLS COME FROM HOUSEHOLDS WHERE THERE IS GREATER PERCEIVED ENGLISH COMPETENCY THAN THE PUPILS FROM THE INTENSIVE SCHOOLS. FAMILY SIZE IS COMPARABLE. EDUCATION LEVEL OF HOUSEHOLD MEMBERS IS COMPARABLE.

In July 1996, estimates of household English were gathered for Level 6 pupils. Members in each household were listed and pupils were asked in the vernacular to describe whether each household member could speak, read, or write English. Each member was rated as "No," "Some," or "Yes". The number of Yes's for each aspect of language (Speaking, Reading, and Writing) was tallied and pupils in Intensive schools were compared with pupils in the Non-intensive Schools. There were significantly more readers of English in the households of Non-Intensive school pupils than there were in the households of Intensive school pupils (significant at the .05 level). [When kind of community was taken into account, all three ratings of English competency favored pupils in Non-Intensive schools however some cell sizes were small and thus more subject to chance variation.]

The table below summarizes the value of curriculum-based assessment.

	Impact Assessment	Instructional Value
A. Baseline Achievement Data Collection	<ol style="list-style-type: none"> 1. Used to evaluate comparability of project schools; 2. Established a baseline of student performance; 3. Drew attention to student learning as a key indicator of program success. 4. Developed local capacity in assessment by involving University of Cape Coast faculty (CRIQPEG) in instrument development, administration, analysis, and dissemination. 	<ol style="list-style-type: none"> 1. Facilitated the development of student and classroom learning profiles; 2. Provided information on the match between available instructional materials and student skills; 3. Provided a tool for engaging stakeholders in the improvement process. 4. Demonstrated to participating educators a simple process of assessing learning. 5. Developed local capacity in instructional improvement by involving CRIQPEG in sharing assessment findings and collaborating on solutions.
B. Mid-term Achievement Data Collection	<ol style="list-style-type: none"> 1. Provided data to evaluate learning progress in non-intensive and intensive intervention schools. 2. Provided data to evaluate differential effectiveness (rural/urban; gender, etc.) and unique needs. 3. Used to generate hypotheses for further study. 	<ol style="list-style-type: none"> 1. Results presented at national conference to generate discussion on national level. 2. Raised interest of CRT developers 3. Results discussed with Circuit Supervisors and headteachers, generated new ideas & guided decisions about instructional materials and training needs
C. End of Project Achievement Data Collection	<ol style="list-style-type: none"> 1. Demonstrated significant learning improvement for all schools (Hawthorne effect?) 2. Demonstrated significant differences in learning between intensive and non-intensive intervention schools. 	<ol style="list-style-type: none"> 1. CRIQPEG researchers gained experience in data analysis and report writing. 2. Interest in project continued; requests for instruments and info within Ghana and internationally.
D. Post Project	<ol style="list-style-type: none"> 1. CRT Results (1996) indicated that Grade 6 pupils from intervention schools scored significantly better than their public school peers. 	<ol style="list-style-type: none"> 1. Current USAID funded basic education project is using the assessment instruments to monitor progress and as the basis for implementing a continuous assessment approach. 2. CRIQPEG is integrally involved in the assessment component of the project.

Appendices

Appendix A:

Malawi Pupil Assessment Manual Chichewa, English and Mathematics Standards 2, 3 and 4

PREPARING TO TEST

Be sure you have the following:

- An administration manual for each level,
- Sufficient assessment forms for recording data,
- A stapler with extra staples, extra pencils, clipboards, timers, and
- Sufficient Standard 2, 3 and 4 English and Chichewa textbooks,

The number of extra texts you will need depends on how many team members are testing individual pupils at any one time. If two team members are assessing standard 3 students at one time, you will require two copies of each textbook from each level. Also, if you are uncertain about the availability of a desk or table that can be used for testing, you may wish to take along some materials that can be used to construct a writing surface.

HEADTEACHER

Explain to the teacher that you are investigating how children learn reading, writing and mathematics. Children learn at different rates and you are trying to determine the range of skill levels in standard 2, 3 and 4 classrooms. To do this you will be working with children individually. You will be assessing Chichewa, English, and Mathematics skills. Ask if there is more than standard 2 class held during the morning session at this school. If there is, you will need to randomly select the teacher to be included in the study.

TEACHER SELECTION

Write the name of each standard 2 teacher on a slip of paper. Shuffle them behind your back and hold them out for a colleague to pick one without looking. This is the randomly selected teacher whose class you will study. Place the teacher's name on the Data Coding List beside 200 for standard 2. If more than one standard 3 teacher teaches at the school in the morning, repeat the process for standard 3., placing the selected teacher's name beside 300 for standard 3 on the data-coding list. Repeat the process for standard 4. Ask the headteacher to indicate the selected classroom.

TEACHER

Explain to the teacher that you are investigating how children learn reading, writing and mathematics. Children learn at different rates and you are trying to determine the range of skill levels in standard 2, 3 and 4 classrooms. To do this you will be working with children individually. You will be assessing Chichewa, English, and Mathematics skills. Ask the teacher to tell the pupils that their help is needed to help researchers and teachers learn more about how children learn. Ask the teachers to reassure the children about the testing.

PUPIL SAMPLE SELECTION

Obtain from the selected standard 2 teacher a list of the names of children in the class. Without looking at the names, point to a starting place for counting and select every tenth child, (the name you point to will not be in the sample). Cycle through the list until you have the names of 10 girls and 10 boys in standard 2. If you come to the end of the list before you have a full sample, continue counting off at the top of the list. If you have already obtained a list of 10 boys and come to another boy's name as you count ten on the list, skip him and proceed until you have selected 10 pupils of each sex. Copy the names of these pupils on the QUEST Pupil Tracking Form for the standard you are working with. Follow this same process in the standard 3 and 4 classrooms selected, but select only 5 boys and 5 girls.

Only 16 pupils in standard 2 to be tested and 8 in each of the other standards. However, since the testing will continue over several days, over-select names to allow for absences. **Do not announce the names or let the list be seen by anyone, including the teachers**, as we do not wish to inadvertently cause absence in any way.

As you test each pupil, enter his/her name on the appropriate line of the Chichewa Pupil Performance Summary Sheet as well as all other data record sheets: English Pupil Performance Summary Sheet, Concepts About Print Data Record Sheet, Letters/Sounds Data Record Sheet (Parts I and II), and Most Used Words Data Record Sheet (Parts I and II).

Be sure that child #1 on the Chichewa and English Pupil Performance Summary Sheet is also child #1 on each of the data record forms; child #2 on the Chichewa and English Pupil Performance Summary Sheet is always child #2 on each of the data record forms, and so on. Listing the children on all forms in the same order is critical. Also, be very careful to use the same, full name on each form.

TESTING LOCATION

Identify a quiet location that has enough light and few distractions. Set up the situation so that the child is facing away from visual distractions.

CHILD

Escort the child out of the classroom. Thank the child for helping you. Take a few minutes to establish rapport with the child to help the child feel more comfortable.

Pupil Assessment Chichewa

Writing-Chichewa

MATERIALS NEEDED

pencil
lined paper
clipboard
administration directions
timer
Chichewa Pupil Performance Summary Sheet

DIRECTIONS FOR ADMINISTERING

Provide the child with a piece of lined paper. Give the child a clipboard to write on. Say to the child:

I want to see how many Chichewa words you can write. **Can you write your name?**

If the child doesn't understand the request, it may be repeated in the mother tongue. [start the timer as soon as the child begins writing]

NO=>If the child responds "no," ask the child if he/she knows any single letters or two letter words:

Do you know how to write ana, ndi, ya, ku, amai? Write any words you know.

NO=>If the child still says "no," print the first letter in the child's name on the paper and tell the child to copy the letter:

Look at this letter. Please copy this letter.

If the child is able to do this, print the child's entire name and ask the child to copy all of the letters:

Look at this word. Please copy this word.

If the child can copy his/her name, provide another simple word to copy (e.g., "ku") and ask the child to tell you what it says. If the child responds correctly, repeat the request for the child to write (independently) other words. [If the child is able to write words after the copying exercise, assume that the child didn't understand the original request and count the number of words correctly written.]

YES=>If the child says "yes," then say:

Write your name for me.

When the child finishes say:

Good. Now think of all the words that you know how to write and write them all down for me.

When the child stops writing, or when he/she needs prompting, suggest words that she/he might know how to write:

Do you know how to write ku or ana? Do you know how to write amai?

Use words that the child would have encountered in the text and **prompt** with questions such as the following:

Can you write any children's names?
Can you write the names of people in your family?
Can you write things you do?
Can you write the names of any animals?
Can you write things to eat?
Can you write?

Continue for ten minutes or until the child's writing vocabulary is exhausted. If after several prompts the child is clearly unable to write any more words, there is no need to wait until the ten minutes expires.

When the child is finished, say:

Now please read the words you have written to me.

Use this process to be sure you can read what the child has written. If you are unsure of a spelling, ask the child to tell you what has been written.

DIRECTIONS FOR SCORING WRITING

Each word completed accurately is marked as correct. If the child accidentally writes a word that is correct but reads it as another word or does not know what it is, that word is scored as an error. Groups of words such as look, looks, looked, looking, hat, hats, etc. are allowed as separate words. Repeated words are only counted once. Misspelled words are not counted. Words with reversals (letters written backwards are counted if the child reads the word correctly). Words that run together on the page are scored as correct if the child is able to read them correctly. The child's score for this task is the total number of correctly written and read words (including the child's name). **English words that are used in Chichewa (words not replaced with a Chichewa translation) such as "computer" or proper names (Mike) should be counted.**

DIRECTIONS FOR RECORDING THE CHILD'S SCORES

Three writing skills are scored. Scores are recorded on the Chichewa Pupil Performance Summary Sheet. Find the child's name and identifying information on this form.

If the child is able to write words, count up the number of correctly written words and write this number in the Writing Words column. Be sure to count the child's name.

If the child can correctly write his/her name, put a "1" in the Write Name column, and put a "1" in the Copy Letters column.

Improving Educational Quality Project

If the child is unable to write his/her name (without help), but can copy at least one legible letter, put a "0" in the Writing Words column, a "0" in the Write Name column, and a "1" in the Copy Letters column.

If the child is unable to write his/her name or to copy any letters legibly, put a "0" in all three writing columns.

Pre-Reading: Concepts about Print

(adapted from: Clay, Marie M. (1985). The early detection of reading difficulties (3rd ed.) (pp. 28-29).
Portsmouth, NH: Heinemann Publishers.)

MATERIALS NEEDED

Standard 2 Chichewa textbook
Concepts About Print Data Record Sheet
Chichewa Pupil Performance Summary Sheet
pencil

DIRECTIONS FOR ADMINISTERING

Say:

We are going to read a story. I want you to help me.

Pass the book to the child holding the book vertically by outside edge with the opening towards you, spine towards the child.

ITEM 1: Say:

Show me the front of the book.

Score: 1 point for the correct response.

ITEM 2: Turn to p. 20. Say:

I will read this story about Tipewe Matenda. You help me. Show me where to start reading. Where do I begin to read?

Score: 1 point for pointing to words, 0 for point to picture. **If the child points to the first word (Pamudzi) there is no need to ask item 3, score it correct as well.**

ITEM 3: Say:

Show me where to start.

Score: 1 point for pointing to the top left (Pamudzi...)

ITEM 4: Say:

Which way do I go?

Score: 1 point for pointing or saying left to right

ITEM 5: Say:

Where do I go after that?

Score: 1 point for return sweep to left.

(Score items 3-5 as correct if all movements are demonstrated in one response.)

ITEM 6: Say:

Point to it while I read. (Read the entire passage **slowly**, but fluently. Pause in your reading where natural a few times to make sure the child is following.)

Score: 1 point for exact matching of most of the words.

ITEM 7: Say:

Show me the first part of the story.
Show me the last part of the story

Score: 1 point if **both** are correct in any sense, i.e., applied to the whole text or a line, a word or a letter in that area of the text.

ITEM 8: Say:

Where do I look to find out what page I am on?
Turn to page 3.

Score: 1 point if **both** are correct, i.e., the child points to the page number or says 20 or 21 **and** the child is able to turn to page 3.

ITEM 9: Be sure the book is opened to page 4. Say:

How do I know what Unit I am on? What Unit is this?
Turn to the next Unit. Turn to Unit 4.

Score 1 point if **both** the child is able to point to the word Unit or the child says "3" and the child is able to turn to Unit 4.

ITEM 10: Looking with the child at any page in the book. Say:

Show me one letter and tell me its name.
Show me one word and tell me what word it is.

Score 1 point if the child is able to identify and name **both** a letter and a word.

DIRECTIONS FOR SCORING

Each of the 10 items is scored 1 point if the child responds correctly and 0 if the child does not respond correctly.

DIRECTIONS FOR RECORDING THE CHILD'S SCORES

Find the child's name and identifying information on the Concepts About Print Data Record Sheet. Record either a 1 or 0 for each of the 10 items as the items are administered. Count up the total number of points (0-10) and record this number on the Chichewa Pupil Performance Summary Sheet.

Pre-Reading: Letters/Sounds

MATERIALS NEEDED

letter list (not in alphabetical order) list of lower case and upper case (capital) letters
Letters/Sounds Data Record Sheet-Part I (lower case letters)
Letters/Sounds Data Record Sheet-Part II (upper case letters)
pencil
Chichewa Pupil Performance Summary Sheet

DIRECTIONS FOR ADMINISTERING

Provide the child with the list of letters and say to the child:

What do you call these? Can you find some that you know? Pointing to each letter ask: What is this one?
If the child does not respond, use one or more of these questions:

Do you know its name? What sound does it make? Do you know a word that sounds like that?
If the child hesitates, begin by pointing to the first letter in the child's name. Then move on to other letters.

DIRECTIONS FOR SCORING

Score the letter as correct if the child provides **any** of the following:

- An alphabet name in Chichewa or English
- A sound that is acceptable for that letter in Chichewa or English (NOTE: vowels such as “e” can be pronounced “a” or “e”)
- A response which says, "It begins like..." giving a word for which the letter is the initial letter.

Score 1 point for each letter that the child is able to identify by any of these strategies. [Letter identification is very sensitive to instructional procedures. Some letters may be identified by the sound they make while other letters may be identified by their alphabetic name. The aim is to assess a child's ability to distinguish letters one from another on any basis that works.]

DIRECTIONS FOR RECORDING THE CHILD'S SCORES

Find the child's name and identifying information on Parts I and II of the Letters/Sounds Data Record Sheets. Record a 1 by correctly identified letters. Mark a 0 by incorrectly or unidentified letters/sounds. For each child, count up the number of points (0-52) and record this number on the Chichewa Pupil Performance Summary Sheet.

Reading: Most Used Words-Chichewa

MATERIALS NEEDED

Most Used Words List
Most Used Word List Data Record Sheets (Part I-Reading and Part II-Aided Reading)
Chichewa Pupil Performance Summary Sheet
pencil (for examiner)

Part I: Reading

DIRECTIONS FOR ADMINISTERING

Provide the pupil with a copy of the "Most used words" list. Say:

Now I would like you to read some words for me. They are words from your textbook. Point to and say each of these words.

If the child hesitates, ask the child,

Are there any words on the list that you know? Tell me the words you know. Say the words you know.

The directions may be given in the mother tongue if necessary. Repeat the request to encourage the child to continue.

DIRECTIONS FOR SCORING

A child receives credit for reading the words regardless of the order in which the words are read. A word is counted as correctly read if the pupil reads the word incorrectly at first but then self corrects.

DIRECTIONS FOR RECORDING THE CHILD'S SCORES

Find the child's name and identifying information on the Most Used Words Data Record Sheet: Part I-Reading. Record a 1 next to each of the words that the child reads correctly; record a 0 next to misread or unknown words. Count the total number of words that the pupil is able to read correctly and record this number on the Most Used Words Data Record Sheet: Part I-Reading. Then calculate the percent correct (number correct/20) and record this number on the Chichewa Pupil Performance Summary Sheet.

Part II: Aided Reading-Most Used Words--Chichewa

DIRECTIONS FOR ADMINISTERING

Once you have identified the words that a child can read and the words that the child cannot read or that they read incorrectly say:

Now I am going to read some words aloud. I want you to find the word on the list and point to it.

The directions may be given in the mother tongue if necessary. To make sure the child understands what you want, begin with a word on the list that the child was able to read. Randomly move around on the list asking each of the words.

DIRECTIONS FOR SCORING

A child receives credit for words that are located correctly. A word is counted as correctly located if the pupil points to the correct word or points to an incorrect word and then independently self corrects.

DIRECTIONS FOR RECORDING THE CHILD'S SCORES

Find the child's name and identifying information on the Most Used Words Data Record Sheet-Part II. Then record a 1 next to each of the words that the child locates correctly; record a 0 next to unknown or incorrectly identified words. Count the total number of words that the pupil is able to locate correctly and record this number on the Most Used Words Data Record Sheet: Part II-Aided Reading. Then calculate the percent correct (number correct/20) and record this number on the Chichewa Pupil Performance Summary Sheet.

Chichewa Reading Passages

MATERIALS NEEDED

Chichewa Textbooks for Pupils for Standards 2-4 (Note: for standard 4 pupils you will need books 2-4, for standard 3 pupils you will need books 2-3, for standard 2 pupils you will only need the standard 2 book)
 Individual Reading Record Sheet for each passage
 Pencil (for the examiner)
 Timer
 Clipboard
 Straight edge for helping the child to focus on one line (e.g., this could be a rectangular piece of plain cardboard or heavy paper)
 Chichewa Pupil Performance Summary Sheet

DIRECTIONS FOR ADMINISTERING

1. Open the textbook to the selected passage. Hand the opened textbook to the pupil. (If desired, you may provide the pupil with a straight edge and demonstrate how it could be used. Using the straight edge is optional.)
2. Place the Individual Reading Record Sheet in front of you but shielded so the pupil cannot see what you record. A clipboard is useful for this purpose.
3. Say these specific directions to the pupil for each passage:

When I say 'begin,' start reading aloud at the top of this page. Read across the page.

(Demonstrate by pointing to the place where you want the pupil to begin).

Try to read each word. If you come to a word you don't know, I'll tell it to you. Be sure to do your best reading. Do you understand what I want you to do?

4. If you are uncertain as to whether the pupil understands what is expected, the directions may be repeated in the mother tongue.

5. Say 'begin' and start your timer when the pupil says the first word. If the pupil fails to say the first word of the passage after about 3 seconds, tell them the word and mark it as incorrect, then start your timer. **(if the child stops reading before the end of the passage, tell the child to keep reading)**. Show the child where you mean if necessary.

6. Follow along on your copy. Put a slash (/) through words read incorrectly (see scoring procedures).

7. At the end of 1 minute, place a bracket (]) after the last word. Allow the pupil to finish the passage. Continue marking which words are read incorrectly

When the child has finished the last sentence on the numbered copy, say,

Please stop. Thank you.

8. If at the end of one minute a pupil has read less than 4 words correctly and the child is struggling, stop the child, place a straight edge under the first line and say,

Now I want you to look at the rest of this line. Can you read something from this line? Do you see any words you know? Look and say the words you know.

After the child responds, move the straight edge to the next line and repeat this prompt. Continue for each line in the story. If, however, the child is still unable to read any words, stop moving line by line and ask if he/she can read any more words on the page.

On the Individual Reading Record Sheet circle the words that the child is able to read (the child must point to the word and say what it is). If the child knows a word that is repeated in the line, ask if the child sees that word anywhere else. Stop here, there is no need to ask the child to word by word tell you he/she cannot read the passage.

Comprehension questions: Before going to next passage, say to the child:

Now I am going to ask you some questions about what you read. You may look back in the story for the answers.

Ask each of the comprehension questions. Write the child's response on the Individual Reading Record Sheet. If the child has been unable to read, score 0 for comprehension and process to the next passage/activity.

Standard 2: **repeat these directions for the second passage.**

In standard 2, once the passages have been pilot tested, put both passages and the comprehension questions on the same pupil recording sheet--use the back if necessary. The child will have two words correct scores, two-percent correct scores, two number words in the first minute scores and two comprehension scores.

Standard 3: **repeat these directions for the passage for standard 3.**

Standard 4: **repeat these directions for the passage for standard 4.**

DIRECTIONS FOR SCORING

This task is scored by counting the number of correctly read words. Below are rules for determining if a word has been read correctly. [These rules are adapted from Tilly, W. D., & Carlson, S. (1992). Administration and scoring. In M. R. Shinn, N. Knutson, and W.D. Tilly (Eds.). Curriculum Based Assessment: Training Modules (3rd ed.) (pp. 8-12). Eugene, OR: University of Oregon.]

Rule 1: Correctly read words are pronounced correctly. A word must be read correctly given the context of the sentence.

Example: The word "read" must be pronounced "reed" when presented in the context of: "He will read the book."
Not as "He will red the book."

Example: The word "lead" must be pronounced "led" when presented in the context of: "She picked up the lead pipe." Not as "She picked up a leed pipe."

Rule 2: Self-corrected words are counted as correct. Words misread initially but corrected within 3 seconds are counted as correctly read.

Example: "The river was cold." read as: The river was could...(2 seconds)...cold. [4 correctly read words]

Rule 3: Repeated words are counted as correct. Words said over again correctly are ignored.

Example: "Ama ran swiftly" read as "Ama ran...Ama ran swiftly." [3 correctly read words]

Rule 4: Dialect. Variations in pronunciation that are explainable by local language norms are not errors.

Rule 5: Inserted words are ignored. When a pupil adds extra words, they are not counted as correct words nor as reading errors.

Example: "Yaw was happy." read as "Yaw was very happy." [3 words correctly read]

Rule 6: Mispronounced or substituted words are counted as incorrect.

Example: "Yaw wanted a new hat." read as "Yaw want a new hat." [4 correctly read words]

Rule 7: Omitted words are counted as errors.

Example: "Kofi climbed the tall tree." read as "Kofi climbed the tree." [4 correctly read words]

Rule 8: Hesitations: When a pupil hesitates or fails to correctly pronounce a word within 3 seconds, the pupil is told the word and an error is scored.

Example: "Dede saw an elephant." read as "Dede saw an ...(3 seconds)" or "Dede saw an ell-ee...(3 seconds)" At this point the examiner says, "elephant" [3 correctly read words]

Rule 9: Reversals: When a pupil transposes two or more words, those words not read in the correct order are errors.

Example: "Mensa ran quickly." read as "Mensa quickly ran." [1 correctly read word]

Rule 10: Numbers written as numerals are counted as words and must be read correctly within the context of the passage.

Example: "Mensa had 13 balls." read as "Mensa had thirteen balls." [4 correctly read words]; not as "Mensa had one three balls." [3 correctly read words]

Rule 11: Abbreviations are counted as words, and must be read correctly within the context of the sentence.

Example: "Mr. Poku went to the farm." should be read as "Mister Poku went to the farm." [6 words]

DIRECTIONS FOR RECORDING THE CHILD'S SCORES

Record the child's name and identifying information on the Individual Reading Record Sheet (the numbered copy of the reading passage). Count up the total number of words read or attempted within one minute [use the numbers at the end of each line as a guide]. Record these numbers in the box that has been provided on the Individual Reading Record Sheet. Record the number of words read correctly in one minute on the Chichewa Pupil Performance Summary Sheet.

Then count the number of words read correctly for the whole passage. Then calculate the percentage correct for the entire passage (percentage correct = words read correctly/total number of words in the passage). [Even if the child didn't finish the passage (i.e., if the passage was too hard and the child read fewer than 4 words correctly in one minute) the total number of words for the whole passage is used as the basis for calculating percent correct.] Record this number in the Individual Reading Record Sheet box and on the Chichewa Pupil Performance Summary Sheet.

Repeat these directions for all passages.

STORING THE DATA

Once you have completed testing one child and have recorded all of the scores on the Chichewa Pupil Performance Summary Sheet, staple together the paper used for the writing tasks and the Individual Reading Record Sheet for the reading passage. Make sure that the pupil's name is clearly written on both pages. Organize the papers by class and store the materials in a secure location.

Pupil Assessment Mathematics

MATERIALS NEEDED

2 pencils: one for the assessor, one for the child
2 clipboards: one for the assessor, one for the child
administration directions
18 bottle tops
Number and picture cards set
2t (1), 10t (5), 20t (2), 50t (1) and K1 (3) coins
Mathematics Data Record Sheet
Math Problems Sheet

DIRECTIONS FOR ADMINISTERING

Ask the child each of the following questions.

For all math problems, children should be given the Math Problems Sheet to work out problems *if they choose to do so*. This is not required.

Leave the bottle tops on the flat surface and tell children that they may use them at any time.

During administration, follow along on your Math Data Record Sheet marking responses.

All items are scored 1 if the pupil gives the answer indicated in (), and 0 if he/she does not.

If the pupil does not attempt the problem or the problem is skipped (see rules below), mark an “X” in the corresponding box on the Math Data Record Sheet.

RULES FOR PACE AND FLOW OF ADMINISTRATION

The overall goal is to assess each pupil’s level of skill mastery without causing the pupil undue discomfort or fatigue while participating. Therefore, follow these 4 rules.

ALL PUPILS ARE GIVEN ALL BEGINNING MATH ITEMS (SECTION 1: ITEMS 1-12).

To administer Section 2 to 7 of the test (numeration, addition, subtraction, multiplication and division, money and measurement problems) most efficiently, follow this rule: **if the pupil gets 3 items wrong in a row, skip to the next section of the test.** Thus, if he/she gets addition items 23, 24 and 25 wrong do not proceed to Item 26. It is more difficult. Mark items 26 through 34 with an “X” to indicate that the pupil did not attempt them. Move to Item 35, the first item in subtraction, next section of the test. If the pupil gets 23 and 24 wrong, but 25 right, proceed to item 26 and begin counting items missed again from 1.

If a pupil has 4 or fewer of the 12 beginning math items correct, skip Sections 3, 4 and 5 (addition, subtraction, and multiplication and division). Go directly to Sections 6 and 7: Money and Measurement to

conclude the test. Mark items 21-63 with an “X”, indicating he/she was not familiar enough with numbers to attempt operations or word problems.

If the pupil struggles for more than 1 minute on any item -- either in silence or working on paper -- stop him/her. Assure them that they are making good progress and move on to the next item. If this occurs three times in a row, proceed to the next section of the test.

Section 1: Beginning Math

Tell the child that you are going to ask him/her a range of questions. Some are easy and some will be difficult for a pupil his/her standard. Ask the child to do his/her very best in answering as many as possible.

Place 4 bottle tops on the ground or any flat surface you are using. Say to the child:

<i>ITEM 1.</i> Here are some bottle tops; can you count them for me?	(4)
--	-----

Place 10 bottle tops on the flat surface. Say to the child:

<i>ITEM 2.</i> Can you count these bottle tops for me?	(10)
--	------

Place 18 bottle tops on the flat surface. Say to the child:

<i>ITEM 3.</i> Can you count these bottle tops for me?	(18)
--	------

Show the child a sheet with numbers 5, 8, 4, 11, 19, 17, 59, and 91. Say to the child:

<i>ITEM 4.</i> Show me the number 8 .	(8)
--	-----

<i>ITEM 5.</i> Show me the number 19 .	(19)
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Point to the **4** and say to the child:

<i>ITEM 6.</i> What number is this?	(4)
-------------------------------------	-----

Point to the **11** and say to the child:

<i>ITEM 7.</i> What number is this?	(eleven)
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If the child simply names the digits, in this case one and one, prompt him/her with: “Yes, those are the names of each of the digits, but what number is it when the 2 digits form one number?” To receive credit the child must answer using the full number: “eleven”.

Hand the child a clipboard with the blank side of the Math Problems Sheet as well as a pencil. Say to the child:

I am going to ask you to write some numbers for me. Write it right here.
--

Point to a space on the paper.

<i>ITEM 8.</i> Can you write a five? (In figures, not words)	(5)
--	-----

<i>ITEM 9.</i> Can you write sixteen? (In figures, not words)	(16)
---	------

Show a card with numbers arranged as follows: 10 11 ____ 13 ____

ITEM 10. Can you name the missing numbers? (12 AND 14)

Place cards with the numbers 5-8 in disarray on the flat surface. Say to the child:

ITEM 11. Can you arrange the numbers from lowest to highest? (5, 6, 7 AND 8)

ITEM 12. Count from 7 to 13. (7, 8, 9, 10, 11, 12, AND 13)

Section 2: Numeration

ITEM 13. Count from 29 to 34. (29, 30, 31, 32, 33 AND 34)

Show the child a card with the number 365 on it. Say to the child,

ITEM 14. What number is this? (Three hundred, sixty-five)

If the child simply names the three numbers, say to the child: Yes, those are the names of each of the digits, but what number is it when the 3 digits form one number?

Show a card with numbers arranged as follows: 30 29 ____ ____

ITEM 15. Can you name the missing numbers? (28 AND 27)

ITEM 16. Write the number: nine hundred and eighty two. (982)

Show the child a card with the number 2,379 on it. Say to the child,

ITEM 17. What number is this? (Two thousand, three hundred seventy-nine)

If the child simply names the four numbers, say to the child: Yes, those are the names of each of the digits, but what number is it when the 3 digits form one number?

ITEM 18. Write the number: four thousand, three hundred and forty two. (4,342)

Show the child a card with the number 23.4 on it. Say to the child,

ITEM 19. What number is this? (Twenty-three point four)

ITEM 20. Count in hundreds from 1000 to 2000
(1000, 1100, 1200, 1300, 140, 1500, 1600, 1700, 1800, 1900, 2000)

Section 3: Addition

Place two groups of objects at a time on the flat surface. For item 21, place one group of 3 bottle tops and another group of 5 bottle tops. Say to the child:

ITEM 21. How many bottle tops are these altogether? (8)

Regroup the bottle tops into groups of 12 and 6.

ITEM 22. How many bottle tops are these altogether? (18)

Orally, ask the child to do the following sums in her head:

ITEM 23. Add 3 and 6. (9)

ITEM 24. Add 5 and 15. (20)

Turn over the child's Math Problems Sheet. Fold it in half so that addition and subtraction items are at the top. Place it securely on the clipboard. Direct the child's attention to the first problem in the Addition Section. Ask him/her to work out the items one by one. **He/she may write on the paper if he/she wishes. It is not required.** Record his/her answers on the Math Data Record Sheet as you proceed through the items.

ITEM 25. Add these two numbers:
$$\begin{array}{r} 3 \\ + 5 \\ \hline \end{array}$$
 (8)

ITEM 26. Add these two numbers:
$$\begin{array}{r} 2 \\ + 4 \\ \hline \end{array}$$
 (6)

Place cards with these problems on them so that the child can see them one at a time.
Say:

ITEM 27. Grace has 4 younger brothers and 1 older brother. How many brothers does she have altogether? (5)

Place a card with the following problem written on it so that the child can see it. Say:

ITEM 28. Ali has 12 pieces of chalk. He finds 5 more pieces. How many does he have altogether? (17)

Return to the Math Problem Sheet and ask the child's to solve the following one at a time:

ITEM 29. Add these two numbers:
$$\begin{array}{r} 22 \\ + 23 \\ \hline \end{array}$$
 (45)

ITEM 30. Add these two numbers:
$$\begin{array}{r} 25 \\ + 12 \\ \hline \end{array}$$
 (37)

ITEM 31. Add these two numbers:
$$\begin{array}{r} 27 \\ + 67 \\ \hline \end{array}$$
 (94)

ITEM 32. Add these two numbers:
$$\begin{array}{r} 28 \\ + 56 \\ \hline \end{array}$$
 (84)

<i>ITEM 33.</i> Add these two numbers:	$\begin{array}{r} 137 \\ + 50 \\ \hline \end{array}$	(187)
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Place a card with the following problem written on it so that the child can see it. Say:

<i>ITEM 34.</i> Lester has 66 pieces of chalk. He gathers 28 from the teachers in his school. How many pieces of chalk does he have altogether?	(98)
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Section 4: Subtraction

Place one group of 9 bottle tops on the flat surface.

<i>ITEM 35.</i> Take away 6 bottle tops. How many are left?	(3)
---	-----

Do not take away the items or cover the pictures for the pupil. In each subtraction problem with objects, the pupil may take away or cover the items and give the answer.

Place one group of 14 bottle tops on the flat surface.

<i>ITEM 36.</i> Take away five. How many are left?	(9)
--	-----

Orally, ask the child to do the following in her head:

<i>ITEM 37.</i> 8 subtract 2	(6)
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<i>ITEM 38.</i> 18 subtract 7.	(11)
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Direct the child's attention to the first problem in the Subtraction Section of the Math Problems Sheet. Ask the child to work out the items one by one. **He/she may write on the paper if he/she wishes, but it is not required.** Record his/her answers on the Math Data Record Sheet as you proceed through the items.

<i>ITEM 39.</i> Subtract these two numbers:	$\begin{array}{r} 7 \\ - 5 \\ \hline \end{array}$	(2)
---	---	-----

<i>ITEM 40.</i> Subtract these two numbers:	$\begin{array}{r} 6 \\ - 2 \\ \hline \end{array}$	(4)
---	---	-----

Place a card with the following problem written on it so that the child can see it. Say:

<i>ITEM 41.</i> Joseph had 6 mangoes. He ate 3 of them. How many mangoes did he have left?	(3)
--	-----

Place a card with the following problem written on it so that the child can see it. Say:

<i>ITEM 42.</i> Patuma made 17 baskets. She sold 4 of them. How many baskets did she have left?	(13)
---	------

<i>ITEM 44.</i> Subtract these two numbers: 24 - 11 -----	(13)
--	------

<i>ITEM 45.</i> Subtract these two numbers: 34 - 8 -----	(26)
---	------

<i>ITEM 46.</i> Subtract these two numbers: 36 - 19 -----	(17)
--	------

Place a card with the following problem written on it so that the child can see it. Say:

<i>ITEM 47.</i> Alifa had 127 eggs. She sold 39 eggs. How many did she have left?	(88)
---	------

Section 5: Multiplication and Division

Place 4 bottle tops on the flat surface. Say to the child:

<i>ITEM 48.</i> You have 4 bottle tops. So does your teacher. How many bottle tops do you have together?	(8)
--	-----

Place 3 bottle tops on the flat surface. Say to the child:

<i>ITEM 49.</i> You have 3 bottle tops. So do your two friends. How many bottle tops do you have together?	(9)
--	-----

Place 4 bottle tops on the flat surface. Say to the child:

<i>ITEM 50.</i> Give these bottle tops to 2 children. Each gets the same number. How many does each child get?	(2)
--	-----

Place 10 bottle tops on the flat surface. Say to the child:

<i>ITEM 51.</i> Give these bottle tops to 5 children. Each gets the same number. How many does each child get?	(2)
--	-----

Direct the child's attention to the first problem in the Multiplication and Division Section of the Math Problems Sheet. Ask the child to work out the items one by one. **He/she may write on the paper if he/she wishes, but it is not required.** Record his/her answers on the Math Data Record Sheet as you proceed through the items.

<i>ITEM 52.</i> Multiply these two numbers: 4 x 3 -----	(12)
--	------

<i>ITEM 53.</i> Multiply these two numbers: 6 x 2 -----	(12)
--	------

ITEM 54. Divide these two numbers:

$$\begin{array}{r} 3 \overline{) 6} \end{array} \quad (2)$$

ITEM 55. Divide these two numbers:

$$\begin{array}{r} 1 \overline{) 8} \end{array} \quad (8)$$

ITEM 56. Multiply these two numbers: 34

$$\begin{array}{r} \underline{\times 2} \end{array} \quad (68)$$

ITEM 57. Multiply these two numbers: 23

$$\begin{array}{r} \underline{\times 3} \end{array} \quad (69)$$

ITEM 58. Divide these two numbers:

$$\begin{array}{r} 3 \overline{) 36} \end{array} \quad (12)$$

ITEM 59. Divide these two numbers:

$$\begin{array}{r} 8 \overline{) 48} \end{array} \quad (6)$$

ITEM 60. Multiply these two numbers: 123

$$\begin{array}{r} \underline{\times 2} \end{array} \quad (246)$$

ITEM 61. Divide these two numbers:

$$\begin{array}{r} 6 \overline{) 480} \end{array} \quad (6)$$

Place a card with the following problem written on it so that the child can see it. Say:

ITEM 62. Alice has 4 boxes; each box contains 12 eggs. How many eggs does she have? (5)

Place a card with the following problem written on it so that the child can see it. Say:

ITEM 63. A school in Mangochi has 456 pupils in standards 1, 2 and 3. If there is the same number of pupils in each standard, how many pupils are there in each standard?

(132)

Section 6: Money

Show the child a K1 coin. Say to the child:

ITEM 64. What is this?

(1 kwacha)

If the child says, “money”, ask: “How much money?”

Place 3 K1 coins on the flat surface.

ITEM 65. How much money is this? (3 kwacha)

Show the child a 2t coin. Say:

ITEM 66. What is this? (2 tambala)

If the child says, “money”, ask: “How much money?”

Show the child a 10t coin. Point to the 2t coin and say:

ITEM 67. How many 2t coins are in 10t? (5)

Place two 20t coins on the flat surface. Say to the child:

ITEM 68. How much money is this? (40t)

Place three 10t and one 50t coin on the flat surface in separate groups. Say to the child:

ITEM 69. Which is more money? (1 x 50t)

Place two 20t and five 10t coins on the flat surface in separate groups. Say to the child:

ITEM 70. Which is more money? (5 x 10t)

Ask the child the following with reference to the coins:

ITEM 71. I want to buy a mango for 20t and a basket for 60t. How much will I pay? (80t)

ITEM 72. I want to buy a mango for 12t and sweets for 25t. How much will I pay? (37t)

ITEM 73. I want to buy a pencil for 7t and a notebook for 8t. I have a 20t coin. How much will I get back? (5t)

ITEM 74. I want to buy a sweet for 6t and a banana for 3t. I have a 10t coin. How much will I get back? (11)

ITEM 75. Mrs. Ziwa wanted to buy 4 boxes. Each box cost 32 kwacha. What is the total cost of the 4 boxes? (K128)

ITEM 76. Maria wants to buy 3 pens at 20t per pen and 1 pad of paper for 80t. How much will she spend altogether? (140t)

Section 7: Measurement/Size

Place two sticks of different lengths in front of the child. Say:

ITEM 77. Which stick is shortest? (points to shortest)

Place a card with the following problem written on it so that the child can see it. Say:

ITEM 78. Mother has 8 liters of milk. She uses 3 liters of milk to cook soup for a celebration. How much milk does she have left? (5)

Place a card with the following problem written on it so that the child can see it. Say:

ITEM 79. Mary travels 6 kilometers to school each morning and 6 kilometers back to her village each afternoon. How many kilometers does she travel altogether each day? (12)

ITEM 80. Andrew's uncle lives 18 kilometers away from Andrew. How many kilometers would Andrew travel each time he visits his uncle? (36)

DIRECTIONS FOR SCORING

For every item, the score is 1 if correct and 0 if incorrect. This is true even if there are several numbers asked for in the response (as in, can you count from 7 to 13? Must be answered with all the numbers 7, 8, 9, 10, 11, 12 AND 13). If the child does not attempt an item because his/her skill level has led you to stop questioning within a section, mark the item with an X.

DIRECTIONS FOR RECORDING THE CHILD'S SCORES

Mark 1 for correct and 0 for incorrect on the Mathematics Data Record Sheet as you administer the test. Total the number of 1's at the end of the assessment.

Appendix B

IEQ/Ghana

Sample Assessment Materials taken from the level 4 manual

Reading Passages

Directions for Administration, Scoring, and Recording of Scores

MATERIALS NEEDED

English Pupil's Books for P2, P3, and P4
Individual Record Sheets (Numbered copy of the passages for P2, P3 and P4; 1 copy per pupil of each; used by the examiner for recording the known and unknown words)
Pencil or pen (for the examiner)
Timer
Clipboard
Straight edge for helping the child to focus on one line (e.g., this could be a rectangular piece of plain cardboard or heavy paper)
Pupil Performance Class Summary Sheet

DIRECTIONS FOR ADMINISTERING

Begin with the P2 passage and then repeat the administration procedures for the P3 and P4 passages. P4 pupils will have reading scores for P2, P3, and P4 passages.

Open the textbook to the selected passage. Hand the opened textbook to the pupil. Provide the pupil with the straight edge and demonstrate how it could be used. Using the straight edge is optional.

Place the Individual Record Sheet for the passage in front of you but shielded so the pupil cannot see what you record. A clipboard is useful for this purpose.

- Say these specific directions to the pupil for each passage:

When I say 'begin,' start reading aloud at the top of this page. Read across the page
(Demonstrate by pointing to the place where you want the pupil to begin).

Try to read each word. If you come to a word you don't know, I'll tell it to you. Be sure to do your best reading. Do you understand what I want you to do?

- If you are uncertain as to whether the pupil understands what is expected, the directions may be repeated in the mother tongue.
- Say 'begin' and start your timer when the pupil says the first word. If the pupil fails to say the first word of the passage after 3 seconds, tell them the word and mark it as incorrect, then start your stopwatch.

If the child stops reading before the end of the passage, tell the child to keep reading. Show the child where you mean if necessary.

- Follow along on your copy. Put a slash (/) through words read incorrectly (see scoring procedures).
- At the end of 1 minute, place a bracket (]) after the last word. Allow the pupil to finish the passage.

When the child has finished the last sentence on the numbered copy, say,
Please stop. Thank you.

- If at the end of one minute a pupil has read less than 4 words correctly and the child is struggling, stop the child, place a straight edge under the first line and say,
Now I want you to look at the rest of this line. Can you read something from this line? Do you see any words you know? Look and say the words you know.

After the child responds, move the straight edge to the next line and repeat this prompt. Continue for each line in the story.

On the Individual Record Sheet circle the words that the child is able to read (the child must point to the word and say what it is). If the child knows a word that is repeated in the line, ask if the child sees that word anywhere else.

- Next say: **Now I am going to ask you some questions about what you have read.** Then ask the comprehension questions. The pupil can look back over the story.

DIRECTIONS FOR SCORING

This task is scored by counting the number of correctly read words. The manual provides rules for determining if a word has been read correctly. [These rules are adapted from Tilly, W. D., & Carlson, S. (1992). Administration and scoring. In M. R. Shinn, N. Knutson, and W.D. Tilly (Eds.). Curriculum Based Assessment: Training Modules (3rd ed.) (pp. 8-12). Eugene, OR: University of Oregon.]

DIRECTIONS FOR RECORDING THE CHILD'S SCORES

Record the child's name and identifying information on the P2, P3, AND P4 Individual Record Sheets (the numbered copy of each of the reading passages). Count up the total number of words read or attempted within one minute [use the numbers at the end of each line as a guide]. Then count the number of errors and the number of words read correctly [number of errors + number of correctly read words = total words read/attempted]. Record these numbers in the box that has been provided on the Individual Record Sheet. Record the number of words read correctly in one minute on the Pupil Performance Class Summary Sheet.

Then count the number of words read correctly for the whole passage. Even if the child didn't finish the passage (i.e., if the passage was too hard and the child read fewer than 4 words correctly in one minute) the Total Words Read for the whole passage is still reported as the total number of words in the passage [i.e., the number following the last line of the passage]. Also, words not attempted are scored as errors. Count up the number of errors. The number of errors plus the number of words that were read correctly should be the same as the total number of words in the passage.

Then calculate the percentage correct for the entire passage (percentage correct = words read correctly/total number of words in the passage). Record this number in the Individual Record Sheet box and on the Pupil Performance Class Summary Sheet.

IEQ/Ghana

Sample Assessment Materials: Individual Record Sheet (Examiner's Copy)

Level 4: (Text taken from Unit 16 of An English Course for Ghanaian Schools: Pupil's Book 4, p. 67.)

HOW CRAB LOST HIS HEAD	5
A long time ago Crab was a	7
very handsome man. He was	12
tall. He had fine hair. He was	19
also very kind. He had many	25
friends. Crab's friends knew that	30
he was a kind man. So they	37
asked him to do many things for	44
them. Crab was able to do	50
everything for them	53
One day Scorpion said, "I want to take my house to a	65
new place. Can you carry it for me?" Crab was able to	77
carry the house for Scorpion.	82
On another day, Snail said, I am going to my farm.	93
The river is very full of water. I cannot cross it. Can you	106
drink up the water for me?" Crab was able to drink up all	119
the water, and Snail crossed to his farm.	127
A few days later Lobster	132
came to Crab. He said "My	138
friend, I am going to marry.	144
"Please give me a kente cloth to	151
wear." This was the least difficult	157
thing for Crab to do. He gave	164
Lobster the kente cloth; he also	170
gave him a pair of sandals.	176
One day Spider came. He said, "Crab, I'm in trouble. I	187
must go to the chief's house now. I must think and speak	199
well to the chief.	203

Name of pupil: _____	Level _____		
School: _____			
	1 Minute	Total	Pupil ID# _____
Words read correctly:	_____	_____	
Errors:	_____	_____	
Total Words Read:	_____	_____	
Comprehension (Percent correct)	_____		

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