



**Somali Interactive Radio
Instruction Program
(SIRIP)**

***Grade 1 Evaluation
2006/2007***

December, 2007

ACKNOWLEDGEMENT

According to Ministry of Education officials, this is the first evaluation of Somali learners at the Grade 1 level. It shows that the Somali Interactive Radio Instruction Program (SIRIP) is becoming an increasingly important part of the Somali education system. It also shows that SIRIP is increasing access, improving quality and sustaining learning even when war, displacement and uncertainty threaten to bring education to a halt.

The evaluation represents an important milestone in assessing learner achievement for the purposes of informing policy and program development and guiding teachers in the overall goal of improving the quality of basic education for Somalis. Learners, teachers and parents alike appreciate SIRIP's educational radio methodology and the continuity it provides. The evaluation not only highlights areas of achievement and improvement; it demonstrates to potential users of the program that it is worthy of their time and further support.

We wish to thank the Ministry of Education officials, teachers and learners from all zones who participated in this evaluation. Much gratitude is also owed to the implementing partners who have supported the program in commendable ways, as well as to the parents and community members who shared their stories and experiences with us. We look forward to working with them in the coming years.

We also deeply appreciate the moral and financial support from the United States Agency for International Development (USAID), the contribution of all SIRIP staff and the editorial support from colleagues at the Education Development Center (EDC).

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December, 2007

TABLE OF CONTENTS

1.0 BACKGROUND.....	5
1.1 SOMALIA EDUCATION CONTEXT.....	5
1.2 BRIEF OVERVIEW OF SIRIP	5
2.0 METHODOLOGY.....	8
2.1 PURPOSE OF THE EVALUATION.....	8
2.2 SAMPLE.....	8
2.3 TEST DEVELOPMENT.....	9
2.4 DATA COLLECTION.....	11
2.5 DATA ENTRY AND ANALYSIS.....	12
3.0 RESULTS.....	13
3.1 DEMAND FOR IRI.....	13
3.2 WHO PARTICIPATES IN IRI?	14
3.3 ACHIEVEMENT IN SOMALI LITERACY AND NUMERACY	16
3.4 CONTEXTUAL FACTORS WHICH PROMOTE IRI EFFECTIVENESS	20
3.5 EFFECTIVENESS OF IRI: PERCEPTIONS AND EXPERIENCES	22
4.0 DISCUSSION AND RECOMMENDATIONS	27
4.1 DISCUSSION	27
4.2 RECOMMENDATIONS	30
APPENDIX A: SOMALI LITERACY TEST – 2006.....	32
APPENDIX B: MATHEMATICS TEST – 2006/07	35

LIST OF ACRONYMS

ADRA:	.....	Adventist Development and Relief Agency
DG:	.....	Director General
EA:	.....	Education Advisor
EDC:	.....	Education Development Center
EU:	.....	European Union
IDP:	.....	Internally Displaced Persons
IRI:	.....	Interactive Radio Instruction
M&E:	.....	Monitoring and Evaluation
MOE:	.....	Ministry of Education
MOU:	.....	Memorandum of Understanding
NFE:	.....	Non Formal Education
NGO:	.....	Non Profit Organization
PAE:	.....	Primary Alternative Education
RC:	.....	Regional Coordinators
SACB:	.....	Somalia Aid Coordination Body
SAFE:	.....	School Association for Formal Education
SCZ:	.....	South Central Zone
SCOTT:	.....	Strengthening Capacity of Teacher Training
SOW:	.....	Scope of Work
SIRIP:	.....	Somali Interactive Radio Instruction Program
TFG:	.....	Transitional Federal Government
TOT:	.....	Training of Trainers
TII:	.....	Teacher Training Institute
USAID:	.....	United States Agency for International Development

EXECUTIVE SUMMARY

Somali Interactive Radio Instruction Program (SIRIP) is a radio-based learning intervention to increase access to quality education opportunities and to improve teaching at the lower primary level. Mathematics and Somali literacy programs for Grade 1 and Grade 2 that support the Somali curriculum first went on air in 2006. Since then programs have been introduced in Grade 3 classes while Grade 4 and Grade 5 programs are being developed. This report presents findings of the first evaluation of selected SIRIP activities. It answers questions about whether there was demand for Interactive Radio Instruction (IRI), the characteristics of learners and teachers who use IRI programs, adherence to prescribed IRI classroom practices, and whether there has been any value-added in learning at Grade 1 as a result of having introduced IRI programs as part of instruction in Somali classrooms.

To answer evaluation questions, data about demand and learner characteristics were collected through routine monitoring activities. For learning assessment, Grade 1 curriculum-based achievement tests were administered in October/November, 2006 and April/May, 2007 to a sample drawn from all three zones (Puntland, Somaliland and South Central Somalia). The sampling plan comprised 75 schools with 3000 learners selected to represent IRI schools throughout the country. However, South Central Somalia became inaccessible and many learners were displaced as a result of the war. For this reason, the final sample was smaller comprising of 36 schools, 26 IRI and 10 non-IRI control. The total sample size was 1 104 of 10 111 Grade 1 learners. Findings summarized below respond to evaluation questions related to demand for IRI, learner and teacher characteristics, and student mastery of Somali Literacy and Mathematics.

The widespread use of IRI in schools throughout all three zones is evidence that SIRIP is a popular educational program highly regarded by teachers and parents. The increase in demand for IRI is established first from the pattern of schools registering to participate in IRI (from 219 in mid 2006 to 1 483 by the end of 2006), the number of students who participate in IRI (200 108 in 2007), and teachers who attended IRI training. There are 1 435 Grade 1 classes, 1 315 Grade 2 classes and 1 058 Grade 3 classes in 1 483 schools registered as using IRI. While the original plan was to have IRI for the lower primary level in Somali Literacy and Mathematics, there is a demand to develop and broadcast IRI programs to support the teaching of English, teacher training, early childhood education and other topics. There is also anecdotal evidence about shadow audiences for adult learners and other special groups such as new groups of Internally Displaced Persons (IDPs). The project needs to develop a mechanism for documenting use in these audiences.

Somali schools enroll more boys than girls at all levels of primary school education. However, overall enrolment statistics indicate that the proportion of girls accessing the formal school system is increasing. Other characteristics of IRI learners are a high proportion of above-age Grade learners, with 53.8 percent of Grade 1 learners being older than 8 years. At 88.2 percent, most teachers in IRI classes indicated that they have some form of formal teaching qualification and the majority (60 percent), have also been trained in IRI.

This evaluation, the first that has been conducted for SIRIP, offers a number of conclusions on how project activities have taken hold, what its successes are and what improvements and follow-up

actions have to be conducted. The main focus of the evaluation is impact assessment through learning achievement.

Overall learners in IRI schools performed better than learners in non-IRI control schools. The mean posttest for IRI learners was 61.8 percent in Somali Literacy, compared to a posttest score of 53.8 percent for control learners. In Mathematics the IRI posttest score was 71.0 percent compared to a posttest score of 59.0 percent for control learners. Boys and girls performed at par in Somali, while boys performed better than girls in Math. Disparities in performance were wider in Mathematics, both for IRI and non-IRI control schools. Older learners performed better in both IRI and non-IRI schools. Puntland registered the highest overall gains. Learners in Puntland started significantly lower in Mathematics at 30.5 percent and finished with a posttest mean of 74.5 percent. In Somali literacy, the pretest mean was 23.5 while the posttest mean was 78.2 percent.

Information from teachers and communities indicate that IRI has taken the classroom into peoples' homes and that parents are now more familiar with what children do and learn in schools. An important spin-off of being aware of what happens in the school, by some parent's admission, is the increased likelihood of allowing children, and girls in particular, to participate in schooling. The success of IRI is attributable, in part, to a network of partners who perform important activities such as teacher training and IRI monitoring activities.

While many suggestions for improvement were made in the report, recommendations for follow-up action and project improvement are as follows:

1. Intensify efforts to reach out-of-school populations who require assistance the most, especially in Puntland where IRI participation rate is lowest and amongst out of school populations in all regions such as the large numbers of IDPs;
2. Working in partnership with the Ministries of Education and the Strengthening Capacity of Teacher Training (SCOTT) program, encourage recruitment and appointment of untrained female teachers to teaching positions while SIRIP trains them in IRI, with an aim to increase role models for girls in schools;
3. Explore opportunities for partnership between SIRIP and Koranic schools. In addition, or as an alternative, SIRIP should consider providing programming for pre-school learners in the general population. This would not only provide developmentally appropriate and valuable learning, but would also expose families and children to IRI so they are familiar with it when they reach school age and
4. Explore the use of alternatives to radio broadcasting in regions where broadcasting has been difficult.

1.0 BACKGROUND

“We thank you for helping us, giving us food, shelter, medicines, but the best that you have done for us was to give our children education. Food and other things we will finish but education will always be there wherever we go.”

(Ethiopian refugee father, 2003)

1.1 Somalia Education Context

Somali Interactive Radio Instruction Program (SIRIP) is an educational intervention aimed at addressing issues of access, quality, and equity in education in Somalia. With a grant from USAID in 2005, the Education Development Center (EDC) introduced radio-based learning to increase quality of and access to education and improve teaching at the primary level. When EDC introduced SIRIP, the challenge was to rapidly reach a large number of school age children both in and out of the formal education system, and do this in a country that has experienced significant disruptions to that system.

The deterioration of the Somali education system came with the advent of civil war in 1991. During this time textbooks and supplies disappeared, teacher attrition soared, classroom conditions deteriorated, and many primary schools ceased to operate, resulting in a dramatic decline in learner enrolment. Somalia currently has one of the lowest enrolment rates in Africa. It also ranks among the lowest in public financing for education in the world, and according to UNICEF, educational and formal classroom learning opportunities are still limited and unavailable for many children. Most existing schools are concentrated in and around urban areas and are mainly financed by fees or other forms of support from parents and communities, with some input from external agencies leaving vast numbers of rural school-age children with little or no access to education services (UNICEF, 2005).

Gender-related disparities remain an area of concern. Girls comprise only 37 percent of total enrolment in lower primary, and their dropout rates are higher than boys. Low participation of girls is attributed to a combination of factors including societal attitudes and perceptions on the roles of girls and women, timing of classes, opportunity costs and other economic considerations. Moreover, girls do not have role models since women comprise only about 20 percent of all teachers. However, substantial increases in the number of operational schools and in enrolment rates have been noted, even though considerable disparities in quality of and access to primary education exist due to socio-economic, cultural and political realities, and the sector still suffers from technical and financial resource limitations, as well as a lack of consistency in curricular standards (UNICEF, 2005). SIRIP’s core activities are aimed at addressing the issues mentioned above related to educational quality and access.

1.2 Brief overview of SIRIP

USAID’s grant to SIRIP is intended to provide IRI programs and supplemental learning materials to students in Grades 1-5. IRI programs enable teachers to transform the classroom into a dynamic interactive learning environment. In addition to basic Somali literacy and math in Somali, the

programs contain life skills segments which include content on health, environmental awareness, gender issues, conflict prevention and mediation, and democracy-building. SIRIP tapped into EDC's experience of using Interactive Radio Instruction (IRI) programs for children in similar circumstances in countries such as Zambia, Guinea, India, Ethiopia, and Sudan. In all these countries, introduction of IRI has provided quality instruction via radio and improved access to quality basic education. Also, SIRIP was built on the experience of IRI programs for Somali speaking children which were developed and tested in Ethiopia.

SIRIP programs are currently broadcast by one international shortwave broadcaster and three local FM radio stations. Each of the stations broadcasts SIRIP programs for three hours a day, and up to five days a week. The rest of SIRIP activities are largely implemented through a network of on-the-ground partners who train teachers in the methodology, distribute materials and monitor the teaching and learning in the classrooms as well as collect data about the intervention. SIRIP's goal is to reach approximately 350,000 children with IRI programs in all regions of Somalia. By September 2007, IRI had reached 200,108 learners in Somaliland, Puntland and South Central Somalia as shown in Table 1.

Table 1: Number of IRI learners in 2006-2007, by region and sex

Region	Female	Male	Total
Puntland	10 526	14 879	25 405
Somaliland	28 248	40 036	68 284
South Central	47 660	58 759	106 419
Total	86 434	113 674	200 108

Boys comprised 56.8 percent of the learners, while girls were 43.2 percent. The proportion of boys and girls in IRI participating schools indicates that girls' participation in formal schooling is growing nationally. One of SIRIP's objectives is to promote the education of girls, not only through the requirements of opening up access to girls in the target schools, but also through giving girls roles that cast them as role models in the radio programs. For example, teachers are reminded daily through the programs to include girls in activities and discussions. Deliberate efforts to promote the visibility and active participation of girls in other IRI programs (e.g. Guinea, Papua New Guinea and Zambia) have resulted in girls performing on par with boys for IRI learners, in contrast to non-IRI control learners where boys typically perform significantly better than girls.¹

The 200,108 IRI learners attend 1 483 schools in all three zones. Table 2 indicates the number of schools using IRI, and the number of classes at Grades 1-3.

¹ World Bank, 2005. *Improving Educational Quality through Interactive Radio Instruction: A Toolkit for Policy Makers and Planners*. Development Research Group, Working Paper Series No. 52, Washington.

Table 2: Number of IRI classes (and schools) in September 2007, by zone

Zone	Number of Gr. 1 classes	Number of Gr. 2 classes	Number of Gr. 3 classes	Total IRI classes	Number of IRI Schools
Puntland	199	179	157	535	<i>200</i>
Somaliland	521	494	424	1439	<i>418</i>
SCZ	715	642	477	1834	<i>865</i>
Total	1435	1315	1058	3808	<i>1483</i>

SIRIP started broadcasting for Grades 1 and 2 in the second semester of the 2005/2006 school year. Grade 3 broadcasts were tested on local stations in the second semester of the 2006/2007 school year and all three grades aired at the beginning of the 2007/2008 school year. South Central Zone (SCZ) has the highest number of schools and classes participating in IRI. SIRIP has also made progress in training Grade 1 - 3 teachers in the IRI methodology, a necessary condition for effective and efficient use of the IRI programs. A total of 4 652 teachers have been trained in IRI methodology, 22.8 percent of whom are female. The percentage of IRI female teachers reflects the proportions of female teachers in the country. Table 3 presents the number of teachers trained, as well as the total number of teachers according to the UNICEF survey.

Table 3: Number of teachers trained in IRI by September 2007, by zone and sex

Zone	Female	Male	Total trained	Grand Total teachers	Percent trained
Puntland	327	1,106	1,433	2,104	<i>68.1</i>
Somaliland	498	1,663	2,161	3 218	<i>67.2</i>
South Central	235	823	1 058	7 465	<i>14.2</i>
Total	1 060	3 592	4 652	12 787	<i>36.4</i>

Puntland and Somaliland trained the highest number of teachers. Even though there are more teachers in SCZ, a smaller percentage was trained in this zone. Teacher training could not proceed as planned in many instances because of the civil unrest in SCZ.

According to the summaries of SIRIP major activities provided in this section (student enrolment, teacher training and participating in IRI at different grade levels), IRI is becoming part of the major education programs in Somalia and Somaliland.

2.0 METHODOLOGY

2.1 Purpose of the Evaluation

The purpose of this exercise is to evaluate whether learners exposed to IRI programs achieved basic numeracy and functional literacy in Somali as stipulated in the curriculum. The evaluation also investigates whether there is a demand for IRI programs, and whether teachers use IRI programs as expected in terms of their interaction with the radio lesson, interaction with learners and use of other IRI materials such as teachers' guides. There may be other learner or teacher factors, or factors in the learning environment that enhance the effectiveness of IRI. These as well as the perceptions and experiences of users and stakeholders will be taken into account. The specific evaluation questions are:

1. What is the level of demand for IRI?
2. What are the characteristics of the children? (sex, age)
3. Are learners achieving Somali Literacy and Mathematics as expected at Grade 1 level?
4. What are the contextual factors (learner, teacher, or learning environment) that enhance the effectiveness of IRI?
5. What are the perceptions and experiences about the effectiveness of IRI?

The evaluation was conducted under the guidance of EDC's Regional Monitoring Evaluation Research (MER) advisor as part of SIRIP project improvement activities. The MER Advisor straddles the roles of both the internal/external evaluator. She is an internal evaluator because of her status as an EDC employee who possesses certain insider knowledge of IRI and this IRI activity in particular, and she has an interest in seeing SIRIP succeed and can push to have the project follow through on evaluation recommendations once the evaluation is complete. She also performs the role of an external evaluator because she is not SIRIP staff, which means she brings a fresh, independent and objective perspective to SIRIP activities while facilitating an evaluation process.

2.2 Sample

The population of IRI learners in the three zones of Somaliland, Puntland and South Central in the study currently stands at 200 108 learners attending 1 483 schools. At the time when the evaluation study was planned, the population of learners was 57 398. A multi-stage purposive sampling strategy was used in both the pretest and posttest. Factors which were considered in the selection of evaluation sites included:

- The radio at the school was working for most of the school year;
- The radio signal was good;
- The teacher in the Grade 1 class received IRI training and
- Practical and logistical considerations such as accessibility of sites.

First, 10 regions were selected out of a total of 19 regions participating in IRI in the three zones. Second, 75 IRI schools that have had good radio reception throughout the year were selected, disaggregated by zone as shown in Table 4. Seventy-five classes were sampled, one in each school.

Table 4: Sampling plan, by zone and region

Zone	Estimated No. of Classes	Total No. of Learners	Sample of IRI Classes	Pretest Sample
South Central Somalia	1078	43 128	54	2 160
Somaliland	320	12 789	16	640
Puntland	38	1 481	10	200
All Zones	1436	57 398	75	3 000

Some schools in the sample were supported by partner organizations (in terms of teacher training, distribution of materials, monitoring of IRI and other implementation activities), while others were MOE schools where SIRIP and MOE staff shared the responsibilities of training teachers, distributing materials and monitoring. At the school level, a random sample of 40 learners was selected by test administrators. Test administrators were instructed to select learners who have attended at least 80 percent of the lessons, and as far as possible, an equal number of boys and girls.

There were some variations in the planned and the actual sample that was used. First, while schools in South Central Somalia (SCZ) participated in the pretest, it was not possible to administer the posttest due to a renewed eruption of war. In addition to serious security concerns for traveling in SCZ, many children became displaced and some of the schools which participated in the pretest were closed. Second, the investigators modified the original design in the two zones (Somaliland and Puntland) by selecting a number of control schools against which the performance of IRI schools could be compared. Ten (10) control schools were chosen, relative to the number of sampled IRI schools in the zone. Table 5 reflects these changes.

Table 5: Sample participating in both pretest and posttest, by zone and region

Zone	Estimated No. of Classes	Total No. of Learners	Sample of IRI Classes	Sample of Control Classes	Total sample
Somaliland	320	12 789	16	6	836
Puntland	38	1 481	10	4	268
All Zones	358	14 270	26	10	1 104

The total number of learners that participated in both the pretest and the posttest was 1 104 learners, 554 boys and 550 girls. The sample for Somaliland was 836 (of the expected 880). There was a shortfall in Puntland (268 of the expected 560) due to the fact that classes were smaller, and only 20 learners per school were tested.

2.3 Test Development

This section describes the process and rationale for developing Somali language literacy and mathematics curriculum-based tests. Curriculum-based achievement tests are essentially meant to be mastery tests. Stages of the test development process included test planning, item writing and pilot testing. The test administration procedure is also described briefly.

Curriculum review and test planning

Test development was conducted by the SIRIP team comprising of the Education Advisor (EA), three Regional Coordinators (RCs), EDC's test development specialist, and representatives from the curriculum and examinations sections of the Somaliland Ministry of Education. Activities commenced with a content analysis for Grade 1, performed by the SIRIP team and educators from partner organizations and the Somaliland MOE. Instructional objectives in the Grade 1 Somali Language and Mathematics syllabi were reviewed with the intent to distinguish between developmental and terminal objectives, and SIRIP coverage of the curriculum. In the absence of grade-level reading lists that usually indicate the reading levels of learners, the SIRIP teachers' guide was particularly useful in that it specifies new vocabulary and the numeracy skills that are presented in each lesson and the cognitive skills that children have to master at this formative stage of being introduced to formal learning.

Test Construction

The purpose of the test was to assess and evaluate if learners have mastered basic literacy skills in a local language, as well as basic numeracy skills. The guiding principle during test development was that assessment procedures should match the intentions of each learning target, hence the behaviors which were elicited from the learners included recalling and performing certain tasks.

For instance, the intention of the learning targets on language during the early stages of learning is that learners should comprehend language and begin to produce simple language. Their comprehension of language in the lessons is demonstrated by the acting out of simple instructions, hence the assessment of language skills comprised mainly of requesting students to perform actions when given simple instructions. One test form was constructed for each of the two learning areas of Somali literacy and Mathematics. Where possible, a set of parallel items was included such that test administrators would select an item to present to the learner.

Trial Testing

Trial testing assessed whether the questions elicited the intended behavior/skills, and whether the correct difficulty levels in terms of content and language were maintained. The amount of time it took to administer the test was important in that children at the Grade 1 age have short attention spans. We also examined whether the proposed administration procedure was reasonable and adequate. After trial testing, a debriefing session was convened to receive additional feedback from test administrators on how the test functioned and the interactions between learners, test administrators, and the test were noted for interpretation, and to improve the test. Explanatory notes for each test form were included in a Test Administrator's booklet as a quick reference for use by test administrators during the live pretest and posttest administrations. Overall, trial testing provided feedback on the reasonableness and appropriateness of the test for testing literacy and numeracy skills at Grade 1, and whether the learners were able to handle the format of the test.

The final test comprised of nine items in Somali literacy, while 10 items assessed numeracy skills. Test administration instructions and scoring rubrics were embedded in each test form. Table 6 below provides a summary of the skills assessed in each test, and corresponding items.

Table 6: Skill areas and corresponding test items for Grade 1 Test, 2007

Skill Area	Intended Learning Target	Test Items
Somali Language Literacy	1. Reciting the alphabet and sounds	1 and 2
	3. Comprehension of language (reading)	3 and 4
	4. Production of language (speaking)	6 and 7
	5. Production of language (writing)	5, 8 and 9
Mathematics/ Numeracy	1. Counting and writing numbers	1 and 2
	2. Number operations	3 and 4
	3. Place value and number sequences	5 and 7
	4. Naming/drawing shapes	6

In the interest of keeping the test short and simple, no items were included for the lifeskills component. Also, the objectives for the lifeskills component are not expressed explicitly in the curriculum, which means that a different strategy will have to be used to assess whether children are learning in this area.

2.4 Data Collection

Training of test administration

Training of test administrators was conducted twice, the first being training of the SIRIP team who in turn trained the actual test administrators. Following a detailed test administration booklet, test administrators were briefed on the purpose of test, how the test was developed, how it was to be scored, and the behaviors that each item intends to elicit. Test administrators practiced administering the test in pairs, and then went out to the schools to conduct live trial testing. The training sessions were used as an opportunity to receive feedback on the reasonableness and appropriateness of the test for evaluating literacy and numeracy skills at different grade levels, and whether learners will be able to handle the format of the test.

The second training of test administrators was conducted in Garowe and Hargeisa by the EDC test development specialist and the SIRIP team. Areas covered in the training were situating learning assessment in the context of SIRIP monitoring and evaluation, and making necessary connections between assessment, curriculum delineation, choices of content, classroom practice, and decisions that educators make about individual learners. Test administrators had already been to the field for the pretest, so they brought information on how learners understood the tasks, and suggested slight improvements, mainly to do with the correctness of the tests.

Live testing: pretest and posttest

Pretests were conducted in October/November 2006, close to the beginning of the school year, while posttests were conducted in April/May 2007 towards the end of the school year. There were 10 teams of test administrators, each consisting of 4 people. Team members were assigned different responsibilities; pretests were conducted over a period of 7 days, while administration of posttests took 12 days to complete.

2.5 Data entry and analysis

Data entry commenced soon after the testing in September 2006 and June 2007. Two data entry assistants entered the data into the MS-Excel spreadsheet. The data was transported into SPSS for both cleaning and analysis by the MER Advisor. Data tables were produced and results discussed with the SIRIP team comprising of the COP, Education Advisor, and Regional Coordinators.

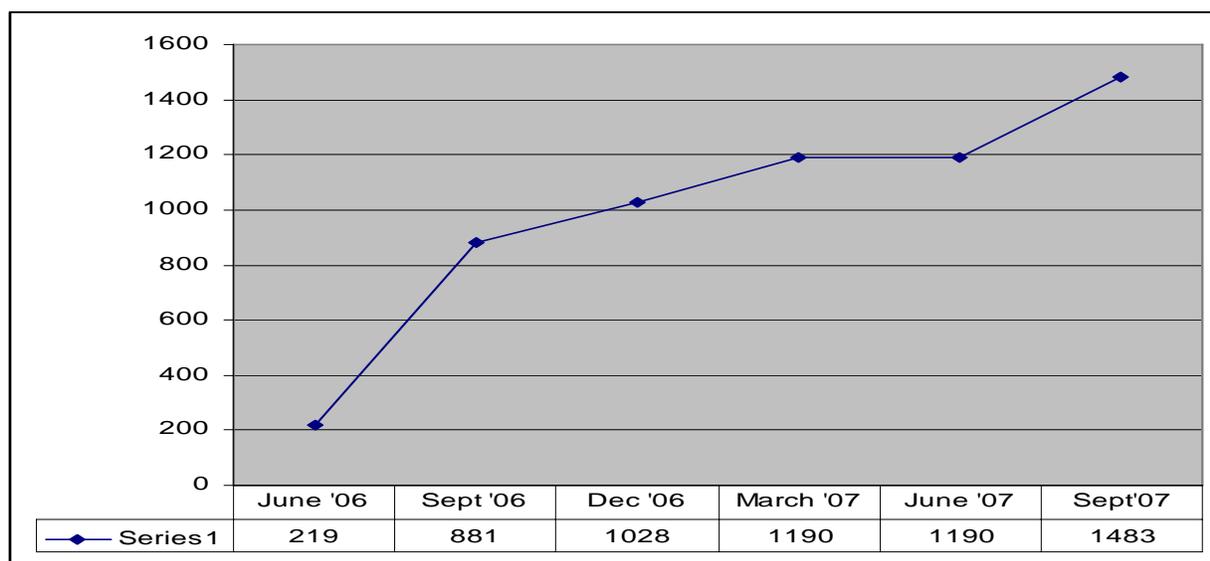
3.0 RESULTS

This section presents the results of the evaluation. Demand for IRI is addressed using population data from 2006 and 2007. The characteristics of those who participate in IRI are discussed next, where a profile on a number of teachers' characteristics is summarized. The third research question - whether or not learners exposed to IRI programs achieve basic skills in Somali language literacy and numeracy as expected at the Grade 1 level - is addressed next, with data being disaggregated by type of learner (IRI versus control), age, sex, and locality. To conclude the section, effectiveness of IRI is discussed based on perceptions, experiences and success stories involving a number of different IRI users and/or partners.

3.1 Demand for IRI

At its inception in 2006, 219 schools in Somaliland, Puntland and South Central Somalia (SCZ) received radios and started using IRI programs for Grade 1 and 2 learners. SIRIP field staff had worked with partners to introduce IRI to schools, train teachers, distribute radios and get schools started on using IRI. By September, 2007, the number of Grades 1 to 3 learners who were listening to IRI programs in the three zones had reached 200 108. Figure 1 shows the number of schools that were participating in IRI, also by the end of September 2007, was 1 483.

Figure 1: Schools that use in IRI Somaliland, Puntland and South Central Somalia (SCZ)



The number of primary schools and Primary Alternative Education (PAE) centres in all three zones is estimated at 2 324², which means that IRI has reached 63.8 percent of the schools in the targeted zones. Data was disaggregated to indicate the level of participation in each zone as shown in Table 7 below. Puntland has the lowest proportion of schools that use IRI. The uptake of IRI was slowest in Puntland, both in terms of reaching an agreement with the Ministry of Education and establishing a working relationship with them, getting EDC registered, recruiting personnel and partners, and the

² Survey of Primary Education in Somalia, 2005/06 (UNICEF, 2007)

logistics of distributing learning materials.

Table 7: Number of schools participating in IRI, by zone

	Somaliland	Puntland	SCZ
June '06	69	6	156
Dec '06	252	110	666
June '07	285	126	666
Sept '07	418	200	865
Total schools in zone	659	461	1204
<i>Percent reached</i>	<i>63.4</i>	<i>43.3</i>	<i>71.8</i>

Since inception, the SIRIP project has put a great deal of effort in promoting the program in the South Central Zone which is the largest and most populated. Learners here are also the most disadvantaged due to recurrent outbreaks of war, subsequent displacements and school closures. At the same time, the response to the program by communities and organizations has been extremely positive. Consequently, SCZ has the highest number of schools participating in IRI, supported by a network of partners. SIRIP is working with at least 23 partners in SCZ, each of which is responsible for a number of schools. Hence when a decision is made to participate in IRI, each organization typically registers a block of schools. The partners are also responsible for implementing IRI activities in their schools. This is in contrast with Somaliland and Puntland where SIRIP has the two Ministries of Education as its main partner, with a few other organizations assisting. In this case SIRIP has to carry out the bulk of implementation activities.

Demand can also be understood in terms of the types of audiences reached. For instance, IDP centers increased from 135 to 183 between March and September 2007, an indication that IRI use is growing with this population in SCZ.

3.2 Who participates in IRI?

While IRI is meant to enhance the learning experience of students primarily, teachers also participate in IRI as facilitators of learning by modeling the instructions of the radio teacher. Embedded in each IRI lesson is implicit teacher training as the radio supports the teacher by modeling of child centered pedagogic strategies. Other support includes effective use of locally available resources, traditional songs and games and effective management of the class including how to organize group work, lead student activities and knowing what to write on the board and when to write it.

A teacher questionnaire was administered in schools that were sampled for assessment. The questionnaire covered demographic information as well as certain teacher practices that are believed to be important for the success of IRI.

3.2.1 Characteristics of the learners

The mean age for learners that were sampled was 8 years 10 months. This is indicative of the age of the learners in the Grade 1 population. Learners were further categorized into three groups. The first group was that of 5-6 year olds, learners who are considered to be under-aged, assuming that the official school-going age in Somalia is 7 years old. The second group are learners who would turn 7

years old during the Grade 1 school year, or those who would have been at the official school-going age of 7 years at the beginning of the school year, and would turn 8 during the same school year. Learners who were 9 years and older were considered over-aged for Grade 1. Table 8 presents the frequencies in the three age categories.

Table 8: Learners by sex and age

Age Category	All learners (percent)	Male (percent)	Female (percent)
5 to 6 years	332 (10.1)	155 (9.4)	177 (10.9)
7 to 8 years	1173 (35.8)	596 (36.2)	577 (35.4)
9 years and above	1772 (54.1)	895 (54.4)	877 (53.8)
Total	3277	1646	1631

10.1 percent were under-aged learners, and as can be expected in areas where access to schooling is low, the highest percentage was over-aged learners at 54.1 percent. Girls were slightly younger than boys, fewer than boys in the over-aged category, and more than boys in the under-aged group. Differences by zone were even more dramatic, with Puntland having only 3.4 percent of under-aged learners, compared to Somaliland at 12.0 percent, and 68.7 percent of over-aged learners, compared to Somaliland at 50.7 percent.

3.2.2 Characteristics of the teachers

Fifty-one (51) teachers in the school where learners were assessed responded to the teacher questionnaire. Of these, 78.4 percent were male and 24.6 were female (about the same as the proportion in the general population). The youngest teacher was 20 years old, while the oldest was 63. All teachers were Somali speaking, and were using Somali as a medium of instruction in their classes. Two-thirds (66.7 percent) were either teachers of Somali Language, or had Somali Language as one of their teaching subjects. A similar proportion (64.7 percent) was either teachers of Mathematics, or had Mathematics as one of their teaching subjects. Teachers in the sample were well prepared; 88.2 percent have a teaching qualification, while 60.0 percent received IRI training.

The mean teaching experience is 9.1 years; the teacher with the lowest experience has only 1 year of teaching while the two longest serving teachers each had 30 years of teaching experience. Table 9 shows teaching experience for teachers in the sample.

Table 9: Teaching experience by sex of teacher

	All teachers (percent)	Male (percent)	Female (percent)
5 years or less	19 (37.3)	14 (35.0)	5 (45.5)
6 to 10 years	14 (27.5)	13 (32.5)	1 (09.1)
11 to 15 years	9 (17.6)	7 (17.5)	2 (18.2)
20 years and above	9 (17.6)	6 (15.0)	3 (27.3)

A higher proportion of female teachers had teaching experience of 5 years or less; (45.5 percent of female teachers, compared to 35.0 percent for male teachers). The proportion of female teachers

was also higher in the group with the most experience; (27.3 percent of female teachers, compared to 15.0 percent for male teachers). Female teachers can be positive role models for girls; hence SIRIP would be in favor of initiatives by partner organizations to increase participation of women in the teaching profession, as well as of actively recruiting untrained women and helping them to succeed as teachers through the teacher improvement component built into the IRI methodology.

3.3 Achievement in Somali literacy and numeracy

The original sample of learners selected for the study was from Somaliland, Puntland and South Central Somalia (SCZ). Learners from SCZ took the pretest at the beginning of the year, but IRI broadcasts were disrupted due to the war that erupted in December, 2006 which meant that learners did not receive the full complement of IRI programs. Hundreds of thousands of people were displaced, SIRIP and partner operations were disrupted and many schools were closed or turned into shelters for the displaced. The fighting and unrest persisted well into the school year and access to schools was not feasible at the time of the post test. As a result, SCZ did not participate in the posttest. Except in Table 15 where SCZ pretest scores are included, the results that are presented in this section are for Somaliland and Puntland.

3.3.1 Overall performance on the pretest and posttest

The mean pretest for IRI learners was 30.3 percent in Somali Literacy, while the posttest score was 61.8 percent. Learners registered a gain of 31.5 percent. In mathematics the pretest score was 51.0 percent, while the posttest scores was 71.0 percent as shown in Table 10.

Table 10: Pretest and posttest means for IRI learners, by subtest

Learners	Subtest	N	Maximum Score	Mean	Mean Percent	Mean Gain (%)
IRI Learners	Somali Pretest	852	34.0	10.3	30.3	31.5
	Somali Posttest	681	34.0	21.7	61.8	
Learners	Math Pretest	849	20.0	10.2	51.0	20.0
	Math Posttest	683	20.0	14.2	71.0	

The pretest scores were higher in Mathematics than in Somali Literacy. This is typical of performance at the Grade 1 level, mainly because children acquire more numeracy skills from non structured and non deliberate learning in their day to day lives than they do with literacy skills. Additionally, the Mathematics programs had, as a resource, IRI math programs that have been used and improved upon in other countries for over 20 years. The Somali IRI programs are the first IRI programs ever to be developed in Somali and therefore do not have other programs to use as a resource. Math scores in IRI programs generally show more significant learning gains than do literacy programs; conventional wisdom generally suggests that this is due to the fact that literacy is a much more visual medium and therefore more of a challenge in terms of using radio.

A paired-samples comparison indicates that differences in the pretest and posttest are significant,³ an indication that after a year of schooling children did benefit from a number of learning activities that schools undertake, including IRI. IRI methodology deliberately sets out to make learning

³ Somali Literacy Pretest/Posttest: $t=35.52$, $p=.00$; Mathematics Pretest/Posttest: $t=20.29$, $p=.00$

interactive and interesting, and to motivate all children to attend and participate.

Curriculum-based tests are ideally mastery tests, and in a situation where there are grade level curriculum standards learners are usually compared against those standards. Mastery data is also useful in providing feedback for corrective action. For instance, item and subtest level data can be used in this case to focus teacher training efforts on certain learning targets, or in future IRI programming. Table 11 below presents the percent of learners mastering each skill as well as mean scores for each skill area for IRI learners.

Table 11: Mastery by item and (skill area) domain

Test	Skill Area	Items	Non-Masters	Partial Masters	Full Masters	Mean for skill area
Somali Literacy	Reciting alphabets and Sounds	Item 1	0.1	4.5	95.3	5.6 of 7 (80.4 percent)
		Item 2	6.7	46.7	46.6	
	Comprehension of language (reading)	Item 3	19.0	30.5	50.5	4.7 of 9 (52.5 percent)
		Item 4	28.7	51.2	20.1	
	Production of language (speaking)	Item 6	1.8	5.5	92.7	4.1 of 5 (81.1 percent)
		Item 7	11.8	38.5	49.7	
	Production of language (writing)	Item 5	26.2	43.6	30.2	7.3 of 13 (56.0 percent)
		Item 8	42.8	32.4	24.8	
		Item 9	8.1	13.9	78.0	
Maths	Counting and writing numbers	Item 1	0.4	4.1	95.5	5.7 of 6 (95.8 percent)
		Item 2	1.8	11.2	87.0	
	Number operation	Item 3	7.9	6.7	85.4	3.3 of 4 (83.7 percent)
		Item 4	15.7	11.2	73.1	
	Place value and number sequences	Item 5	58.2	22.8	19.0	2.7 of 6 (44.5 percent)
		Item 7	18.2	13.1	68.7	
	Naming and drawing shapes	Item 6				2.4 of 4 (59.5 percent)
			6.9	58.1	35.0	

The analysis shows that in Somali literacy, learners were strongest in speaking skills. 95.3 percent were able to recite the alphabet correctly (see Item 1 in Appendix A) while 92.7 percent were able to generate conversation by answering a question about the days of the week. Apart from Item 9 where they were asked to write their names, they were weakest in reading (Item 4) and writing (Items 5 and 8). The weakest skill area in Mathematics was place value where only 19.0 percent of the learners were able to identify tens and ones (Item 5 in Appendix B). Only 35.0 percent were able to identify and draw simple shapes, while 58.1 percent could identify the shape but not draw it (see scoring rubric for Item 6, Appendix B).

3.3.2 Comparison of IRI learners and a non-IRI control group

The original design was to administer the pretest and posttest to IRI learners, and measure their gains. However the investigators were looking for opportunities to draw a comparison group, hence 10 non-IRI schools were recruited at the posttest stage. The control group had no pretest scores, but it is assumed that they would have got similar scores if they had taken the pretest (30.3 percent for Somali Literacy and 51.0 percent for Mathematics). Table 12 below compares performance of IRI learners on the posttest with that of control learners.

Table 12: Posttest means for IRI learners, by subtest

Learners	Subtest	N	Maximum Possible	Mean	Mean Percent	Mean Diff (%)
Somali Posttest	IRI Learners	681	34.0	21.7	61.8	8.0
	Control Learners	245	34.0	18.3	53.8	
Mathematics Posttest	IRI Learners	683	20.0	14.2	71.0	12.0
	Control Learners	245	20.0	11.8	59.0	

The mean posttest for IRI learners was 61.8 percent in Somali Literacy, compared to a posttest score of 53.8 percent for control learners. In Mathematics the IRI posttest score was 71.0 percent compared to a posttest score of 59.0 percent for control learners. The difference between IRI and control learners was wider in Mathematics. An independent samples t-test comparison of means between IRI and control learners yielded significant differences⁴, an indication of the ‘value-added’ by IRI.

3.3.3 Mean scores by sex

The number of girls and boys in the sample was about equal. Table 13 below shows non significant differences between boys and girls in the pretest scores.

Table 13: Pretest and posttest mean percent scores, by sex

Learners	Sex	Somali Pretest	Somali Posttest	Math Pretest	Math Posttest
IRI	Male	30.1	64.6	51.3	73.2
	Female	30.7	62.9	50.6	68.0
Control	Male	-	49.8	-	58.3
	Female	-	58.0	-	59.9

Girls in the control group performed significantly better than boys in Somali literacy. Motivation to succeed in a school culture where girls are a minority has been posited as a possible explanation for this result, coupled with the conventional wisdom that girls are more gifted in verbal abilities.

However, the result was different amongst IRI learners where boys scored higher in both the Somali and Mathematics posttests. The differences in Somali were not significant, while differences in Mathematics were significant. Superior performance of boys was not expected because the IRI methodology typically nurtures a learning achievement that gives equal opportunity to boys and girls. An analysis of several mid-1990s IRI programs showed that IRI reduced gender gaps; where girls’ baseline achievement was much lower than the boys’, their post-test achievement was approximately the same. The overall gain for girls was greater. This finding was demonstrated for upper primary school science in Papua New Guinea, lower primary school English in South Africa, and adult basic education in Honduras, the implication being that neither the age of the learner nor the subject taught was an obstacle to girls’ achievement⁵. Similar findings were reported in later studies in the

⁴ Somali Posttest: $t=4.89$, $p=.00$; Math Posttest: $t=8.46$, $p=.00$

⁵ World Bank, 2005. *Improving Educational Quality through Interactive Radio Instruction: A Toolkit for Policy Makers and Planners*. Development Research Group, Working Paper Series No. 52, Washington.

Democratic Republic of Congo, Guinea, Haiti, Mali, Nigeria, Tanzania and Zambia. In this evaluation however, IRI did not work as well for girls as it did for boys, hence more effort should to be directed to redressing this discrepancy.

3.3.4 Mean scores by age

The age of each learner was recorded during the pretest, near to the beginning of Grade 1. The mean age of Grade 1 learners was 8 years 10 months, compared to 7 years old which is the recommended age for Grade 1. Age was recorded into three groups, the first being learners who were younger than the recommended age (5 to 6 years old); the second group was Grade 1 age learners (7 to 8 years), while the third group was 9 years or older. Table 14 shows that age had a positive relationship with the performance of the learners.

Table 14: Pretest and posttest mean percent scores, by age category

Age Category	Learners	Somali Pretest	Somali Posttest	Math Pretest	Math Posttest
5 and 6 years (109)	IRI learners	23.1	49.7	47.8	62.6
	Non-IRI learners		26.1		48.5
7 to 9 years (634)	IRI learners	28.7	61.6	48.9	67.9
	Non-IRI learners		52.3		58.7
10 years (358)	IRI learners	32.9	68.1	52.9	74.2
	Non-IRI learners		59.0		60.8

As expected, mean scores (percent) increased with age, with learners who were below the recommended age for Grade 1 performing the lowest, and those who were oldest (10 years and above) posting the highest performance in both the pretest and post test. Learners from all age groups made significant gains, while mean comparisons within each age category were also significant⁶. When comparing learners within their own group, the youngest learners gained more from IRI compared to the non-IRI control group in both Somali and Mathematics. It is not surprising that IRI would work best with the youngest learners since IRI programs for early childhood development in other countries have shown it to be a methodology that is consistent with effective learning strategies at the lower ages.

3.3.4 Mean scores by zone

Overall, all learners performed well. There were differences in performance by zone in the Somali literacy and Mathematics pretests and posttests as shown in Table 15.

⁶ 5-6years (Somali: $t=3.33$, Math: $t=2.72$); 7-8 years (Somali: $t=4.00$, Math: $t=7.19$); 9 years and older (Somali: $t=2.17$, Math: $t=4.12$); $p = .05$ for all t-test.

Table 15: Pretest and posttest mean scores, by province

	Subtest	N	Mean	Mean Percent
Somali Pretest	Somaliland	653	11.0	32.4
	Puntland	199	8.0	23.5
	SCZ	2146	13.2	38.9
Somali Posttest	Somaliland	675	18.7	55.0
	Puntland	251	26.6	78.2
	SCZ	-	-	-
Math Pretest	Somaliland	652	11.4	57.0
	Puntland	197	6.1	30.5
	SCZ	2104	7.0	35.0
Math Posttest	Somaliland	677	13.0	65.0
	Puntland	251	14.9	74.5
	SCZ	-	-	-

First, there were differences in learners' pretest scores. Puntland posted the lowest pretest scores. Learners started significantly lower in Mathematics (30.5 percent) compared to Somaliland (57.0 percent). Conversely, Puntland gained more as shown by the posttest scores. The mean score for the Somali literacy posttest was 78.2 percent compared to Somaliland at 55.0 percent. Similarly, the mean score for the Mathematics posttest was 74.5 percent compared to Somaliland at 65.0 percent.

Possible reasons why Puntland learners performed better in the posttest include the fact that their children were older. Overall, older learners performed better than younger learners as shown in Table 14 above. Secondly, Puntland received broadcasts six times per week, while Somaliland received it four times per week. Third, Somaliland received broadcasts from a shortwave signal only (which monitoring reports indicated were sometimes affected by climatic conditions) while Puntland broadcasts came via both shortwave and a local FM station with a clearer signal.

3.4 Contextual factors which promote IRI effectiveness

Like any other methodology, certain factors are necessary for effective learning using IRI. A well functioning radio and clear signal are necessary; teachers have to be trained in the IRI approach and to understand their critical role in the three way relationship between the radio teacher, the learners and themselves. They need to use the radio consistently, follow instructions carefully and ensure learners participate as directed by the radio teacher. Finally, they must use the teacher's guide to prepare for the lessons and follow through with activities prescribed for the period before and after the broadcast. These and related issues were the subject of the questionnaire administered to a total of 41 teachers in IRI schools sampled for assessment.

In the schools that were sampled for assessment, 60.0 percent of Grade 1 IRI teachers received face-to-face IRI training. The original strategy was to provide the necessary training and preparation for teachers in schools that were ready to use IRI. However, many of those who were trained did not go on to participate for various reasons. In fact, 3 of 10 teachers in non-IRI control schools were also trained.

A total of 120 Math and 80 Somali lessons were broadcast during the school year. One third of the

teachers (29.3) reported that their radios worked well through the year hence they never missed any broadcast. The number goes up to 73.2 percent if you include those who missed only 10 days or less due to a radio malfunctioning or a poor radio signal, as shown in Table 16.

Table 16: Teachers missing broadcast due to radio problems

Days Missed	N	Percent	Cumulative Percent
0 days	12	29.3	29.3
1 to 10 days	18	43.9	73.2
11 to 20 days	6	14.6	87.6
21 days and over	5	12.2	100.0
Total	41	100.0	100.0

The table further shows that 26.8 percent missed 11 or more days, corresponding to 11 or more lessons missed. Teachers' participation on pre and post broadcast activities is shown in Table 17.

Table 17: Teaching time spent on IRI pre-broadcast and post-broadcast activities

Time on broadcasts	Pre-broadcast	Post-broadcast
No time at all	31.7	29.3
1 – 10 minutes	53.7	63.4
11 – 30 minutes	12.2	4.9
31 minutes and over	2.4	2.4
Total	100.0	100.0

SIRIP provides a teacher's guide to accompany the radio lessons. The SIRIP guide is more than just a guide; it lays out the content of each lesson in more detail than the guides that are typically prepared for other IRI projects. SIRIP anticipated the challenges with radio reception from the onset and wanted to ensure that teachers could still conduct a good IRI lesson even if reception was poor.

About one third of IRI teachers did not conduct pre-broadcast and post-broadcast activities. IRI programs have activities prescribed for the period before and after the broadcast that teachers must complete to introduce the lessons, to clarify content covered by the broadcasts or to provide practice and reinforcement. One in three teachers reported that they do not use those segments of the guides (31.7 percent for pre-broadcast activities and 29.3 percent for post-broadcast activities). The majority of the teachers (53.7 percent for pre-broadcast activities and 63.4 percent for post-broadcast activities) spent up to 10 minutes on the activities, while the remaining teachers spent considerable time on the activities. Evaluations in other countries have shown that learners benefit greatly from pre broadcast activities at the beginning of the lesson and reinforcement after the broadcast particularly where teachers are untrained or undertrained. For this reason SIRIP's teacher training must emphasize the importance of these activities. During training and/or monitoring, teachers' attention should be drawn to the "during the lesson" part of the guide for each lesson which they should follow carefully in the case of poor reception or no radio signal.

While 65.8 percent had the teacher's guide and used it part of the year or all year round, 34.1 percent

did not have the teacher's guide at all. They relied solely on the instructions from the radio teacher. The majority of the IRI teachers (63.4 percent) reported that they had no materials apart from the teacher's guide. At 9.8 percent, only a small proportion of those who used the teacher's guide found it too difficult to understand. In light of these findings, SIRIP must speed up efforts to get guides to all participating teachers and encourage them to use the guides at all times.

3.5 Effectiveness of IRI: perceptions and experiences

In many parts of Somalia, among itinerant populations and where war has become a daily occurrence and uncertainty has prevailed for the past 16 years, radio is becoming the only constant in people's lives. For many learners, and for displaced children in particular, SIRIP radio broadcasts are the only source of learning they receive. Feedback in this section summarizes perceptions and experiences about the effectiveness of IRI radio programs from teachers and learners in schools, from other learners who represent 'shadow audiences', and from parents and SIRIP partners.

3.5.1 Feedback from parents and community members

Feedback from ordinary families indicates that SIRIP has been a success in a number of ways. First, **learners get continuity of their learning at home** as illustrated by the experiences of 8-year old Najmo and her family. When fighting erupted in her town, Najmo happened to be in a school which followed SIRIP programs so her family did the only thing they could do to keep their child in school – they turned on the radio. It was, in fact, Najmo who asked her parents to tune in to the IRI radio lessons for her every morning. Najmo had this to say about the programs;

"I like the radio lessons too much because I learnt many lessons without going to school. I am happy now, but I truly hate the fighting. I am scared about the bullets...it is not getting stopped."

Second, **SIRIP gives parents rare insights into what happens in the school and engages them in children's learning;**

"...my daughter is busy all morning with the radio programs. She has great enthusiasm for these radio programs and made us also love the program. I was really amazed at how fast she memorized the lesson and stories and songs. My daughter is intelligent!"

Najmo's mother

SAFE, one of SIRIP's partners in the south also reported similar sentiments from parents: with one of their major goals to influence parents to appreciate the value of education and to send their children (especially girls) to school, they said:

... with SIRIP, "people simply want to participate without being pushed ... they come ... just to listen, to hear, to learn, to sing and ... even to DANCE!"

*Mohamed Moalin,
Chairman, SAFE*

SAFE explained their appreciation of the radio programs saying that SIRIP has 'demystified' education by bringing it to the homes and the streets and now anyone and everyone is able to listen

anywhere and know exactly what their children are learning in school. And because the parents like what they hear and now know what is being taught in school, they are more inclined to encourage their children to attend.

Third, **SIRIP gives parents feedback on whether or not children understand what they are learning and provides the opportunity to assist (where they can) in their learning;**

“She asks me questions about her lessons and she required us to listen to the radio programs with her every day and answer her questions”

Najmo’s father

In Najmo’s town programs are broadcast on a clear local FM radio signal several hours a day. Hence, SIRIP has become part of the children’s daily lives. In this and in similar cases, SIRIP broadcasts are not only an effective means to educate a child, but in difficult times, sometimes *it is the only* path to education available to many families.

Fourth, there is anecdotal evidence that **SIRIP programs have a wide listenership** consisting of an interesting mix of shadow audiences. People are curious about the program and converse about it in some of the remote villages of Somalia. For instance, in a recent SIRIP monitoring visit in the town of Borama, staff members were pleasantly surprised to discover men in cafés debating the source of the program. The conversations included animated discussions about SIRIP drama characters and storylines – an indication of active listening among this non target audience. However, it has not been possible to determine the size or characteristics of the shadow audience.

People in Dhoqoshay village in Buroa also gather in cafeterias and public areas every morning and tune in to what they call “The Fox Channel” through which they listen to the IRI lessons as they conduct other activities. They are particularly fascinated by the clever female fox character in the drama segments of the radio programs. The fox lives with human beings, is learning human ways and often talks about how she is no longer wild and beastly, constantly making the audience laugh by telling jokes and being funny about the new things she is learning. From time to time, she goes back to the animal kingdom and shares all the education she has gained with her old animal friends. The fox song, which admonishes the fox from scaring the baby goats, is very popular with this shadow audience.

A cattle herdsman in Sanaag who happened upon the SIRIP programs by chance reported how the radio lessons are making a difference in his life:

“One day while I was tuning the radio, I accidentally found this channel which attracted me ... I liked it a lot because it is the only channel where I can find a language that I understand for long periods of time since the BBC only comes on for half an hour. Since I discovered this channel, I enjoy listening to the radio lessons and I love them because they are very interesting and I like to educate myself as I look after my animals no matter how long it will take to do that.”

Mohamed, 19-yr old herdsman

The radio also offers parents who are unable to meet financial demands of sending all their children to school another option of ensuring their children get an education as illustrated by the story of Bashir Hassan, a shopkeeper at Bakara market in Mogadishu.

Bashir is a father of six children all under the age of 14. His shop is very small though he sells a wide variety of items. At the front of the shop are two big loud speakers conspicuously hanging from the roof. Bashir initially connected the speakers to his radio to attract people's attention and hopefully get more business. Bashir loves to listen to programs from Horn Afrik and has become a consistent and faithful listener of IRI programs from Horn Afrik. As a result, a number of people at Bakara market have become very interested in the programs and always hang around Bashir's shop when SIRIP programs are on air.

Like the herdsboy, Bashir first accidentally tuned in the SIRIP program from Horn Afrik in April 2006. The lessons captured his interest for many reasons. He said,

"I have two daughters and a son of school going age and do not afford to send all of them to the school. Therefore, I have sent my son to the school and left my daughters at home ...but fortunately, when I heard this program I immediately realized that it will be good alternative for any child like my daughters, then I bought exercise books and pencils and asked them to listen in. Unfortunately I can not teach them because I am working during broadcast hours but their mother helps them."

Another interesting audience consists of young shoe shine boys in the streets of Mogadishu and Garowe who have been observed singing along with SIRIP songs and debating the life skills segments from their small portable radios. SIRIP lifeskills objectives in particular target young children, youth and adult audiences, in an effort to influence attitudes and behavior.

3.5.2 *Feedback from schools (teachers, learners, or education authorities)*

Feedback from the school setting indicates that **SIRIP programs enrich learning and have an impact that lasts beyond the classroom.** An example would be how "the fox" mentioned above has become a legend. The fox is quick witted and entertaining. One SIRIP partner in South Somalia reported a story entitled "even a fox can learn." The story originated from SIRIP radio lessons and became a strategy for teaching children and encouraging young children. When children are reluctant to complete their learning tasks, one of them says "even the fox can learn... why can't you?"

"Even the fox can learn" is used as a slogan to denote that any child is better than a fox and to encourage any children who do not put effort in their learning. Parents also use the phrase when children are reluctant to go to school or learn. In their daily conversations with children, parents use phrases such as "Please learn as fox learned" or, "go to school to compete with and win against the fox." As a result, learning becomes an interesting and goal-driven activity for children when they set out to compete and win against the witty fox. The fox character has become a household name and is synonymous with working hard in school.

Learning through SIRIP programs captivates children: the headmaster of one school decided to stop the programs because students in upper grades were also interested in listening to programs. According to the headmaster, students in other non-IRI classes were interested in the programs' songs and activities and would say they needed to use the bathroom. Instead of going to the bathroom they would hide and stand near the IRI classrooms. As a result, the headmaster decided to discontinue the program. Staff convinced the headmaster to restart the program and helped him create a plan for older children to join in. SIRIP partner ADRA reported similar challenges and

offered the following suggestion:

The programme should be extended to include other grades depending on the availability of resources. This is important because some pupils from other grades prefer to absent themselves from their various classes but attend the radio programme in lower grades. This in a way is disrupting learning as planned. Some pupils admitted to staff that they often skipped their class lessons so as to attend a radio class.

Teachers appreciate and value SIRIP programs: Teachers have also found other ingenious ways to share the radio and programs. One school in Borama, Somaliland records the programs in the mornings and plays them again for students in other shifts. In another school, the radio is attached to speakers so that programs can be shared by several classrooms.

A similar situation was found in Jowhar in the South Central zone, where two teachers needed each of their classes to follow the radio lessons at the same time. Rather than wait for the second radio they had requested from EDC, they used their creativity to devise a strategy to have both classes listening at the same time by connecting a long wire and microphone from the radio in one class to a speaker in the second class.

3.5.3 Feedback from partner and non-partner organizations

As mentioned above, SIRIP partners play a critical role in implementation, monitoring the program on the ground, and providing feedback. So far, SIRIP has received very useful feedback from partners. ADRA for example provided further indication of the important role the radio lessons play in motivating students and boosting attendance:

Teachers assessed the program as useful to them as it enables them to make the lessons `more interesting besides enhancing proper class management. The pupils are always very motivated. There is high attendance rate during the IRI sessions. If the attendance rate and the high motivation on the part of the teachers and the pupils can be used as proxy indicators of the impact of the teaching approach on learning, it would thus be assessed as very positive.

And the commitment teachers display in following the radio lessons:

It is noteworthy that all schools are keenly following the timetable in their coverage of the radio lessons. Those schools without radios are also able to tune to other personally owned radios and follow the instruction. This of course means that an innovative teacher is still able to conduct lessons using their own radio on occasions of malfunctioning of the EDC provided radios.

As well as the critical support provided by the radio to untrained or undertrained teachers, especially in the remote hard to reach areas:

The IRI program serves as a good complement to the poor teaching skills possessed by the rural teachers, most of whom are not professionally trained as teachers. The location of the schools makes supervision by the Ministry of Education staff difficult considering that the supervisory arm of the ministry is under funded. The IRI has some element of self supervision as the sessions are provided at specific times covering uniform content for all schools. This creates some level of "equity" between schools from poor economic settings and those from the more affluent neighborhoods - ADRA report.

Other partners report how the radio has provided a sense of continuity amidst war:

“In fact, I can say we have the ‘experience’ of war” explains the Director of the Somali Association of Formal Education (SAFE), one of SIRIP’s implementing partners in the SCZ where in the absence of a fully functioning government, organizations such as SAFE continue to shoulder what typically is a government’s responsibility to provide education. The Director made it clear how the ‘experience of war’ can, in a most ironic way, become ‘handy’ and be used positively under extremely difficult circumstances. He explained that the fleeing was not always as random as one might think. People *“moved to safer ground ... but ... not very far”*. In many cases, they knew exactly where to go on the outskirts of the city or in nearby towns to escape the intense fighting. And it also turns out, communities in the south have a very clear sense of priorities and took care to ensure that “some sort of learning continued” through it all ... *“they took the radio, they took the blackboard, some chalks ... and teachers went there”*.

Due to the war, SIRIP was unable to conduct the post test in SCZ at the end of the school year. However, SAFE reports that in the Benadir, Lower Shabelle and Middle Shabelle areas where they have schools, SIRIP has, without a doubt, had an impact on both children and parents. They love the *“sounds, songs, poems, proverbs ...”*

After monitoring the teachers using IRI in their schools in Puntland, ADRA simply summed it up as follows:

The introduction of the interactive radio programme enriched the teaching, with consequent positive contribution to increased enrolment and retention of children in school. Teachers are ill prepared with learning aids which makes lessons boring. The radio program helped to correct this.

4.0 DISCUSSION AND RECOMMENDATIONS

This section discusses select findings, followed by conclusions and recommendations for consideration by SIRIP as well as the respective Ministries of Education.

4.1 Discussion

The critical findings of the evaluation are that IRI is growing and is increasingly becoming part of the educational landscape in Somalia in terms of the number of schools that are participating, the number of teachers that have been trained in IRI, and the ongoing production of IRI programs for additional grades. An equally important result is that IRI learners are performing significantly better than their counterparts in non-IRI schools in both Somali literacy and Mathematics.

The evaluation also shows that girls are participating and are generally learning as well as boys, and that girls are performing better than boys in some areas and not as well as boys in other areas. However, these results indicate IRI has not been the equalizer that it was hoped to be in the performance of boys and girls. Also, while SIRIP has developed a good network of partners, more should be done to identify partners that can assist in reaching IDPs and other out-of-school populations whose needs are great and to whom IRI broadcasts would be perhaps even more beneficial.

4.1.1 Demand for IRI

The evaluation revealed that there is demand for IRI. 63.8 percent of schools participate in IRI. The take up of Grade 3 broadcasts by the end of the school year has been excellent, with more than 70 percent of the classes already tuning in. However, there are differences in IRI participation between the zones (71.8 in SCZ, 63.4 percent in Somaliland, and 43.4 percent in Puntland). There is still opportunity for growth, both in terms of the number of additional schools that need to come on board and the expansion of broadcasts to include Grades 4 and 5, which will occur in the coming months. With only 43.4 percent of the schools participating in Puntland, SIRIP needs to devise a strategy to increase participation in IRI for Puntland schools. As suggested above, the strategy should include identifying more NGOs to work with, as well as reaching more schools or learning centers for IDPs and other out-of school populations.

It was noted during the course of the evaluation that IRI has been particularly useful as a means of ensuring educational continuity for children whose schooling is disrupted, in that they can listen to the radio at home or at the places where they seek refuge. It was reported from conversations with partners that IRI is being used as part of play by younger children of non-school age. Seeing children singing along with the IRI radio programs and performing activities has become a common scene in many Somali towns. These are powerful first experiences that initiate children into learning as an enjoyable activity.

4.1.2 Teacher and learner characteristics

One of the most encouraging occurrences in the Somali education system is that girls are increasingly enrolling in schools. The population of learners in IRI schools, which is more than 60 percent of all schools in Somalia, is 43.2 percent female as noted earlier. Feedback from partners

suggests, also, that IRI is a useful tool for increasing girls' enrolment because it gives parents a glimpse of what happens in school, hence making them less suspicious and more likely to allow girls to attend. It is important, though perhaps harder, to push for enrolment of the remaining 6.4 percent to achieve gender parity between boys and girls, and so some deliberate actions should be undertaken by the MOE and its partners to ensure that girls stay in school. With female teachers in the country making up only 22.8 percent of all teachers, one strategy would be to increase the number of female role models in the schools, and to make sure that they receive training that prepares them to create learning environments that empower both boys and girls.

One method of increasing the number of female role models within the existing IRI program would involve encouraging the respective MOEs to recruit more female teachers, even if they are untrained. SIRIP could then train them in IRI methods before they start teaching lower grade classes. With the continuous training that they receive from consistent guidance and modeling of good teaching practices through the radio teacher, and the right motivation, untrained teachers have a high chance of succeeding as teachers. EDC has extensive experience in other countries with IRI facilitators with no formal teacher training functioning effectively as teachers and getting children to learn as well, or better than, children in schools with trained teachers. If funding permits, current programming could be enhanced by special teacher training IRI programs such as those developed in Mali and Guinea.

Only 35.8 percent of learners in the sampled schools were at the age of 7/8 years recommended for Grade 1, and in the case of SCZ and Somaliland an additional 10 percent of the learners were younger. Other than that, Grade 1 learners were older than the recommended age of 7/8 years old (54.1 percent). While distance, poverty, availability of schools and many other reasons contribute to why Somali children don't start school at the right age, issues of stability and safety also seem to explain the late start, at least in Puntland and SCZ. Parents are less likely to allow younger children to be out of the home. IRI becomes a useful tool in that learning becomes accessible from anywhere - homes, IDP camps, non formal centers, under trees and other places not confined to the walls of a conventional classroom.

Another reason why children start formal schooling late may be that an overwhelming majority attend Koranic schools for 1 to 2 years before they enroll in Grade 1 at a non-religious school. From the children's performance on the pretest, it was quite evident that there is learning in the Koranic schools, particularly in numeracy skills (the pretest score for mathematics was 57.0 percent in Somaliland). It is not surprising that IRI would work best with the youngest learners in that it is a methodology that is consistent with what we know about learning at the lower ages. But now that IRI is increasingly becoming known as a learning tool, and IRI children in the 5-6 age category registered the greatest learning in comparison to their non-IRI counterparts, there is evidence that IRI programs would benefit younger learners. There may be an opportunity for SIRIP to partner with Koranic schools and/or target new programming specifically for this age group.

4.1.3 Learning and performance

IRI has been shown to have a significant impact on learning, both in terms of overall gains for IRI learners and the difference between IRI learners and non-IRI control learners. IRI methodology deliberately sets out to make learning interactive and interesting. Using song, drama, games and a variety of activities, learners are required to listen attentively and respond actively to different activities several times during the broadcast. Implicit in each lesson are teacher training strategies

designed to motivate the learners and increase the chances of success for both teachers and learners. For example, the radio teacher actively provides guidance in organizing the class during the lesson by asking children to complete specific tasks using different approaches under the guidance of their teacher. In addition, the lessons make a point of reviewing and reinforcing skills and concepts taught in earlier lessons and suggesting activities for the teacher to conduct with the learners before and after the broadcast.

In the comparison between IRI and control learners, IRI learners were shown to have registered more gains in Mathematics than in Somali Literacy. A number of explanations for the bigger effect size in Mathematics may be postulated. For example, IRI programs were designed around richer Mathematics content delivery that exceeds the expectations of the Somali Mathematics curriculum. The IRI Math programs have been used and improved upon since the 1970s when the original IRI series was created in Nicaragua. Literacy via IRI on the other hand is very new and much less likely to be used and improved upon in other countries. Moreover, one can transfer Math skills between cultures fairly easily by translating the programs. Somali literacy programs, on the other hand, are the first ever developed and can only be used in Somali-speaking regions.

The comparison between boys and girls yielded two important results. First, boys and girls performed at par on the Mathematics test, but girls in the control group performed significantly better than boys in Somali literacy. Research amongst other groups has suggested that girls could have stronger innate verbal abilities. Superior performance of girls could also be due to motivation to succeed in a school culture where girls are a minority. However, more assessments of a wider group of Somali learners are recommended to see if the results would yield consistent findings over time across both subjects.

Second, girls in the IRI group performed as well as boys in Somali literacy, but significantly lower in Mathematics. The results suggest that IRI has not worked as well for girls in Mathematics so far. The IRI methodology has been successful in providing equal opportunity to boys and girls, and being an 'equalizer' in learning achievement in other countries. SIRIP should examine its programming, teacher training, and actual classroom practices to ensure that IRI practices are adhered to and that girls are not being unduly disadvantaged in any subject. Also, if motivation to succeed in a school culture where girls are a minority is indeed a strong factor, SIRIP should take advantage of this and find additional strategies to make Mathematics learning more accessible to the already motivated girls. As suggested above, one possible action would be to increase role models for girls by bringing more women teachers into the schools. This could also have the added benefit of female teachers spending more time with girls on the crucial pre and post broadcast activities where having male teachers spend such time with girls in this conservative society may pose some challenges.

Differences in performance were observed between Somaliland and Puntland. Puntland started lower in both Somali literacy and Mathematics at the beginning of the year, and finished higher on both Somali and Mathematics posttests. Starting lower provides more room for growth. However there are three other reasons that may explain superior performance in Puntland. First, there were differences in the broadcast arrangements. Most Puntland sample schools use a local radio station that broadcasts on a clear FM frequency, while Somaliland receives its broadcasts via shortwave which is not as reliable as FM. Second, Puntland received broadcasts on every school day (six days per week) while Somaliland had only four broadcasts per week. Third, Puntland learners were older. Older learners performed better than younger ones. SIRIP should continue to work with the

shortwave broadcaster for optimum radio signal and to seek out possibilities of using local radio in Somaliland. In addition, SIRIP should also consider increasing the number of broadcast days in other regions.

4.1.4 *Contextual factors and feedback from users*

IRI seemed to have worked particularly well because participating teachers are well prepared. Even though the Somali system has many untrained teachers, self reports indicated that most of the ones surveyed were qualified, experienced, and the received IRI training. 73.2 percent reported that they missed only 10 or fewer broadcasts, which means that reception was good and they had a functioning radio most of the time. Teachers were not using pre and post broadcast activities as expected, the main reason being timetabling issues. This anomaly needs to be addressed in subsequent teacher training sessions. More importantly, teacher training sessions should be used to explore other more creative ways to use the content offered in pre and post broadcasting segments to circumvent timetabling issues. Monitoring visits have also indicated a lack of ownership in cases where head teachers are not supportive of the IRI initiative. In Puntland, SIRIP has started efforts to train head teachers as a way to expose them to IRI and get them to support the teachers in their schools more.

Feedback from parents and community members indicates that IRI programs have restored some semblance of normalcy as some learners have continued to study from the safety of their own homes or even in displaced people's camps. They also report that SIRIP gives parents rare insights into what happens in the school and engages them in their children's learning, gives parents feedback on whether or not children understand what they are learning, and provides the opportunity to assist in their learning. One particularly important contribution has been the Friday "Children's Hour" that is part of Horn Afrik's to SIRIP's efforts. This special call in show (designed along the lines of "*It's Academic?*") is listened to by both children and adults on the day off school and work. It informs parents and energizes children by consolidating the week's learning through fun quizzes, competitions and prizes for winners. This amount of interest from parents increases the likelihood that they will send their children to school and at a younger age because they see them enjoying learning.

Schools and the organizations that work with schools report that SIRIP programs enrich learning and have an impact that lasts beyond the classroom. SIRIP is reported to be doing particularly well in standardizing classroom practice and helping fill in the gap for learners where the quality of classroom instruction is poor.

4.2 **Recommendations**

A number of suggestions for improvement were made in the discussion of findings. Some of these are recommended for follow-up action by SIRIP and the respective MOEs.

- 1. Intensify efforts to reach out-of-school populations who require assistance the most.** The need is perhaps greatest in Puntland where the IRI participation rate is lowest and amongst out of school populations in all regions, including the large numbers of IDPs as the war in the south continued to displace hundreds of thousands throughout the school year. One way to bolster participation would be to expand SIRIP's partner network by identifying NGOs that work with IDPs and other out-of-school populations.

- 2. Working in partnership with SCOTT, assist MOEs to recruit and appoint untrained female teachers to teaching positions while SIRIP trains them in IRI, to increase role models for girls in the schools.** In view of SIRIP's goals to increase participation of girls in school and to promote their success in learning, SIRIP should consider requesting that the MOE recruit more female teachers who can be trained in IRI, coached and monitored more frequently so as to help them acquire the skills that will facilitate their success as teachers. SIRIP should take advantage of existing partnerships with Save the Children, CARE, ADRA and any other SCOTT implementers to increase the likelihood of success with this effort.
- 3. Explore opportunities for partnership between SIRIP and Koranic schools and consider providing programming for pre-school learners in the general population.** Koranic schools are the predominant providers of preprimary education in Somalia. Because Grade 1 programs have been shown to work as well for 5-6 year old learners (the majority of which are in the Koranic schools), SIRIP should explore a working relationship with the intention of enhancing the quality of education by bringing IRI programs to the schools. However, caution should be exercised and efforts made to ensure that children are provided with the appropriate grade level programming. Because some of the children attending Koranic schools are very young, it may be more appropriate for SIRIP to expand its programming to include early childhood IRI programs. This would not only provide developmentally appropriate and valuable learning, but would also expose families and children to IRI so they are familiar with it when they reach school age.
- 4. Explore alternatives to broadcasting.** Several IRI projects are exploring the use of or already using technology alternatives in areas where broadcasting is difficult. For example, the IRI programs could be loaded onto an inexpensive MP3 player or iPod and paired with wind-up or solar-powered speakers so that pastoralists, displaced groups, adults or youth in alternative basic education programs who are currently unable to access SIRIP broadcasts due to poor signal or other commitments during regular broadcast times could have access to them at any time. Such alternatives would ease the challenges encountered with poor shortwave reception in some areas or frequent closures of local broadcasters attributed to the political instability in the south.

APPENDIX A: SOMALI LITERACY TEST – 2006

1. Recite the Somali alphabet, consonants 1. Sheeg <i>B, T, J</i> Af-Soomaaliga.		<i>Ask the learner to recite the alphabet as you listen to it.</i> <i>Sequence is not important</i>	Maximum 2 points		
			Mumbles something which is not the alphabet, or fails to attempt the task	0	
			Recites consonants, but not all of them	1	
			Recites all consonants correctly	2	
2. Identify the sounds that are presented to you. 2. Aqoonso dhawaqa ereyga aan ku dhawaaqo	LI	BA	HE	Maximum of 5 points (1 per correct sound)	
	HO	BI	LE	Mumbles something which is not audible, or fails to attempt the task	0
	HI	FU	BO	Identifies the sound correctly	1
	XII	REE	HAA	_____ out of 5	
	KUU	QEE	FII	<i>Make sure learner understands the task.</i>	
3. Read the following words 3. Akhri ereyada soo socda:	CIR	<i>Present words in a flash card ans ask the learner to read it.</i> <i>Allow a second chance if necessary</i>		Maximum of 3 points (1 per word)	
	CAB			Mumbles something which is not audible, or fails to attempt the task	0
	BOOD			Reads the word correctly	1
				_____ out of 3	
4. Read the following words 4. Akri ereyada soo socda	KOOR	<i>Present words in a flash card ans ask the learner to read it.</i> <i>Allow a second chance if necessary.</i>		Maximum of 6 points(2 per word)	
	DAMBIL			Mumbles something which is not audible, or fails to attempt the task	0
	GARAAFO			Attacks the word with the correct sound, but does not read the whole word correctly	1
				Reads the word correctly	2
				_____ out of 6	

5. Write any two words that you know 5. Qor labo erey oo aad taqaano		<p><i>On a separate answer sheet provided, ask the learner to write any two words of their choice.</i></p> <p><i>During scoring, write the number of syllables against each word before scoring it and say it loud to determine the number of syllables.</i></p>	Maximum of 6 (Up to 3 points per word)	
			Writes something that is not legible, a nonsense word, or fails to attempt the task	0
			Writes a one/two syllable word that is recognizable, but not spelt correctly	1
			Writes a short word of one or two syllables correctly; OR Writes a complex word of three or more syllables with one spelling mistake;	2
			Writes complex words of three or more syllables correctly	3
_____ out of 6				
6. Recite the seven days of he week 6. Sheeg maalmaha todobaadka		<p><i>Ask the learner to recite the days of the week as you listen to it.</i></p> <p><i>Sequence is not important</i></p>	Maximum of 2 points	
			Mumbles something which is not the days of the week, or fails to attempt the task	0
			Recites the days of the week, but not all of them	1
			Recites all the days of the week, correctly	2
7. Tell me the difference between the two pictures. 7. Sheeg farqiga u dhexeeya labadan sawir.		<p><i>Present pictures to the learner ask him/her to tell you as many differences as they can see</i></p> <p><i>You can prompt by pointing out one such difference to clarify the task if need be.</i></p>	Maximum of 3 points (1 for each difference)	
			_____ out of 3	
8. Write this sentence 8. Qor weedhan soo socota	<p>I am a student</p> <p>Anigu waxaan ahay arday</p>	<p><i>Dictate a sentence and ask the learner to write it on the answer sheet</i></p>	Maximum of 4 points	
			Writes something that is not legible, a nonsense word, or fails to attempt the task	0
			Writes one word correctly, even though there are spelling errors on others	1
			Writes two words correctly, even though there are spelling errors on others	2
			Writes three words correctly, even though there is a spelling error on one of the words	3
			Writes all words of sentence correctly	4
9. Write your name 9. Qor magacaaga?		<p><i>Ask the learner to write his/her name on the space provided in the answer sheet</i></p>	Maximum of 3 points	
			Writes something that is not legible, a nonsense word, or fails to attempt the task	0
			Writes his/her name that is recognizable, but with multiple spelling errors	1
			Writes his/her name legibly, but with a minor spelling error	2

			Writes his/her name legibly and correctly	3
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APPENDIX B: MATHEMATICS TEST – 2006/07

<i>Item Stem</i>	<i>Content for the item</i>	<i>Instructions to administrator</i>	<i>Instructions for scoring</i>	
1. Count from 1 to 20. Now count from 9 – 15. 1. Tiri 1 illaa iyo 20. Tiri hadana 9 illaa 15.	1 to 20 9 to 15	<i>Have one card for each option.</i> <i>Show one to the learner and present one of the items</i> <i>Allow a second chance if necessary</i>	Maximum of 3 points	
			Does not count numbers correctly, or fails to attempt the task	0
			Begins from 1, counts some numbers correctly, does not finish, or mixes up numbers.	1
			Counts 1-20 sequence correctly, attempts second sequence, but begins from 9 and overshoots the sequence to include 20	2
			Counts 1-20 sequence correctly, and recite the second sequence from 9 to 15 as required, without overshooting to 20.	3
2. Write the following numbers 2. Qor tirooyinkan soo scoda.	7, 38	<i>Give the instruction orally.</i> <i>Ask the learner to write both numbers</i> <i>Allow a second chance if necessary</i>	Maximum of 3 points	
			Does not write the number correctly, or fails to attempt the task	0
			Writes the one-digit number (7) correctly; and fails to attempt the two-digit number	1
			Writes the one digit number (7) correctly; and, attempts the two-digit number, but gets only one digit correctly, or writes the digits in reverse order.	2
			Writes the one digit number (7) correctly; and writes the two-digit number (38) correctly	3
3. Add the following numbers 3. Ka shaqee isugeynta.	$\begin{array}{r} 52 \\ + 21 \\ \hline \end{array}$ $\begin{array}{r} 36 \\ + 22 \\ \hline \end{array}$ $\begin{array}{r} 23 \\ + 45 \\ \hline \end{array}$ $\begin{array}{r} 12 \\ + 67 \\ \hline \end{array}$	<i>Present only ONE number sentence.</i> <i>Ask the learner to work it either on the floor, on a piece of paper.</i> <i>Allow a second chance if necessary</i>	Maximum 2 points	
			Attempts addition but gets a completely wrong answer, or fails to attempt the task	0
			Attempts the addition gets the tens correctly and the ones wrong, or vice versa, or numbers are in reverse order	1
			Adds the two-digit number correctly	2

<i>Item Stem</i>	<i>Content for the item</i>	<i>Instructions to administrator</i>	<i>Instructions for scoring</i>	
4. Work out the following subtraction 4. Ka shaqee kala goynta.	$\begin{array}{r} 55 \\ - 23 \\ \hline 66 \\ - 32 \\ \hline \end{array}$ $\begin{array}{r} 35 \\ - 21 \\ \hline 47 \\ - 34 \\ \hline \end{array}$	Present only ONE number sentence. Ask the learner to work it either on the floor, on a piece of paper. Allow a second chance if necessary	Maximum of 2 points	
			Attempts subtraction, gets a completely wrong answer, or fails to attempt the task	0
			Attempts the subtraction gets the tens correctly and the ones wrong, or vice versa, or numbers are in reverse order	1
			Subtracts one two-digit from the other number correctly	2
5. How many tens and ones are there in this number? 5. Immisa tobnaad iyo koowaad ayaa ku jira tiradan.	$\begin{array}{r} 35 \\ 43 \end{array}$ $\begin{array}{r} 47 \\ 64 \end{array}$	Present only TWO numbers. Ask the learner to point at tens and ones. Allow them to use fingers or bundles if necessary	Maximum of 4 (2 points each)	
			Does not at all identify tens and ones, or fails to attempt the task	0
			Identify tens and ones correctly, with assistance using the bundles and fingers exercise	1
			Identify tens and ones correctly with no assistance	2
_____ out of 4				
6. Draw a triangle. Draw a circle 6. Sawir Saddex xagal. Hadana sawir goobo.		Ask the learner to draw on a paper, the ground, on any surface that is available to them. Score the response for each shape as shown in the scoring guide.	Maximum of 4 (2 points each)	
			Not able to draw the triangle/circle, or fails to attempt the task	0
			Draws a shape, but not the one that was required	1
			Draws the required shape correctly	2
_____ out of 4				
7. Complete the sequence 7. Dhameystir sida ay isugu xigxigaan tirooyinkan.	2, 4, 6, __, 10, 12__, 16, 18	Present the task with the assistance of a flash card Ask the learner to provide the missing numbers in the sequence	Maximum of 2 points	
			Attempts the sequence and not able to supply the correct number, or fails to attempt the task	0
			Supplies 8 or 14 correctly, but not both.	1
		Supplies both 8 and 14 correctly	2	