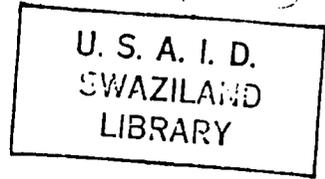


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FINAL REPORT
PRELIMINARY SURVEY AND PILOT TEST OF INTERACTIVE RADIO ENGLISH
OCTOBER 1989 - MAY 1990

SUBMITTED MAY 17, 1990
TO THE SWAZILAND MISSION OF USAID
THE SWAZILAND MINISTRY OF EDUCATION
AND THE SWAZILAND BROADCASTING AND INFORMATION SERVICE

PREPARED BY
STUART LEIGH
FOR
THE RADIO LEARNING PROJECT
EDUCATION DEVELOPMENT CENTER
USAID
EDUCATIONAL POLICY, MANAGEMENT AND TECHNOLOGY
645-0230

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**EXECUTIVE SUMMARY -
PROJECT IMPLEMENTATION ACTIVITIES AND KEY RECOMMENDATIONS:**

BACKGROUND:

Since the mid 1970's many developing countries, in association with USAID, have applied the methods of interactive radio instruction to a wide range of curricula - Math, Spanish, Science, Teacher Training, Health, and English.

The three year, 525 part English In Action (EIA) series was originally produced in Kenya. The entire series has now been introduced in Lesotho. The consistent result has been improved student performance.

In accordance with the scope of work for this project, the Radio Learning Project (RLP) sent Stuart Leigh to Swaziland on October 31, 1989. Immediately prior to his arrival, he was in Lesotho for a week studying Lesotho's implementation of English in Action and picking up materials for use in Swaziland.

OBJECTIVES OF THE PILOT TEST:

1) To test the first 40 English in Action interactive radio programs in 20 test schools.

2) To analyze the state of medium wave broadcasting in Swaziland and the possibility of using it for educational broadcasting.

3) To provide evaluative information to USAID and the Swaziland Ministry of Education to allow them to make an informed decision as to whether a full year of the English in Action radio curriculum should be introduced for Grade 1.

PROJECT IMPLEMENTATION ACTIVITIES:

The Swaziland Radio Learning Project established an office at the National Curriculum Center. A computer was purchased for the office. (For a full inventory of commodities purchased over the term of the project, see Appendix F). As much of the work was to be done at the Swaziland Broadcasting Service, the project shared an office there with the Center for Development Communications.

The NCC English curriculum staff was brought together to assess the degree to which the radio curriculum conformed to the current Grade 1 curriculum. In vocabulary and in sequence and types of structures and functions, the fit was found to be close.

The 40 radio scripts, as produced in Lesotho, were read by the three members of the English curriculum staff to determine what vocabulary, personal names, situations or sounds had to be changed to fit Swaziland's particular culture and environment. As both Southern African countries share so much in culture and geography, little had to be changed. Among the necessary changes, however, were all personal names. The 40 scripts were then revised in accordance with the judgements of the NCC team.

With the NCC head of evaluation, the NCC team selected 20 schools, five in each region, as the pilot schools. Some schools were urban, some semi-urban, and some rural. The choices were discussed with the REO's and agreement on the choices was reached.

Hhohho:

1. Mbasheni *
2. Sigangeni
3. Malandzela
4. Ndzingeni
5. Cedusizi

Manzini:

1. Manzini Infant
2. Mhetseni
3. Mahlanya
4. Ekutsimuleni
5. Dwalile

Shiselweni:

1. Esandleni
2. Mlambo
3. Nkweni
4. Florence *
5. Single Tree

Lubombo:

1. Lubuli *
2. Ubombo Ranches (Mayaluka)
3. Khalakahle
4. Majembeni
6. Tshaneni

A skilled evaluator in each regional office was identified. Their duties included daily observation and evaluation of the radio classes, early remediation of problems with the radio classes (such as loss of radios, or other materials), weekly reporting to the NCC, and generally keeping open the lines of communication from the field to the central office. Each evaluator was provided with a vehicle so that each school could be visited once a week during the broadcast period. This system of supervision and evaluation proved to be most effective.

* During November, the team made a survey of the quality of radio reception at all the schools. Areas of good and fair reception were mapped. (See Map p.21) The survey revealed that reception at the three most distant test schools was poor (Mbasheni, Florence Academy, and Lubuli). As a result 3 new schools were substituted (Forbes Reef, Siyendle, and Tambuti).

50 Tempest TSP 200 radios were purchased.

A studio at the Swaziland Broadcasting Service was renovated specifically for the production. Actors and musicians were hired.

Recording began in mid December and continued through early March.

On January 18, the 20 headmasters and headmistresses that would be involved in the program were given a day of orientation. Their support was considered vital to the success of the test. The Radio Learning evaluators were also present.

On February 15 and 16, the teachers who would be using English In Action came to the Matsapha prison conference facility for one and a half days of training. Every pilot school was represented. Since many of them had more than one Grade One stream, there were 36 teachers in all. A total of 45 people, including the 4 evaluators and some headmasters, were trained.

On February 20, the first program went on the air. The programs ran for 40 consecutive school days at 10 AM every day. A total of 37.5 programs were actually received by the schools due to transmission problems on March 22, 23, and 27. At this time, the Radio Learning Project employed a technical consultant to examine all the equipment in the medium wave signal path. A number of actual equipment problems were fixed. The sound was improved and there were no further interruptions in the EIA transmissions.

The technical analysis provided essential information about the transmission equipment. (See Appendix D). This information was submitted to SBS, USAID, and MOE. A plan for maintenance of the medium wave system was drawn up and submitted to SBS and USAID. (See Appendix E)

A second reception survey was conducted during the weeks before and after the short term technical consultancy in March. A revised analysis of the state of radio reception was made. Improvements in the sound and expansion of the area served by the medium wave signal were noted. (See 3 - Radio Reception Discussion).

The evaluation data collected included 165 daily observation reports, 131 teacher reports, 4 final reports from evaluators, 12 final reports from the regional inspectors, and 3 final reports from the Regional Education Officers. (See Appendix B).

A summative video program was produced. (See Appendix G - Program 2 "Testing Interactive Radio English in Swaziland.")

The results of the evaluation support the recommendation that the complete English in Action curriculum be introduced without delay. (See 2 - Evaluation Results and Interpretation).

Among the most important findings of the evaluation:

- 31 of 35 teachers (88.6%) said reception was better than adequate. 4 (11.4%) said it was adequate. None said it was less than adequate.

- Over 90% of teachers felt their students were ahead of where they would have been in English if they hadn't had instruction by radio.

- All 4 program evaluators, all the regional inspectors (12) and Regional Education Officers (3) that we consulted would like to see a full 3-year English in Action radio curriculum in their schools.

KEY RECOMMENDATION:

The English in Action interactive radio curriculum should be introduced into all of Swaziland's primary schools.

(See also 4 - Recommendations).

STAFFING FOR THE PILOT TEST:

- USAID - Stuart Leigh - Project Director
- NCC - Olga Mabuza - English curriculum specialist
- Tim Nsingwane - Head of evaluation
- Eblon Mavuso - English curriculum specialist
- Concelia Munro - English curriculum specialist
- Phumlile Mamba - Secretary
- SBS - Tim Shongwe - Educational programs officer
- Ambrose Masuku - Engineer
- EVALUATORS - Malcusy Hlophe, Manzini
- Lillian Mavimbela, Shiselweni
- Elizabeth Nxumalo, Hhohho
- Raymond Nxumalo, Lubombo
- ACTORS - Phila Simelane
- Thandie Mdluli
- Charles Mukete
- Zanele Zikalala
- MUSICIANS - Noel Khumalo, keyboard
- Matiwane Manana, composer
- Ashilablele Children's Choir
- Sipho Dlamini, percussion

2 - EVALUATION RESULTS AND INTERPRETATION:

The evaluation attempts to answer a number of questions that fall into two basic categories:

1) Is the English in Action radio curriculum appropriate for and effective in teaching English in Swaziland?

2) Is the medium wave service adequate to the task of providing reliable educational broadcasting service to all of Swaziland's schools?

To answer questions in the first category we designed a number of evaluation instruments (see below). These took the form of various questionnaires and formal requests for comment that were answered by education professionals at all levels - teachers, headmasters, regional inspectors, Regional Education Officers, and the four Radio Learning Project evaluators. They were asked to rate the project in terms of its general effectiveness in teaching English, the ease with which it could be used, the appropriateness of the workbooks and teaching aids employed, the observed effect on students' interest and involvement, etc.. There was no formal pre-test or post-test achievement test administered to assess the impact of the series. However, we did record many statements of qualitative judgement about the gains made by the radio class students relative to non-radio class students. All data from the questionnaires was recorded on the project computer at the National Curriculum Center. The results of the analysis of the quantitative data and a record of all final comments follow.

To answer questions in the second category (radio reception) a number of approaches were taken. The above mentioned evaluation instruments provided quantitative and qualitative judgements about the state of radio reception at each school. As a result, we were able to compare the ratings for student involvement and general success of the lessons in schools with relatively poor reception with the overall scores for all schools to see the degree to which differences in reception might have affected the educational goals of the project.

In addition, the Radio Learning Project hired an expert in medium wave radio transmission (the same person who commissioned SBS's medium wave service, C. Derek Shaw) to provide a close analysis of the current state of the system, to improve its performance where possible, and to make recommendations. (See Appendix D.2). Out of this analysis a plan for upgrading and maintaining the system was developed and submitted to SBS, MOE, and USAID. (See Appendix E).

THE EVALUATION INSTRUMENTS:

Two primary evaluation instruments were designed by the NCC team (in consultation with the Lesotho IRI project's Phil Christensen and Maurice Imhoof). They are the RLP "Evaluator's Daily Observation Form", and the Teacher's Questionnaires (in two versions, "Fortnightly" and "Final"). From these instruments were derived the "Final Evaluator's Questionnaire", the "Regional Inspector's Questionnaire", and the "Final REO's (Regional Education Officer's) Questionnaire". (See Appendix A).

Corresponding to each of these questionnaires is a record of the data each questionnaire produced (See Appendix B). All but one of these data bases have averages of the various scores reported for each question that called for numerical answers. The larger data tables indicate the frequency of occurrences of the various scores (labeled Frequency of Value or "Frequency Value"). The tables with few reports (Final Evaluators', Regional Inspectors', and Regional Education Officers') do not have frequency figures since they can provide the information desired at a glance.

Note: In using a 5 point scale the 3 value was meant to signify "acceptable", "adequate" or "somewhat successful". Extremely positive and negative ratings were indicated by 5 or 1. 4 and 2 were better or worse than a median level but not extremely so.

On questions where percentages were requested we offered five specific choices, 0%, 25%, 50%, 75%, and 100%, which could be circled. We also invited the respondent to note any other percentage if it did not closely correspond to one of the five percentages offered. We think, though, that the "circle one of these options" approach tended to pull the average percentages toward the specific percentages offered in many cases. As a result these percentage scores may not be precise in terms of representing absolutely the frequency of behaviors they describe. But they are certainly close. They also provide reliable relative measures between groups of reports (see, for example, 3 - Radio Reception Discussion), and between similar questions within and between various types of questionnaires.

2 A) - EVALUATOR'S DAILY OBSERVATION FORMS

165 Evaluator's Daily Observation Forms were filled out. 9 were filled out by individuals other than the 4 designated evaluators. In 7 of these 9 unusual reporting cases, the forms were filled out by headmasters, and in 2 cases by teachers. These reports were forwarded to us by the evaluators and were included in the total of 165 reports which are the basis for the final analysis.

Q1. What was your impression of the teacher's general level of preparation:

In 127 of 154 reports, the teachers were more than moderately prepared. In 26 cases they were seen to be somewhat prepared, and in only 1 case was a teacher unprepared.

Interpretation: The teachers were able to successfully apply their training to the classroom. The programs were not difficult for them to use.

Q2. Did the teacher prepare the blackboard before the lesson?

In no case did a teacher fail to take the time to prepare the blackboard for the lesson in the 31 observations where it was required.

Q3. Did the teacher move the radio to optimize reception before the class?

In only 10 of 159 reports did a teacher fail to try to optimize reception by moving the radio.

Interpretation: This is a critically important behavior, as tuning by rotation of the radio set is the key to obtaining strong reception. But in only 1 of these 10 cases was the reception seen to be merely adequate. And in no case was it less than adequate. It may be that the teacher knew the proper position for the radio by the time of the observation. The fact that the evaluator didn't see the teacher optimize the reception may thus be related to reception problems in perhaps only 1 case.

Q4. How was the radio reception?

In 155 of 157 reports (98.7%) reception was adequate or better than adequate. In 2 reports it was less than adequate. Both reports were from Esigangeni in the Hhohho region. In one of these two reports the problem was due to low batteries. The evaluator changed the batteries and then reported reception to be "fine". This adjustment brings the percentage of adequate reports to 99.3%.

Note: Q5, Q6, and Q7, like Q3, also relate to preparation by the teacher. Similarly positive results were obtained in each case. (See the data, Appendix B.)

Q8. How interested/involved in the programs did the pupils appear to be during the first song of the program?

Note: The intention of Questions #8 - #13 is to see the degree of involvement on the part of the students at the beginning, middle, and end of the program. This can give us an idea of whether the children lose interest at some point, or if they maintain an equally high level of involvement throughout.

On a scale of 5 there were involvement ratings of 4.24, 4.13, and 4.21 at the beginning, middle, and end, respectively.

Student participation at the beginning, middle, and end, as indicated by scores of 81.3%, 80.6%, and 82.7% on Q9, Q11, and Q13, respectively, mirror the interest scores above.

Interpretation: It is normal to expect some lessening of interest at some point during the lesson, especially since the beginning and end, where involvement is highest, consist of singing (often accompanied by movement). Taken together, the three pairs of scores indicate high interest and involvement throughout the programs. This may be attributable to the programs' segmented structure. The short and varied segments kept students from losing interest. The musical choices made in the production also contributed to the degree of listener engagement. The central position of the Ashilabelele Children's Choir in the signature tune and in a cappella bridges clearly helped to hold the children's attention. So too, the use of a wide range of instrumental sounds and realistic sound effects made the sonic vocabulary interesting.

Q14. What average percentage of pupils participated in all segments throughout the program?

Over 3/4 of the students seemed to remain active throughout the entire program.

Q15. What percentage of the pupils used the workbook correctly?

81% of students were able to use the English In Action workbook correctly.

Q16. Did the pauses appear to be of the right length?

The pauses were judged to be of the right length in 151 of 152 reports. In 1 report they were judged to be too long.

Q17. Did the teacher present a 10 minute follow up to the radio lesson using appropriately related ideas (either as suggested by the English in Action notes or otherwise invented by the teacher.)

In 128 of 137 reports the teacher presented a follow up lesson. (For demonstrations, see Appendix G, Video Program 1).

Q18. In general, how successful would you say this lesson was?

In 117 of 146 reports the lessons were seen to be more than moderately successful. On the five point scale the average score of all lessons was 4.1. The only case reported to be less than somewhat successful corresponded to a day when there was no broadcast due to transmission problems.

EVALUATORS' COMMENTS: The evaluators were asked for specific comments every day. The extensive record of their remarks (and the comments on the Fortnightly Teacher's Questionnaires) are the only evaluation information not provided in this report. Both sets of comments were most helpful in tracking the project during the course of the broadcasts and will serve a most useful function in further revision and adaptation, should the project go into full production. Since the evaluators gave us a segment by segment analysis of any problems they noticed, we can closely target ambiguous instructions, etc., and so further refine the programs. The degree to which this is actually done will depend on perceived need and available staff. (See 4 - Recommendations).

2 B) - TEACHERS' FORTNIGHTLY QUESTIONNAIRES

After the first 10, 20, and 30 lessons, the teachers filled out one of these questionnaires. While we expected a maximum total of 36 X 3 or 108 reports, 96 questionnaires were actually completed. These reports are useful to see if there was an improvement in the use of the programs over time. The results of these questionnaires are presented in two forms:

2 B.1 - The first 10 lessons, or all responses to the first fortnightly questionnaire. This earliest report allows us to compare the teachers' attitudes in the first two weeks with their attitudes later in the project. The two teachers at Siyendle school filled out two of these questionnaires. Since the scores on these two teachers' questionnaires are not identical, we include both sets of responses for each teacher in the data table. A total of 38 first fortnightly questionnaires were completed.

2 B.2 - The first 30 lessons, or all responses to all of the fortnightly questionnaires.

Note: These questionnaires are identical to the Final Teacher's Questionnaire through Q7. One can thus compare data for these questions between groups of Fortnightly Questionnaires and between Fortnightly and Final Questionnaires.

Summary of results: We notice that there is a slight improvement in all scores between the first group (2 B.1) and the second (2 B.2). The difference however is slight. There is a greater increase in most scores, however, between the results of the complete group of Fortnightly Teachers' Questionnaires (2 B.2) and the results of the Final Teachers' Questionnaires. In no case did a score decrease with the passage of time and with the teacher's acquiring greater familiarity with the program.

Q1. How easy or difficult is it to use the program effectively?

On a 5 point scale, scores improved from an average of 4.42 (2 B.1) to 4.44 (2 B.2) to 4.6 (Final).

Q2. How successful do you think the program is in teaching English?

Scores improved from an average of 4.33 (2 B.1) to 4.54 (2 B.2) to 4.66 (Final).

Q3. How helpful do you find the teachers notes?

Scores improved from an average 4.78 (2 B.1) to 4.80 (2 B.2) to 4.82 (Final).

Q4. Is there something else you would like to see in the notes?
If so what?

This called for a text response.

Q5. How interested/involved in the programs are your pupils?

Scores improved from an average of 4.63 (2 B.1) to 4.68 (2 B.2) to 4.88 (Final).

Q6. What percentage of your pupils participate actively?

Scores improved from an average of 70.4% (2 B.1) to 75.1% (2 B.2) to 81.2% (Final)

Q7. What percentage of your pupils use the workbook correctly?

Scores improved from an average of 72.2% (2 B.1) to 76.8% (2 B.2) to 81.6% (Final)

Q8. On average were the pauses for pupil response of the correct duration?

In the three Fortnightly Questionnaires covering the first 30 lessons, in 86 of 91 reports teachers felt the pauses to be of the right length. In 5 cases they were felt to be too long. All 5 of these reports referred to early lessons (1-20). It was not seen as a problem by any teachers in the later part of the test.

Q9. On how many of the last 10 school days was radio reception at your school acceptable?

(See 3 - Radio Reception Discussion. See also Q17 of the Final Teacher's Questionnaire for a general statement by teachers on the reception issue.)

What follows is one of a number of approaches this report takes to analysis of radio reception. Here we use what we'll call an "acceptability rating". It grows out of the question we asked here in Q9 of the Fortnightly Teacher's Questionnaire and in Q8 of the Final Teacher's Questionnaire. It is one way of discussing the usefulness of the SBS medium wave service for purposes of educational broadcasting - as it was perceived by teachers of English in Action during the period of this test.

The acceptability rating is expressed as a percentage. It is the percentage of all the radio classes (for which teachers reported on the reception issue) where reception was judged to be acceptable by the teachers.

Acceptability ratings:

First Fortnight: (203 acceptable classes of 210)	96.7%
Second Fortnight: (208 acceptable classes of 220)	94.5%
Third Fortnight: (187 acceptable classes of 270)	69.3%
Fourth Fortnight: (223 acceptable classes of 230)	96.9%
Entire Test Period: (821 acceptable classes of 930)	88.2%
Entire Test Period (930 classes represented)	
Less Third Fortnight Influence:	97.2%

Explanation of Acceptability scores:

In any fortnight, counting all Grade 1 streams once for each of the 10 broadcast days, there were 360 radio classes. After the first fortnight, however, one teacher (at Cedusizi) was too ill to manage her class. As a result, 2 classes were combined. This means about 350 radio classes took place in each fortnight for a total of 1400 classes (35 streams times 40 days). As there were 2 and 1/2 days missed we might speak in terms of an actual total of 1300 radio classes. In any fortnight's questionnaire reports were obtained for between 210 and 270 classes. Including the data on the Final Teachers' Questionnaires we have usable records corresponding to 900 radio classes.

In the first fortnight there were 23 reports. Correcting for the two duplicates from Siyendle indicating acceptable reception every day, there were 210 classes represented. The reports note problems with 7 of these classes. This yields a 96.7% acceptability rating for reception during the first two weeks of the test.

In the second fortnight there were 22 reports representing 220 classes with problems reported with 12 classes. The resultant acceptability rating is 94.5%.

In the third fortnight there were 27 reports representing 270 classes and problems noted in 83 cases. The resulting acceptability rating is 69.3%. The reason for the dramatic decrease in the rating is that it was during the third fortnight that 2 1/2 programs were lost to the listeners due to transmitter problems.

For a score for the last fortnight we turn to the Final Teacher's Questionnaire. The same question (Fortnightly Q8) occurs here as Q9. It resulted in 23 reports indicating a total of 7 unacceptable classes. The acceptability rating climbs again to 96.9%.

If we eliminate all of the third fortnight problems from the total class score we arrive at 904 acceptable days out of 930 resulting in a rating of 97.2%.

Note: The above scores are conservative in that they include all reports as marked on the questionnaires without correction for what are likely inverted reports in 5 cases. These 5 reports of only 2 or 3 acceptable days out of 10 were probably intended as reports of 2 or 3 unacceptable days out of 10. (Three of them occur during the third fortnight when the 2 1/2 transmissions were lost). Nor do these reports correspond to general reception problems at these sites as noted by the evaluators.

2 C) - TEACHERS' FINAL QUESTIONNAIRES

We have discussed the results of questions 1-8 on this instrument in relation to the Fortnightly Questionnaire.

Q9. Now with 8 weeks of English In Action done, how far along in English language achievement are your pupils compared to where they would be at this point in the year with only conventional English lessons (not using radio)?

As reported in the video program (See Appendix G, Program 1), 29 of 33, or 88% of teachers felt that their students were now ahead of where they would have been in English achievement if they hadn't had instruction by radio. There were only 4 reporting that they thought their students were at the same level. None reported that their students were behind where they would have otherwise been.

Headmasters and evaluators supported this judgement:

Example comments from video interviews or from Appendix C.2:

- From Manzini region, Manlanya school, Hdmstrs. Ginindza:

Usually they'll all pick up a few English words by the end of the year. But listening to these radio lessons they were able to pick quite a lot of vocabulary in the first term.

- From Lubombo region, Ubombo Ranches school, Hdmstrs.:

Most of our children are much better than our sister school in English. They can play around in English...they communicate now in English.. when other schools have not yet started communicating in English.

- From Manzini region, Mphetseni school, Hdmstrs. Mdziniso:

Personally I would say that the program should not stop because children learn better. Last year's pupils could not at this time comprehend nor respond to the teacher.

Q10. How interested and enthusiastic are you about continuing with this method of English language education by radio?

On a scale of 5, 31 of 35 teachers reported at the 5 level. 4 reported at the 4 level. The average score was 4.88.

The teachers' comments explicitly support this. (See Appendix C.1, Entries 9, 11, 12, 13, 14, 25, 26, 32, and 35).

Q11. After this 8 week test of English In Action would you like to see this program go into all the schools in Swaziland?

All 35 teachers said "Yes."

Q13. English In Action may be produced as a 3-year curriculum for grades 1, 2, and 3. Would you like to see a full 3 year curriculum in the schools?

100% of the teachers reporting want the radio classes to continue. Of 34 teachers, 30 said "Yes" to Q13. (Tjaneni's Magagula did not report). 4 teachers (in 2 schools, Sigangeni and Single Tree) said "No". But their responses to Q14 reveal that they, too, want the programs to continue:

In both reports from Sigangeni the teachers said they wanted the English In Action programs to continue not for three years but "up to Grade 7".

In the two reports from Single Tree the teachers said they wanted the programs to continue "through Grade 4".

Q15. Have you had experience with education by radio before?

11 of our teachers said they had had some experience. 23 had none. One did not report.

Q16. If yes, do you feel that this program is an improvement over earlier radio education programs that you are familiar with?

11 of 13 teachers reporting said "Yes".

Q17. On average, how did you find the radio reception?

As noted in the video program (Appendix G Program 1), 31 of the 35 teachers reporting said reception was better than adequate (17 of them at the 5 level, and 14 at the 4 level). 4 reported it to be adequate. None reported it to be less than adequate. The average score is 4.45.

Q18. How did you find the Tempest radio itself?

29 of 35 teachers gave it a 5 score. 4 gave it a 4 score. 1 said it was adequate - for an average score of 4.75.

Q19. How useful and well-designed was the pupil workbook?

The pupil workbook was rated at 5 by 22, 4 by 11, and 3 by 2. This resulted in an average score of 4.57.

Q20. How helpful were the other materials? (pencil, book, chairs)

Teachers generally felt the materials were very helpful. 31 gave them a 5 score. 3 gave them a 4 score. 1 gave them a score of 3. The average score 4.87.

Q21 and Q22 relate to attitudes. The best way to get a sense of the feelings of the teachers is to consult their final comments.

SAMPLE COMMENTS:

The qualitative information we gathered is revealing in its own way. As the ones who use the program daily, teachers have expressed ideas that we see as highly significant. All of their comments from the Final Questionnaires are included in Appendix C.1. We offer the four comments below as being eloquently representative of the general opinion.

ENTRY 11 / LUBOMBO / UBOMBO RANCHES / SIMELANE

The radio programme has been one that is exciting and motivative. Our children are now able to speak, listen and participate following the instruction from the radio. Our pupils are showing a remarkable difference as compared to grade 1 of the previous years. We wish the same programme be introduced to other classes in some subject areas which sometimes suffer through lack of knowledge and ability on the part of the teacher. The teachers and children have also gained confidence through the use of the programme. The teachers of this school Ubombo Ranches have confidence in the programme and have seen it as something that work for the nations education.

ENTRY 5 / LUBOMBO / TJANENI / MAGAGULA

Children had developed a high listening skill compared to the ordinary English. They pronounce clearly English words, they learnt good spelling compared to prior lessons. The radio reception was good except for lessons 23, 24 and 27. The length of the pause were very good and children participated actively.

Pupils worksheets were useful because the children could point to the pictures as they are instructed. The characters voices were loud and clear, the music was good and the children enjoyed it.

During physical activities the children participated actively listening to all the instructions given.

The children enjoyed the songs and they sang according to the tune. The musical dividers that separate one section from the next were good because the children became aware and get ready for the next section.

The characters speed were very good because the children could go with them where necessary. As a whole I would like to say English in Action must proceed to upper grades, so that the children could develop a high listening skill.

ENTRY 22 / HHOHHO / ENDZINGENI / MSIBI

English in Action programme is very helpful. It is useful to the pupils in class and also to the teacher and even the pupils do not want to be absent from school.

ENTRY 35 / MANZINI / DWALILE / DLAMINI

I was very much interested in how my pupils responded to the radio teachers, even those who are slow learners responded very easily to Thuli and Sipho and I hope that the EIA programmes will be introduced to the other schools in Swaziland.

**2 D,E,F) - EVALUATORS' FINAL QUESTIONNAIRES
FINAL REGIONAL EDUCATION OFFICERS' QUESTIONNAIRE
REGIONAL INSPECTORS' FINAL QUESTIONNAIRE:**

The results of these questionnaires are reported together since the questionnaires were nearly identical. The same questions simply appear in a slightly different order on the various questionnaires; and a few questions are particular to one group or the other.

All four evaluators completed the questionnaire. They based their answers on their long experience with the series.

Two of the four REOs filled out all the questions. One of them answered 2 of the 13 questions and wrote a comment. One of them was in hospital at the time and could not respond. Their sources of information included a video tape showing a complete lesson from Tshaneni school in addition to conversations they might have had with evaluators, teachers, headmasters, and inspectors.

12 of the Regional Inspectors completed the form. Two of them had visited a radio class. They all were shown the same video tape from Tshaneni. Their information also came from conversations they may have had about the project. (See Q10)

Q1. How helpful in teaching English did your pilot school teachers feel the programs were? (5 is "very helpful")

Averages: Evaluators - 4.75
REOs - 5

Inspectors were not asked this question.

Q2. How easy or difficult do you think it is to use the program effectively? (1 is "very difficult", 5 is "very easy")

Averages: Evaluators - 3.75
REOs - 4
Inspectors - 3.6 (Q1)

Q3. How interested/involved in the programs were the pupils? (5 is "very interested")

Averages: Evaluators - 4.5
REOs - 5
Inspectors - 4.27 (Q2)

Q4. What percentage of pupils participated actively?

Averages: Evaluators - 80%
REOs - 85%

Inspectors were not asked this question.

Q5. How helpful in teaching English did your pilot school headmasters or headmistresses feel the programs were? (5 is "very helpful")

Averages: Evaluators - 4.75
REOs - 5 (1 respondent)
Inspectors - 4.27 (Q3)

Q6. How successful do you think the program was in teaching Grade One English? (5 is "very successful")

Averages: Evaluators - 4.25
REOs - 5
Inspectors - 3.27 (Q4)

Q7. Overall, excepting the 2 1/2 days when transmission was interrupted, was the radio reception adequate for purposes of teaching English by radio.

Averages: Evaluators - 4 Yes
 REOs - 1 Yes

Inspectors were not asked this question.

Q8. Based on either observations of sister schools' Grade One class where the radio is not being used this year, or on conversations with radio class teachers, can you tell us whether you think the radio class students are ahead, behind, or at the same stage of English language achievement compared to where they would be at this point in the year with only conventional English lessons (not using radio)? (5 is ahead, 3 is the same, 1 is behind)

Averages: Evaluators - 4.25
 REOs - 5 (1 report)
 Inspectors - 4 (Q6)

Q9. How interested and enthusiastic are you about continuing with this method of English language education by radio? (5 is "very interested")

Averages: Evaluators - 4.75
 REOs - 4.5
 Inspectors - 3.81 (Q7)

Q10. After this 8 week test of 40 English In Action programs, would you like to see this program go into all the schools in Swaziland as an entire year long Grade One series?

Averages: Evaluators - 4 Yes
 REOs - 3 Yes
 Inspectors - 9 Yes, 2 No (Q8)

Q11. English In Action may be produced as a 3-year curriculum for grades 1, 2, and 3. Would you like to see a full 3 year curriculum in your schools?

Averages: Evaluators - 4 Yes
 REOs - 2 Yes
 Inspectors - 12 Yes (Q9)

Total: 18 of 18 respondents said "Yes".

Inspectors' Questionnaire:

Q10. What is the source of your information about the English In Action series? (check all relevant items)

- Video - 12
- Visit to radio learning classroom - 2
- Conversation(s) with evaluator - 2
- Conversation(s) with teacher(s) - 3
- Conversation(s) with headmaster(s) - 4

Q12. (Evaluators and REOs) This calls for an expression of attitude. (See Appendix C.3, .4, and Sample Comments below).

SAMPLE COMMENTS:

Since the REOs will be instrumental in providing support for the project, the RLP tried to bring them into the process of evaluation early. They were given radios to keep in their offices for the full term of the test; and they were asked by the Senior Inspector for Teacher Trainintg to assess the program in terms of its educational impact and in terms of the viability of the medium wave signal and to report their findings to the Ministry of Education.

Here are two comments from the Regional Education Officers:

ENTRY 2 / SHISELWENI / DLUDLU

1. The program was well prepared and if improvements are constantly done it would finally be perfect.
2. Commitments on the side of government should be secured before plunging into the implementation.
3. The above in No. 2 is also directed to the replacement of radios and have standing firms to service the radio.
4. Common radio should be bought so that it will be easy to service them.

ENTRY 3 / MANZINI / NHLENGETFWA

1. The sound and pronunciation are quite good, particularly for grade 1 classes.
2. There was singing when the teacher was explaining some concepts in siswati. There should be complete quietness when the teacher is saying something to the pupils.

3. The only problems I should foresee are;
 - (a) Shortage of radio sets.
 - (b) Theft, because some of our schools do not have nightwatchmen.
4. (RE: Usefulness of SBS MW service) I would think that it is quite good.
5. The program should be introduced to all schools for grades 1 to 4 as soon as possible.

3 - RADIO RECEPTION DISCUSSION:

Assessing the quality of radio reception has been one of the project's top priorities. In doing so, and in taking actual steps to improve reception, two problem areas have been discovered, one physical and one perceptual.

THE PERCEPTUAL PROBLEM:

There is a problem with the way in which SBS's MW signal is perceived by many people. It is not an unreasonable perception, however. It is based on an accurate awareness of past conditions. But many people are not aware that the quality of the signal has changed.

Usually when music lovers have the choice between medium wave and FM services, they choose FM. There is a greater clarity inherent in the FM sound. SBS's MW service suffers in the public mind from comparison with the SBS FM service, and, especially at the border areas, with comparison with South African services.

SBS MW also suffers from an historical problem. Not having been here during the former period of schools broadcasting, this writer cannot speak about the quality of the signal at that time. But in November 1989, when the RLP carried out its first radio reception survey, the signal was very weak outside the area of fair reception. (See Reception Map, next page). To compound the problem, the service broadcasts programs of varied quality. Some tapes are either poorly produced or recorded on inferior tape stock and so they have poor signal to noise (S/N) characteristics that add to the noise level. Also, there has been a shortage of parts to maintain the studio tape recorders. Some problems result from poor frequency response in these machines.

In the light of these conditions, there would be a justified suspicion of the service by any national educational policy planner or resident of those remote areas if the signal remained



MEDIUM WAVE RADIO RECEPTION (Nov. 1988 - April 1990)

Inner Circle (solid line) - Area of Good Reception - Nov. 1988
 Middle Circle (dotted line) - Area of Fair Reception - Nov. 1988
 Outer dotted Circle - Area of Fair Reception (est.) - April 1990
 Numbers indicate field strength in millivolts, March-April 1980

▲ = Transmitter site + = Pilot Post schools

as it was in November 1989. Let us say immediately that it has not. The medium wave signal has been substantially improved. Prior to the first English In Action broadcast, the SES engineering staff doubled the effective strength of the signal that is sent to the transmitters. And in March 1990 additional improvements were made by a short-term technical consultant. (See his report Appendix D.2) As a result of these improvements, the entire country now has a usable MW service.

THE PHYSICAL PROBLEM:

Teachers and headmasters pointed out two problems with reception: hiss in the sound, and interruption of service on three of the broadcast days.

HISS:

The hiss is greater in the areas far from the transmitters. It is correlated with a measurement one can take with a device called a field strength meter. A minimum field strength reading for a rural area is 1 millivolt. In an urban area, where there is greater interference it is 2 mV.

During the test of English In Action field strength readings were taken at many points around the country. Levels above 2 were found at all points except at Lavumisa where it was 1.9, and in the valley at Phophonyane where it was 1.3. (See Map, p.21)

The field strength is directly related to the output power of the transmitter. Since only one of the two transmitters was operating during the test, the output power was 50 KW. If both transmitters had been operating and output power had been 100 KW, the areas where field strength was recorded at 2 would have showed a reading of 2.8. At 100 KW the reading of 1.3 would rise to 1.8; and a reading of 4 would become 5.6. In layman's terms, areas of fair reception would become good and areas of good reception would become even better.

One can have good field strength and bad sound if the signal being sent is noisy. Because the microwave link from Mangwaneni Hill to the Sidvokodvo transmitter site is a long one, there is some noise that builds up along this link in the transmission chain. Plans now exist for improving sound along this link. (See Appendix D pp. 4-5, and Appendix E).

While the sound was not excellent at all test schools, no school could report hiss levels so bad that they seriously interfered with students' participation in the English In Action programs. Our findings as to the effects of relatively more noisy transmissions (as heard in schools farther from the transmitter) on the perceived success of the radio lessons are available in Appendix B.5 and B.6. (See discussion below)

In Appendices E.5 and B.6 we sorted schools by two criteria. In E.5 we took all reports from three of the schools most remote from the Sidvokodvo transmitter. Dwalile is on the South African border. Majembeni is on the border with Mozambique. And Endzingeni is in northern Hhohho. In B.6 we took all the reports from schools that scored at the 3 level or below on Evaluator's Daily Observation Form Q4, "How was the radio reception?" We include scores at the adequate (3) level because were we to take only reports of Q4 scores below 3, we would have only 2 reports from one school.

REMOTE SCHOOLS - SORTED BY DISTANCE

In Appendix B.5 we notice that these three remote schools, in 20 reports, have a collective reception rating (Q4) of 3.85 compared to the rating of 4.11 for all schools. The average of their three ratings for student interest and involvement (Q8, Q10, and Q12) is 4.08. And their participation average (Q9, Q11, and Q13) is 78.89%. This compares to scores of 4.19 and 81.53%. The three schools scored a 74.75% for sustained participation (Q14) compared to 75.9% for all schools. The general success of the lessons in these remote schools was rated at 3.88 (Q18), while in all schools it was 4.09.

REMOTE SCHOOLS - SORTED BY RECEPTION REPORTS

In Appendix B.6, the 33 reports with the lowest reception ratings, yield an average for reception of 2.87. This is produced by 31 acceptables and 2 unacceptable reports. (One of these unacceptables was due to low batteries and was fixed during the class, the other is unexplained). The entire B.6 group showed an average involvement (Q8, Q10, and Q12) score of 4.00 and an average participation score of 76.46% - compared to 4.19 and 81.53% for all schools. The sustained participation score (Q14) was 70.33 compared to 75.9% for all schools. The general success of lessons (Q18) score was 3.77 versus 4.09 for all schools.

Interpretation: There is a correlation between lower involvement, lower participation, and lower general success of the lesson on the one hand, and radio reception on the other. Perhaps this merely quantifies the obvious. However, these figures also provide us with an important insight. In the schools with the poorest reception ("acceptable"), the students remained involved, and the radio lessons were judged to be successful. That involvement scores should remain above 4 in all cases, except the 3.87 at the middle of the program for the B.6 group, is telling. Success of the lessons also remain above a middle 3 level by a wide margin (.77).

This margin is even wider when we extract the effects of teachers failing to adjust the radio properly. Among all 165 reports from all schools, the only three reports of teachers

failing to adjust the radio for clearest tone also occur in the 33 reports of the E.6 group. These 3 reports all produced lowest (3) level success scores, thus helping to depress the E.6 group average on Q16. Tone control adjustment is a separate factor from reception, but it affects the programs' sound in important ways.

INTERRUPTION OF SERVICE:

During the test period 2 1/2 programs were never transmitted. An electrical arc in the transmitter was responsible for at least one of these day's lost broadcasts. Thus the total number of programs received by the test schools was 37.5. While troublesome, the loss was lessened by the fact that the segmented structure of the programs, and the distribution of any particular segment over a number of programs, reduces learning losses from missed classes. (This logic applies to absenteeism as well as to transmission failure.)

As described in Appendices D and E, the MW equipment chain can deliver years of reliable service if properly maintained. Spare parts are currently in short supply. There is also no operator on site at Sidvokodvo to regularize maintenance, remedy problems quickly, and minimize "down time". Purchasing of parts and staffing of the transmitter site are among the recommendations of a plan for maintenance of the service which has already been submitted to SES, MOE, and USAID (Appendix E).

CONCLUSION:

The SBS medium wave system can provide better-than-adequate service for the purpose of educational broadcasting. This test has demonstrated empirically that nearly all of the country is now being served by the 50 KW signal. We know that the part of the country that we were unable to include in the test now has a usable service; though we can only point to this fact with field strength readings (and the director's personal experience with a radio at many of those places where field strength readings were taken). This can not be proved with radio class data.*

* This is a result of the condition of transmission in November, when schools had to be selected. It was necessary then to remove three schools from the test group. Had we used them, the entire country would have been represented by the test data. There was no point in using schools with very poor service. There was a purpose in using schools where reception was only fair, since we might expect this condition in some schools next year. If in November we had had today's transmission situation, we would not have removed those three schools from the test group.

4 - RECOMMENDATIONS:

A) CONTINUATION

The evaluation data, the comments by concerned educators, the state of the medium wave system, the interest and abilities of the staff involved, and above all, the obvious benefit to the students in the test group justify a positive decision.

B) TRANSMISSION EQUIPMENT

A maintenance plan in basic accordance with Appendices D and E should be adopted to further upgrade the MW service and increase reliability.

C) TRANSMISSION POWER

The Sidvokodvo transmitter should broadcast at 100 KW in order to provide the best possible service to all the country's schools. It is possible to conduct successful schools broadcasting with a 50 KW signal, however, there will be a trade off in benefit to the students. Phoneme recognition is an important factor in language learning, and it is easily affected by elevated hiss levels. Operating at 50 KW would make the optimization of the microwave link between Mangwaneni hill and Sidvokodvo all the more important.

D) STUDIO / PRODUCTION

1 - The same facility that was used to produce these test programs should be used for the full implementation.

2 - Two mono Studer machines should be brought to factory specifications and placed in service in the production room. Parts will need to be bought to repair and upgrade the existent machines.

3 - An Otari tape recorder should be purchased for mastering the programs.

4 - A contingency fund should be set aside for maintaining the production equipment.

5 - The 40 programs produced for the pilot should be used as the first 40 in the full Grade 1 series.

6 - The same actors should be interviewed for the jobs first before others are cast to maintain continuity of personalities.

7 - The same musician should be employed to preproduce all the music for the entire year.

8 - The doors in the studio area should be fixed to minimize interference from foot traffic in the hallway, which slows production.

9 - The bulk eraser in the room next to the studio should be moved to another location, perhaps the newsroom. A second bulk eraser should be purchased and placed near the advert room.

Discussion of 1 - 9 above:

The same facility used during the test should be used for production of programs in future years. (As this room links to the transmitter it is possible to broadcast directly from this room. In the past this was the case. As a result, there is some interest among some SBS personnel to reclaim this room for the English on-air studio. This is an internal matter for SBS management. While it might be desirable to have both FM and MW on-air control rooms separated from one another and connected rather to dedicated performance studios (not the case now since both FM and MW occupy an adjoining pair of rooms), there are serious implications in moving the current English on-air studio in to the EIA production room. Namely, another pair of rooms would have to be equipped to serve EIA needs equally well.

The drama studio that was working in November is now out of service. It would be possible to produce EIA in these rooms, though the lay-out is not now as comfortable for the producer and engineer. A large amount of renovation (furniture, talkback system, light cueing system, etc.) would have to take place to bring that studio up to the level of the current production room. But it is possible.

Should the above movement of studios occur, all the equipment now used for EIA production (or its equivalent) would have to be put into service in the new location. Assuming that things will remain as they are now, these are the recommendations for the current English production studio.

a.) - Two mono Studer machines with VU meters should be functioning at factory standard in the English production studio. A meter may have to be bought and some spare parts will be required to return the transports and heads to proper condition.

Note: During the test only one Studer was working. By the end of the test its tape transport was unreliable. It also had no meter. We used an Otari machine borrowed from the Center for Development Communications (CDC) studio as the mastering machine. This machine has noiseless punch-in, an essential requirement for the mastering machine. And it is easy to use. While the masters were made on only one channel of the machine, the dubs from the masters that went to the on-air studio for broadcast were made between the stereo Otari and the mono Studer. This assured format compatibility between studios.

There had been complaints that the programs from the CDC studios sounded bad when played on the English service on-air studio playback machines. Since stereo machines must be perfectly aligned to create tapes that play without phase cancellation (loss of sound quality) on a mono deck, we were concerned that our E.I.A. tapes not suffer from the same problem. There was a question too, as to whether the machines in the various rooms (the Otaris in the "Advert" and CDC rooms, and the Studers everywhere else) had been set to the same reference fluxivity standard. Mr. Bretherick from Telemedia came by in February and made some adjustments to the CDC equipment to bring the studios into closer compliance. The SBS engineering staff made adjustments in the MW on-air room.

b.) - Recognizing that the Studer equipment may at times not be reliable due to aging, and in the absence of certainty that parts will be generally available to quickly repair those Studer tape recorders that fail, an Otari tape recorder should be purchased for the English studio to assure continuity of production. I do not know whether Otari makes a mono machine. If they do, that machine should be bought. Otherwise, a stereo machine will do. MX 5050B MK 2.

c.) - A contingency fund should be set aside for this room. The 3 cart machines that are there now must be maintained.

The programs have already succeeded in terms of style and cast. It would be counterproductive to change the overall sound now. It also buys 8 weeks of start-up time to not have to go on the air with freshly produced programs until April. With the possible exception of one of the actors the cast could be the same, if they are available. The signature tune and the vocal bridges by the children's choir should be kept.

Preproducing the music demands a deft and certain musical sense. To commit to instrumental performances of all the songs in all their variations before coming to record them with voices demands that the producer be sure that he or she won't later be wishing the musician were there to change a performance.

The alternative is to have the musician there in the studio every day. It is difficult to find a keyboardist who is as good as the one we used and also available every day. Another reason to avoid this option is that it increases the number of variables and can slow down recording. If enough varieties of instrumentation are recorded for each of the songs, there is little chance that the recorded musical performances will sound stale after repeated use.

SBS should fix the hallway door next to the English production control room so that it closes and opens smoothly and quietly. The traffic through that door is in large part due to the use of the bulk eraser in the room next to the production studio. The door on the far side of the hall should open only in one direction (toward the newsroom) and close quietly and fully with a spring. The interior passage door in the hallway should also be fixed to lock out sound from Studio 2. The open hallway doors let voices bleed into the programs and slow production.

If the one bulk erasing machine were moved to the newsroom to serve that room, the CDC studios, and Studio 2; and another one were placed near the advert room to keep people from making trips through the hall to the eraser, production would be a significantly easier matter.

E) STAFF

The full time project team should consist of:

NCC:

Educational Media Management Officer
English Curriculum Specialist
Secretary

SBS:

Educational Broadcasting Producer
Recording Engineer
4 actors
1 musician (perhaps part time)

USAID:

Technical Advisor (first year).

Additional part time efforts will be required from others:

The RLP evaluators will be most helpful in training for approximately three weeks each in their respective regions.

The inspectorate should be trained over a two day period in the use of the EIA radio curriculum so that they will be able to carefully monitor its use and assist in the regional training of teachers.

NCC:

At NCC the Educational Media Management Officer will have responsibility for all phases of the project. This person should be prepared to take over all management tasks from the USAID technical advisor when that person's term expires.

An NCC English Curriculum Specialist should be assigned to the project. This person will be responsible for adaptation and revision of the scripts. The curriculum specialist will also be responsible for managing the training of all the teachers. Frequent monitoring of recording sessions and radio program review is also part of this person's duties.

Note: There is not now adequate staff at the NCC to do all of next year's non-radio curriculum writing in addition to the work that will be necessary in support of EIA. This work falls into two categories, training, and lesson production.

The full pilot test for one year will demand training of most of the nation's Grade 1 teachers. This will demand the full time efforts of the NCC English Curriculum Specialist for three months. If for any reason, there is not a full time specialist on the project, this training work could be done by one of the RLP evaluators, working with the EIA staff at NCC. In this case, the trainer would return to other work once the program is launched in January, leaving the project without a curriculum specialist. This means the amount and type of script revision possible would be limited to the sort that was undertaken during the 6 month pre-test. While this was adequate to our goals, in future it may be considered appropriate to do more extensive adaptation of the Lesotho scripts. New segments could be written and inserted into the programs to further conform the lessons to specific weekly goals of the current curriculum. The team may wish to experiment with new ideas. After the period of training, time will also need to be spent on the preparations for implementing the Grade 2 radio curriculum. Lastly, the amount of monitoring of recording would also be reduced if the project has no full-time English curriculum specialist.

The secretary to the project will be responsible for doing the computer file revisions of the scripts. (The team should explore the use of the same software that Lesotho is using.)

SBS:

The Educational Broadcasting Officer should be in charge of the recording sessions, acting as director and studio producer.

It is preferable for the recording engineer to be the same person who was trained during the pilot test in the techniques of this type of production.

F) TIME LINE

The work should begin no later than September 1. Training needs to be arranged immediately. Arrangements for printing need to be made early. A decision about the type of radio to use must be made very early.

G) RADIO

Depending on the number of schools that will be involved, the overall budget may not support purchase of the same radio that we used for the test. The TSP 200 cost E229 per set. There may be 700 or 800 radios required in year one. The TSP 200 is a radio/cassette machine, which is not absolutely necessary (though finding powerful, clear speakers in a simple radio set may be difficult.) The unit bought should be of no less output power and clarity of sound than the Tempest used in the test. The set should have a tone control.

Cost sharing: As there was no publicity about the project the only schools that we are certain know about EIA are the test schools. A number of them expressed willingness to purchase a few cassettes with sample pilot phase programs to keep their students involved in audio English classes. (To them, E50 was an acceptable price for the programs.) The test schools will not need to buy radios next year. Partly because of that, the information we have from conversations with test school headmasters and teachers leaves us without an exact number for the price point at which they (and by inference, new schools) would no longer be willing to participate in radio cost sharing. The reports one gets vary according to the respondent. Our judgment is that if a set can be found at about E200, and if the schools are responsible for one half of the cost, most schools will be willing to participate. Participation will be higher with good publicity and strong promotion of the concept. If a decision is made to go ahead with the program, we recommend that the video program "Testing Interactive Radio English in Swaziland" be broadcast over STBC a number of times. SBS should also find imaginative ways to publicize the program and do so frequently.

H) BATTERIES

Battery supply is not a problem. D-cell batteries are widely available around the country. Just as we provided an extra set for each radio to the headmasters, the headmasters next year can keep spares on hand and replenish them when necessary.

I) TEST DESIGN

An achievement test that will be used in all radio schools both in Dec. 1990 and in Dec. 1991 should be designed.

In order to employ a lap-year test design in assessing the achievement gains attributable to the radio curriculum, a test must be ready to administer to the future radio schools' Grade 1 students by the end of the 1990 school year.

J) BROADCAST TIME

The programs should be broadcast at the same time of day as they were this year - 10:00 AM.

K) TRANSPORTATION

The NCC team should have regular use of a vehicle for delivery of materials and staff transport.

L) PRINT

The print materials will have to be released in two stages. Not all Grade 1 materials will be ready by the time school opens for the 1991 year. Early printing is imperative. The print materials used for the pilot test should be reprinted immediately in September to be ready for training the teachers. The NCC print facility did a fine job this year. They do need substantial lead time, however, on a job of this size.

M) TRAINING

The principal trainer will work in association with a number of part time co-trainers. In each region the co-trainers should consist of this year's RLP evaluator together with the inspectors. (The inspectors will have been trained first by the NCC RLP team and the evaluators.) This larger group will then train teachers by regional zones.

APPENDIX A - THE EVALUATION INSTRUMENTS

EVALUATOR'S DAILY OBSERVATION FORM

REGION:

EVALUATOR:

SCHOOL:

DATE:

LESSON #:

1. What was your impression of the teacher's general level of preparation:

not prepared		somewhat prepared		highly prepared
1	2	3	4	5

2. Did the teacher prepare the blackboard before the lesson?

Yes No (not applicable _____)

3. Did the teacher move the radio to optimize reception before the class?

Yes No Don't know

4. How was the radio reception?

Poor		Adequate		Very Fine
1	2	3	4	5

5. Did the teacher set the radio for the clearest tone?

Yes No

6. Did the teacher have the teaching aids ready?

Yes No (not applicable _____)

7. Had the teacher selected Boy 1 and Girl 1 before that part of the lesson began?

Yes No (not applicable _____)

8. How interested/involved in the programs did the pupils appear to be during the first song of the program?

not interested		somewhat interested		very interested
1	2	3	4	5

9. What percentage of the pupils participated actively during the first song of the program?

0% 25% 50% 75% 100%

(Feel free to note other possible percentages.)

10. How interested/involved in the programs did the pupils appear to be around the middle of the program?

not interested somewhat interested very interested

1 2 3 4 5

11. What average percentage of the pupils participated actively around middle of the program?

0. 25% 50% 75% 100%

12. How interested/involved in the programs did the pupils appear to be at the end of the program?

not interested somewhat interested very interested

1 2 3 4 5

13. What percentage of the pupils participated actively at the end of the program?

0% 25% 50% 75% 100%

14. What average percentage of pupils participated in all segments throughout the program?

0% 25% 50% 75% 100%

15. What percentage of the pupils used the workbook correctly?

0% 25% 50% 75% 100%

(not applicable _____)

16. Did the pauses appear to be of the right length?

Too short Just right Too long

17. Did the teacher present a 10 minute follow up to the radio lesson using appropriately related ideas (either as suggested by the English in Action notes or otherwise invented by the teacher.)

Yes No

FORTNIGHTLY QUESTIONNAIRE FOR TEACHERS OF ENGLISH IN ACTION

TO BE FILLED OUT IMMEDIATELY FOLLOWING PROGRAM #

In answering the following questions and making comments, you may wish to consider some of these aspects of the English in Action programs: radio reception, length of the pauses for pupil response, the teacher's notes, the pupil worksheets, the character voices, the music, the physical activities, the songs, the musical dividers that separate one section from the next, the theme song, the speed at which the characters speak, and anything else you have noticed.

1. How easy or difficult is it to use the program effectively?
(circle one number)

very difficult					very easy
1	2	3	4	5	

2. How successful is the program in teaching English?

not successful			somewhat successful		very successful
1	2	3	4	5	

3. How helpful do you find the teachers notes?

not helpful			somewhat helpful		very helpful
1	2	3	4	5	

4. Is there something else you would like to see in the notes?
If so, what?

5. How interested/involved in the programs are your pupils?

not interested			somewhat interested		very interested
1	2	3	4	5	

6. What percentage of your pupils participate actively?
(Feel free to note other possible percentages.)

0%	25%	50%	75%	100%
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7. What percentage of your pupils use the workbook correctly?

0%	25%	50%	75%	100%
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FINAL TEACHER'S QUESTIONNAIRE

In answering the following questions and making comments, you may wish to consider some of these aspects of the English in Action program: radio reception, length of the pauses for pupil response, the teacher's notes, the pupil worksheets, the character voices, the music, the physical activities, the songs, the musical dividers that separate one section from the next, the theme song, the speed at which the characters speak, and anything else you have noticed.

1. How easy or difficult was it to use the program effectively? (circle one number)

very difficult

very easy

1 2 3 4 5

2. How successful do you think the program was in teaching English?

not successful

somewhat successful

very successful

1 2 3 4 5

3. How helpful did you find the teachers notes?

not helpful

somewhat helpful

very helpful

1 2 3 4 5

4. Is there something else you would like to see in the notes? If so, what?

5. How interested/involved in the programs were your pupils?

not interested

somewhat interested

very interested

1 2 3 4 5

6. What percentage of your pupils participated actively? (Feel free to note other possible percentages.)

0% 25% 50% 75% 100%

7. What percentage of your pupils used the workbook correctly?

0% 25% 50% 75% 100%

8. On how many of the last 10 school days was radio reception at your school acceptable?

FINAL TEACHER'S QUESTIONNAIRE (continued)

9. Now with 8 weeks of English In Action done, how far along in English language achievement are your pupils compared to where they would be at this point in the year with only conventional English lessons (not using radio)?
- | | | | | |
|---------------------|---|------|---|-----------------------|
| behind conventional | | same | | ahead of conventional |
| 1 | 2 | 3 | 4 | 5 |
10. How interested and enthusiastic are you about continuing with this method of English language education by radio?
- | | | | | |
|----------------|---|---------------------|---|-----------------|
| not interested | | somewhat interested | | very interested |
| 1 | 2 | 3 | 4 | 5 |
11. After this 8 week test of English In Action would you like to see this program go into all the schools in Swaziland?
- Yes No
12. Why?
13. English In Action may be produced as a 3-year curriculum for grades 1, 2, and 3. Would you like to see a full 3 year curriculum in the schools?
- Yes No
14. Why?
15. Have you had experience with education by radio before?
- Yes No
16. If yes, do you feel that this program is an improvement over earlier radio education programs that you are familiar with?
- Yes No
17. On average, how did you find the radio reception?
- | | | | | |
|------|---|----------|---|-----------|
| poor | | adequate | | very fine |
| 1 | 2 | 3 | 4 | 5 |
18. How did you find the Tempest radio itself?
- | | | | | |
|------|---|----------|---|-----------|
| poor | | adequate | | very fine |
| 1 | 2 | 3 | 4 | 5 |

FINAL TEACHER'S QUESTIONNAIRE (continued)

19. How useful and well designed was the pupil workbook?

poor		adequate		very fine
1	2	3	4	5

20. How helpful were the other materials?
(pencil, book, chairs)

not helpful		somewhat helpful		very helpful
1	2	3	4	5

21. Has your attitude toward English In Action changed since the program began?

Yes No If so, how?

22. Do you think your students attitude toward and ability to use the programs changed over the test period? If so, how?

Yes No If so, how?

COMMENTS:

Please make any comments that you wish to on this sheet. We are interested in anything that you liked or found especially useful or well done in the programs. We are also interested in anything that you did not like or feel did not work well. We want to know how the English In Action programs affected your particular classroom's English teaching experience. You may wish to consider the points listed at the top of page one. (feel free to use the back of this sheet.)

TEACHER'S NAME: _____ SCHOOL: _____

FINAL EVALUATOR'S QUESTIONNAIRE

EVALUATOR'S NAME: _____ REGION: _____

After all the work that you have done in evaluating English In Action it may seem redundant to ask you for additional comment, however, we would like you to focus here on your overall view of the series, rather than on the particulars of a lesson. So, in the light of your extensive experience with the program, please help us with our evaluation by answering the following questions:

1. How helpful in teaching English did your pilot school teachers feel the programs were?

not helpful		somewhat helpful		very helpful
1	2	3	4	5

2. How easy or difficult do you think it is to use the program effectively?

very difficult				very easy
1	2	3	4	5

3. How interested/involved in the programs were the pupils?

not interested		somewhat interested		very interested
1	2	3	4	5

4. What average percentage of pupils participated actively?
(Feel free to note other possible percentages.)

0%	25%	50%	75%	100%
----	-----	-----	-----	------

5. How helpful in teaching English did your pilot school headmasters or headmistresses feel the programs were?

not helpful		somewhat helpful		very helpful
1	2	3	4	5

6. How successful do you think the program was in teaching Grade One English? (circle one number)

not successful		somewhat successful		very successful
1	2	3	4	5

FINAL EVALUATOR'S QUESTIONNAIRE (continued)

7. Overall, excepting the 2 1/2 days when transmission was interrupted, was the radio reception adequate for purposes of teaching English by radio.

Yes No

8. Based on either observations of sister schools' Grade One classes where the radio is not being used this year, or on conversations with radio class teachers, can you tell us whether you think the radio class students are ahead, behind, or at the same stage of English language achievement compared to where they would be at this point in the year with only conventional English lessons (not using radio)?

behind conventional		same		ahead of conventional
1	2	3	4	5

9. How interested and enthusiastic are you about continuing with this method of English language education by radio?

not interested		somewhat interested		very interested
1	2	3	4	5

10. After this 8 week test of 40 English In Action programs, would you like to see this program go into all the schools in Swaziland as an entire year long Grade One series?

Yes No

11. English In Action may be produced as a 3-year curriculum for grades 1, 2, and 3. Would you like to see a full 3 year curriculum in your schools?

Yes No

12. Has your attitude toward English In Action changed since the program began?

Yes No If so, how?

FINAL REO'S QUESTIONNAIRE

REO's NAME: _____ REGION: _____

You may have traveled to one or more of the English In Action pilot schools and observed a radio class. If so, you can answer the following questions based on your own experiences there. If you were unable to visit a class you have surely spoken with headmasters or teachers and/or the program evaluator from your office. In the light of whatever experience you now have with the program please help us with our evaluation by answering the following questions:

1. How helpful in teaching English did your pilot school teachers feel the programs were?

not helpful		somewhat helpful		very helpful
1	2	3	4	5

2. How easy or difficult do you think it is to use the program effectively?

very difficult				very easy
1	2	3	4	5

3. How interested/involved in the programs were the pupils?

not interested		somewhat interested		very interested
1	2	3	4	5

4. What percentage of pupils participated actively?
(Feel free to note other possible percentages.)

0%	25%	50%	75%	100%
----	-----	-----	-----	------

5. How helpful in teaching English did your pilot school headmasters or headmistresses feel the programs were?

not helpful		somewhat helpful		very helpful
1	2	3	4	5

6. How successful do you think the program was in teaching Grade One English? (circle one number)

not successful		somewhat successful		very successful
1	2	3	4	5

FINAL REO'S QUESTIONNAIRE (continued)

7. Overall, excepting the 2 1/2 days when transmission was interrupted, was the radio reception adequate for purposes of teaching English by radio.

Yes No

8. Based on either observations of sister schools' Grade One class where the radio is not being used this year, or on conversations with radio class teachers, can you tell us whether you think the radio class students are ahead, behind, or at the same stage of English language achievement compared to where they would be at this point in the year with only conventional English lessons (not using radio)?

behind conventional same ahead of conventional
1 2 3 4 5

9. How interested and enthusiastic are you about continuing with this method of English language education by radio?

not interested somewhat interested very interested
1 2 3 4 5

10. After this 8 week test of 40 English In Action programs, would you like to see this program go into all the schools in Swaziland as an entire year long Grade One series?

Yes No

11. English In Action may be produced as a 3-year curriculum for grades 1, 2, and 3. Would you like to see a full 3 year curriculum in your schools?

Yes No

12. Has your attitude toward English In Action changed since the program began?

Yes No If so, how?

13. Have you made your opinion of the series known to the P.S.?

Yes No

REGIONAL INSPECTOR'S QUESTIONNAIRE

INSPECTOR'S NAME: _____ REGION: _____

You may have traveled to one or more of the English In Action pilot schools and observed a radio class. If so, you can answer the following questions based on your own experiences there. If you were unable to visit a class you may have spoken with headmasters or teachers and/or the program evaluator from your office. Now you also have seen a video representation of a radio class and comments by the teachers and headmasters involved. In the light of the experience you've gathered from any of the above, please help us with our evaluation by answering the following questions:

1. How easy or difficult do you think it is to use the program effectively? (circle one number)

very difficult					very easy
1	2	3	4	5	

2. How interested/involved in the programs were the pupils?

not interested		somewhat interested		very interested
1	2	3	4	5

3. How helpful in teaching English do pilot school headmasters or headmistresses feel the programs were?

not helpful		somewhat helpful		very helpful
1	2	3	4	5

4. How successful do you think the program was in teaching Grade One English?

not successful		somewhat successful		very successful
1	2	3	4	5

5. Overall, excepting the 2 1/2 days when transmission was interrupted, was the radio reception adequate for purposes of teaching English by radio.

Yes	No
-----	----

REGIONAL INSPECTOR'S QUESTIONNAIRE (continued)

6. Based on either observations of sister schools' Grade One class where the radio is not being used this year, or on conversations with radio class teachers, or on your basic understanding of levels of English proficiency in Grade one, can you tell us whether you think the radio class students are ahead, behind, or at the same stage of English language achievement compared to where they would be at this point in the year with only conventional English lessons (not using radio)?

behind conventional		same		ahead of conventional
1	2	3	4	5

7. How interested and enthusiastic are you about continuing with this method of English language education by radio?

not interested		somewhat interested		very interested
1	2	3	4	5

8. After this 8 week test of 40 English In Action programs, would you like to see this program go into all the schools in Swaziland as an entire year long Grade One series?

Yes No

9. English In Action may be produced as a 3-year curriculum for grades 1, 2, and 3. Would you like to see a full 3 year curriculum in your schools?

Yes No

10. What is the source of your information about the English In Action series? (check all relevant items)

- Video
- Visit to radio learning classroom
- Conversation(s) with evaluator
- Conversation(s) with teacher(s)
- Conversation(s) with headmaster(s)

APPENDIX B - EVALUATION DATA

B.1

EVALUATORS DAILY OBSERVATIONS - SUMMARY

REGION SCHOOL TYPE

TOTAL KHOHO	36 RURAL	99
TOTAL SHISELWENI	43 SEMI-URBAN	53
TOTAL LUBOMBO	36 URBAN	13
TOTAL MANZINI	50 TOTAL	165

TOTAL OBSERVATIONS	165	QUESTIONS:	Q1	Q4	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16
FREQUENCY VALUE	=1	0	2	0	0	0	0	0	0	0	0	0	1
	=2	1	0	1	0	0	0	0	0	0	0	0	0
	=3	26	31	19	18	13	25	25	25	25	25	25	25
	=4	58	54	78	97	92	72	72	72	72	72	72	72
	=5	69	70	59	38	45	45	45	45	45	45	45	45
	TOTAL =	154	157	157	157	153	154	150	151	154	54		146
	AVERAGE SCORE =	4.26	4.2	4.24	81.33	4.13	80.61	4.21	82.65	75.90	80.94		4.09

QUESTIONS:	Q2	Q3	Q5	Q6	Q7	Q16	Q17
YES (Y)	31	149	155	76	106	0	
NO (N)	0	10	3	4	1	151	Y 128
NOT APPLICABLE (NA)	123	0		73	50	1	NO 9
TOTAL	154	159	158	153	157	TOTAL 152	137

B.1

ENGLISH IN ACTION EVALUATORS' DAILY OBSERVATION FORMS

(N,S,M,L)		(A,B)	(H,N,RH,EN,ALT)(R,U,S) (1-5)(Y/N/NA)(Y/N/DE)(1-5)(Y/N)(Y/N/NA)(Y/N/NA)(1-5)(1-100)(1-5)(1-100)(1-5)(1-100)(1-100)(1-100)(1-100)(S,R,L) (Y/N) (1-5)(Y/N)																							
ENTRY	REGION	SCHOOL	STREAM	DATE	LESSON #	EVALUATOR	SCH. TYPE	0 1	0 2	0 3	0 4	0 5	0 6	0 7	0 8	0 9	0 10	0 11	0 12	0 13	0 14	0 15	0 16	0 17	0 18	MEMO
1	L	UBOMBO RANCHES	A	20.2	1	RH	S	4	NA	Y	4	Y	NA	NA	4	90	4	75	4	75	50					4 Y
2	N	ENDZINGENI		20.2	1	EN	S		Y	Y	3	Y	NA	NA	3	75	4	50	3	50	75					3 Y
3	N	NALANDZELA		21.2	2	EN	R	3	NA	Y	5	Y	NA	NA	4	75	5	50	4		50					3 Y
4	N	ESIGANGENI		22.2	3	EN	R	3	NA	Y	5	Y	NA	NA	4	50	5	75		75	75					4 Y
5	N	FORBES REEF		23.2	4	EN	R	3	NA	Y	3	Y	NA	NA	5	50	4	75	5	75	75					5 Y
6	N	QEDUSIZI	A	26.2	5	EN	U	4	NA	Y	5	Y	NA	NA	4	50	4	75	5	100	75					5 Y
7	N	FORBES REEF		27.2	6	EN	R	3	NA	Y	3	Y	NA	Y	5	75	4	75	5	100	75					5 Y
8	N	ENDZINGENI		28.2	7	EN	S	5	Y	Y	5	Y	NA		4	75	5	75	4	75	75					5 Y
9	N	NALANDZELA		1.3	8	EN	R	5	Y	Y	3	Y	Y	NA	5	100	4	100	4	100	75					5 Y
10	N	ESIGANGENI		2.3	9	EN	R	3	Y	Y	3	Y	NA	NA	5	100	4	75	4	100	75					5 Y
11	S	SIYENDLE		20.2	1	H	R		NA	Y	3	R	NA	NA	3	60	4	70	3	65	55					5 Y
12	S	ESANDLENI		21.2	2	H	R		NA	N	5	Y	NA	NA	4	90	4	85	4	80	75					5 Y
13	S	MLABO		22.2	3	H	R	2	NA	N	5	Y	NA	NA	5	98	3	75	3	75	80					5 Y
14	S	KEWENE		23.2	4	H	R	5	NA	N	5	Y	NA	NA	5	100	5	98	5	98	95					5 Y
15	S	SIYENDLE		26.2	5	H	R	4	NA	N	4	Y	NA	NA	4	65	3	60	4	75	80					5 Y
16	S	ESANDLENI		27.2	6	H	R	4	NA	Y	3	Y	NA	NA	4	90	4	90	4	95	98					5 Y
17	S	MLABO		27.2	4	ALT	R	4	NA	Y	4	Y	NA	Y	4	75	4	75	4	98	50					5 Y
18	S	MLABO		28.2	7	ALT	R	4	Y	Y	3	Y	NA	NA	3	50	3	50	4	75	63					5 Y
19	S	SINGLE TREE		20.2	7	H	S	4	Y	N	5	Y	Y	NA	4	90	4	90	5	98	85					5 Y
20	S	MLABO		1.3	8	H	R	4	Y	N	5	Y	Y	NA	4	90	4	90	5	98	85					5 Y
21	S	KEWENE		2.3	9	H	R	5	Y	Y	5	Y	Y	NA	5	99	5	99	5	100	98					5 Y
22	S	SIYENDLE		5.6	11	H	R	3	Y	Y	4	Y	Y	NA	3	55	3	50	4	75	50	70				5 Y
23	S	ESANDLENI		5.6	10	H	R	5	Y	N	5	Y	Y	Y	5	95	5	95	5	98	90	80				5 Y
24	S	MLABO		6.3	11	ALT	R	4	Y	Y	5	Y	Y	Y	5	85	4	75	4	90	75	100				5 Y
25	S	MLABO		7.3	12	H	R	5	Y	Y	5	Y	Y	Y	4	75	4	80	5	85	60	65				5 Y
26	S	SINGLE TREE		8.3	13	H	S	3	NA	Y	3	R	NA	Y	2	20		55	3	50	50					5 Y
27	S	KEWENE		9.3	14	H	R	4	NA	Y	5	Y	Y	Y	3	50	4	75	4	85	80	75				5 Y
28	S	SIYENDLE		12.3	15	H	R			Y	5	Y	Y	Y	3	50	4	80	4	80	75	75				5 Y
29	S	ESANDLENI		13.3	16	H	R		NA	N	5	Y	Y	Y	4	80	5	90	5	98	85	75				5 Y
30	S	MLABO		14.3	17	H	R	5	NA	Y	5	Y	Y	Y	4	80	4	90	5	95	95	98				5 Y
31	S	SINGLE TREE		15.3	18	H	S	5	NA	Y	5	Y	Y	Y	4	80	5	95	5	98	95					5 Y
32	S	KEWENE		16.3	19	H	R	5	NA	Y	5	Y	Y	Y	5	99	5	98	5	99	98					5 Y
33	N	DWALILE	A	20.2	1	H	R	4	NA	Y	3	Y	NA	NA	4	75	5	100	4	75	75					5 Y
34	N	NAHLANYA		20.2	1	ALT	R	5	NA	Y	5	Y	NA	NA	5	75	4	90	5	96	75					5 Y
35	N	MPHETSENI		20.2	1	ALT	S	5	NA	Y	5	Y	NA	NA	5	100	5	100	5	100	75					5 Y
36	N	NAHLANYA		21.2	2	ALT	R	5	NA	Y	5	Y	NA	NA	5	90	5	95	5	95	90					5 Y
37	N	MPHETSENI		21.2	2	H	S	4	NA	Y	4	Y	NA	NA	4	85	4	85	5	85	85					5 Y
38	N	MPHETSENI		21.2	2	ALT	S	5	NA	Y	5	Y	NA	NA	5	100	5	100	5		100	75				5 Y
39	N	EKUTSIMLENI	A	22.2	3	H	R	3	NA	Y	4	Y	NA	NA	4	75	3	75	4	75	75					5 Y
40	N	NAHLANYA		22.2	3	H	R	5	NA	Y	5	Y	NA	NA	5	98	5	80	4	80	80					5 Y
41	N	MPHETSENI		23.2	3	ALT	S	5	NA	Y	5	Y	NA	NA	5	100	4	100	5	75	100					5 Y
42	N	NAHLANYA		23.2	4	H	R	5	NA	Y	5	Y	NA	NA	4	75	4	75	4	75	75					5 Y
43	N	NANZINI INFANT	B	23.2	4	H	U	4		Y	4	Y	NA	NA	4	75	4	75	4	75	75					5 Y
44	N	NAHLANYA		26.2	5	N	R	4	NA	Y	3	Y	NA	NA	4	90	4	85	4	80	80					5 Y
45	N	DWALILE	B	27.2	6	H	R	4	NA	Y	3	Y	Y	Y	4	75	4	75	4	80	75					5 Y
46	N	MPHETSENI		28.2	7	H	S	4	NA	Y	4	Y	NA	Y	5	75	4	90	4	80	75					5 Y
47	N	EKUTSIMLENI	B	1.3	8	H	R	4	Y	Y	4	Y	Y	NA	4	75	4	75		65	65					5 Y
48	N	NANZINI INFANT		2.3	9	N	U	4	Y	Y	3	Y	Y	Y	4	75	4	75	5	68	70					5 Y
49	N	MPHETSENI		3.3	10	N	S	4	Y	Y	4	Y	Y	NA	5	65	4	75	5	75	65	85				5 Y
50	N	EKUTSIMLENI	A	6.3	11	N	R	3	Y	Y	4	Y	Y	Y		65	4	75	4	75	75	75				5 Y
51	N	NAHLANYA		7.3	12	H	R	4	Y	Y	4	Y	Y	Y	4	60	4	60	4	75	68	68				5 Y
52	N	NANZINI INFANT		8.3	13	N	U	4	NA	Y	4	Y	Y	Y	4	75	4	75	4	75	75					5 Y
53	N	DWALILE	A	9.3	14	N	R	3	NA	Y	4	Y	NA	Y	4	60	4	75	4	75	65	65				5 Y

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ENGLISH IN ACTION EVALUATORS' DAILY OBSERVATION FORMS

B.1

54 L	UBORO RANCHES	A	20.2	1	RH	S	4	NA	Y	4	Y	NA	NA	4	90	4	75	4	75	50	R	Y	4	Y		
55 L	KHALAKALE		22.2	2	RH	R	4	NA	Y	4	Y	NA	NA	3	50	3	50	3	25	25	R	Y	3	Y		
56 L	TJANEHI		21.2	3	RH	S	3	NA	Y	4	Y	NA	NA	3	50	3	50	3	25	25	R	Y	3	Y		
57 L	TABUTI		23.2	4	RH	S	5	NA	Y	5	Y	NA	NA	4	75	4	50	4	75	50	R	Y	4	Y		
58 L	UBORO RANCHES	B	26.2	5	RH	S	4	NA	Y	5	Y	NA	NA	4	90	4	75	4	75	50	R	Y	4	Y		
59 L	HAJENBENI	B	27.2	6	RH	R	4	NA	Y	5	Y	NA	NA	4	75	4		4	75	75	R	Y	4	Y		
60 L	KHALAKALE		28.2	7	RH	R	5	Y	Y	5	Y	NA	NA	3	50	3	50		75	25	R	Y		Y		
61 L	TJANEHI		1.3	8	RH	S	5	Y	Y	5	Y	Y	NA	4	75	4	90	5	90	90	R	Y	4	Y		
62 L	TABUTI		2.3	9	RH	S	4	Y	N	3	N	NA	NA	4	75	4	75	4	75	50	R	N	3	Y		
63 L	UBORO RANCHES	A	5.3	10	RH	S	5	Y	Y	5	Y	Y	NA	5	100	4	90	4	90	90	100	R		5	Y	
64 L	TJANEHI	A	6.3	11	RH	S	3	Y	Y	4	Y	N	NA	4	90	4	80	4	80		100	R	Y	Y		
65 L	TABUTI		7.3	12	RH	S	5	Y	Y	5	Y	NA	Y	5	100	5	90	4	100	90	98	R	Y	5	Y	
66 L	NATJEBENI	B	8.3	13	RH	R	5	NA	Y	5	Y	NA	Y	5	90	4	80	4	75	75	80	R	Y	4	Y	
67 L	KHALAKALE		9.3	14	RH	R	5	NA	Y	5	Y	NA	Y	4	90	5	80	3	90	98	100	R	Y	5	Y	
68 L	UBORO RANCHES	A	12.3	15	RH	S	5	NA	Y	5	Y	NA	Y	5	100	5	100	4	90	80	90	R	Y	5	Y	
69 L	TJANEHI	A	13.3	16	RH	S	5	Y	Y	5	Y	Y	Y	5	90	5	100	4	90	95	98	R	Y	5	Y	
70 L	KHALAKALE	A	14.3	17	RH	R	3	Y	Y	5	Y	N	Y	5	75	3	75	4	75	75	100	R	N	3	Y	
71 L	TABUTI		15.3	18	RH	S	5	NA	Y	4	Y	Y	Y	5	100	5	100	5	100	95	100	R	Y	5	Y	
72 L	HAJENBENI	B	16.3	19	RH	R		NA	Y	4	Y	NA	Y	4	90	4	80	4	80	80	100	R	N	Y	Y	
73 H	NANKINI INFANT	A	12.3	15	H	U	3	NA	Y	3	Y	Y	Y	4	60	3	75	4	75	70	70	R	Y	4	Y	
74 H	HPETSENI		13.3	16	H	S	3	NA	Y	4	Y	Y	Y	4	75	4	80	5	75	75	75	R	Y	4	Y	
75 H	DMALILE	B	14.3	17	H	R	4	NA	Y	3	Y	Y	Y	4	75	4	80	5	75	75	75	R	Y	4	Y	
76 H	ECUTSIMLENI	B	15.3	18	H	R	4	NA	Y	4	Y	Y	Y	4	70	4	70	4	75	65		R	N	4	Y	
77 H	DMALILE	A	19.3	20	H	R	4	NA	Y	4	Y	NA	Y	4	75	4	75		80	75		R	Y	4	Y	
78 H	QENUSIZI		5.3	10	EN	U	5	Y	Y	3	Y	Y	NA	5	100	4	100	4	75	75	75	R	Y	5	Y	
79 H	HALADZELA		6.3	11	EN	R	5	Y	Y	3	Y	Y	Y	5	50	4	75	5	100	75	50	R	Y	3	N	
80 H	ENBZINGENI		7.3	12	EN	S	5	Y	Y	4	Y	Y	Y	3	50	5	100	5	100	75	50	R	Y	4	Y	
81 H	ESIGANGENI		8.3	13	EN	R	3	Y	Y	1	Y	N	N	3	50	4	75	4	75	50	50	R	Y	3	Y	
82 H	FORBES REEF		9.3	14	EN	R	5	NA	Y	5	Y	Y	Y	5	100	4	75	5	100	85		R			Y	
83 H	FORBES REEF		13.3	16	EN	R	5	NA	Y	5	Y	NA	Y	3	75	4	75	5	100	75	75	R	Y	5	Y	
84 H	HALADZELA		14.3	17	EK	R	4	NA	Y	3	Y	NA	Y	4	100	5	100	3	60	50	75	R	Y	4	Y	
85 H	ESIGANGENI		19.3	20	EN	R	3	NA	Y	3	Y	NA	Y	4	100	4	75	4	75	50		R			3	Y
86 H	ENBZINGENI		20.3	21	EN	S	5	Y	Y	3	Y	Y	Y	5	100	4	75	4	75	75	95	R	Y	5	Y	
87 H	HALADZELA		21.3	22	EK	R	5	NA	Y	5	Y	Y	Y	5	100	4	75	5	95	75	75	R	Y	5	Y	
88 L	UBORO RANCHES	A	19.3	20	RH	S	5	NA	Y	5	Y	Y	Y	5	100	5	100	4	90	90		R	Y	5	Y	
89 L	TJANEHI	B	20.3	21	RH	S	5	Y	Y	5	Y	NA	Y	5	90	4	90	4	80	75	100	R	Y	4	Y	
90 H	RAHLANYA	A	16.3	19	H	R	4	NA	Y	3	Y	NA	Y	3	60	3	65	3	60	60		R	Y	3	Y	
91 H	HPHETSENI		19.3	20	ALT	S	5	NA	Y	4	Y	Y	Y	5	100	5	100	5	100	100		R	Y	5	Y	
92 H	HPHETSENI		20.3	21	H	S	4	Y	Y	4	Y	Y	Y	5	80	5	80	5	90	80	80	R	Y	5	Y	
93 H	RAHLANYA	B	21.3	22	H	R	4	NA	Y	4	Y	NA	NA	4	90		83		90	90		R	Y	5	Y	
94 S	SIYENDLE		19.3	20	H	R	3	NA	Y	4	Y	Y	Y	5	78	3	75	4	78	60	65	R	Y	3	Y	
95 S	ESANDLENI		20.3	21	H	R	5	Y	Y	3	Y	Y	Y	5	98	5	98	5	98	98	75	R	Y	4	Y	
96 S	HLANDI		21.3	22	H	R	4	NA	Y	4	Y	Y	Y	4	75	4	80	5	90	80	75	R	Y	4	Y	
97 S	SINGLE TREE		22.3	23	H	S																			Y/NO	
98 S	KWENE		23.3	24	H	R																			Y/NO	
99 S	SIYENDLE		26.3	25	H	R	3	NA	Y	3	Y	Y	Y	3	55	3	75	4	78	75	75	R	Y	3	Y	
100 S	ESANDLENI		27.3	26	H	R	5	NA	Y	5	Y	Y	Y	5	98							R	Y	4	Y/INT	
101 S	HLANDI		28.3	27	H	R	5	NA	Y	5	Y	Y	Y	4	75	4	80	4	85	80		R	Y	4	Y	
102 S	SINGLE TREE		29.3	28	H	S	3	NA	Y	4	Y	Y	Y	3	75	3	50	4	75	60		R	Y	3	Y	
103 S	KWENE		30.3	29	H	R	4	NA	Y	5	Y	Y	Y	4	75	4	80	4	80	80		R	Y	5	Y	
104 L	UBORO RANCHES	B	26.3	25	RH	S	5	NA	Y	5	Y	Y	Y	4	80	4	80	4	80	75	100	R	Y	5	Y	
105 L	TJANEHI	A	27.3	26	RH	S	5	NA	Y	Y			Y	5	100							R	Y	5	Y/INT	
106 L	KHALAKALE	B	28.3	27	RH	R	5	NA	Y	5	Y	NA	Y	5	100	5	95	5	90	90		R	Y	5	Y	
107 L	HAJENBENI		29.3	28	RH	R	4	NA	Y	4	Y	NA	Y	4	85	4	80	4	80	75		R	Y	4	Y	
108 L	TABUTI		30.3	29	RH	S	5	NA	Y	Y	Y	Y	Y	5	95	5	95	4	90	85		R			5	Y
109 H	FORBES REEF		22.3	23	EN	R																			Y/NO	

B.2

FORTNIGHTLY TEACHERS' QUESTIONNAIRES - FIRST 30 LESSONS

	(10,20,30)	(H,M,S,L)	(NAME)	(A,B)	(NAME)	(1-5)	(1-5)	(1-5)	(Y/N)	(1-5)	(1-100)	(1-100)	(S,R,L)	0	(Y,N)
ENTRY	LESSON #	REGION	SCHOOL	STREAM	TEACHER	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	MEMO
1	10	L	MAJEMBENI	B	MKHABELA	4	4	4	N	4	75	80	R	9	Y
2	10	L	MAJEMBENI	A	NDLOVU	4	4	4		5	75	75	R		Y
3	10	L	TJANENI CENTRAL	AB	MAGAGULA	5	4	5		5	75	75	R	10	Y
4	10	L	UBOMBO RANCHES	B	SIMELANE	4	4	5		4	50	50	L	9	Y
5	10	L	UBOMBO RANCHES	A	NHLABATSI	4	5	5		4	75	75	L	9	Y
6		L	TAMBUTI		MAGAGULA	5	5	5		5	75	50		2	Y
7	10	M	MANZINI INFANT		ELUPUPA	5	5	5		5	75	75	L	8	Y
8	10	M	MAHLANYA PRIMARY		DLAMINI	5	5	5		5	98	98	R	10	Y
9	10	M	DWALILE PRIMARY	A	DLAMINI	4	5	5		5	75	75	R	10	Y
10	10	M	MANZINI INFANT		DLAMINI	4	5	5		5	75	75	L	8	Y
11	10	M	DWALILE CENTRAL	B	SHABANGU	5	5	5		5	75	100	R	10	Y
12	10	M	KUTSIMLENI		SIDZANDZANE	4	3	5		5	75		R	10	Y
13	10	M	KUTSIMLENI		MANYATSI	5	4	5		5	75		R	10	Y
14	10	M	MPHETSENI		MDZINISO	5	5	5		5	100		R		Y
15	20	M	KUTSIMLENI		MANYATSI	4	4	5		5	75	75	R	10	Y
16	20	M	KUTSIMLENI		SIDZANDZANE	4	4	5		5	50	75	R		Y
17	20	M	DWALILE CENTRAL	B	SHABANGU	5	5	5		5	75	100	R	10	Y
18	20	M	DWALILE CENTRAL		DLAMINI	5	5	5		5	100	75	R	10	Y
19	10	S	SINGLE TREE		KHUMALO	5	5	5		5	75	75	R	10	Y
20	10	S	SINGLE TREE		MAGAGULA	5	5	5		5	75	75	R	10	Y
21	10	S	SIYENDLE		ZWANE	5	4	4		4	50	25	R	10	Y
22	10	S	SIYENDLE		NHLABATSI	3	2	3		3	50	25	R	10	Y
23	10	S	ESANDLENI		HLOPHE	4	4	5		5	50	75	R		Y
24	10	S	SIYENDLE		ZWANE	4	3	4		3	25		R	10	Y
25	10	S	NKWENE		GININDZA	4	4	4		5	50	75	R		Y
26	10	S	NKWENE		GININDZA	5	5	5		4	75	75	R	10	Y
27	10	S	NKWENE		GININDZA	5	4	5		4	75	75	R	10	Y
28	10	S	SIYENDLE		NHLABATSI	4	4	5		4	50		R		Y
29	10	S	MLAMBO		MALINDZISA	3	4	5		4	50	75	R	10	Y
30	10	S	ESANDLENI		SIBANYONI	4	4	5		5	50	75	R		Y
31	10	H	FORBES REEF		VILAKATI	5	5	5		5	75	75	R		Y
32	10	H	MALANDZELA		MASANGO	4	4	5		5	75	75	R		Y
33	10	H	ESIGANGENI	A	NDLOVU	4	4	5		5	80	75	R		Y
34	10	H	ENDZINGENI	A	KHUMALO	5	5	5		5	75	75	R	10	Y
35	10	H	ENDZINGENI	B	MSIBI	5	5	5		5	75	75	R	10	Y
36	10	H	ESIGANGENI		MAVUSO	4	4	5		5	80	95	R		Y
37	10	H	QEDUSIZI		SHANGE	5	5	5		5	95	98	R	10	Y
38	10	H	QEDUSIZI		ABNER	5	5	5		5	95	98	R	10	Y
39	20	H	ENDZINGENI		LEANDRS	5	5	5		5	75	90	R	10	Y
40	20	H	ENDZINGENI		MSIBI	5	5	5		5	75	95	R	10	Y
41	20	H	ESIGANGENI		NDLOVU	4	3	5		3	50	75	R		Y
42	20	H	MALANDZELA		MASANGO	4	4	5		4	75	75	R		Y
43	20	L	KHALAKAHLE		DLAMINI	4	5	5		5	50	100	R		Y
44	20	L	MAJEMBENI		NDLOVU	4	5	5		5	75	75	R	10	Y
45	20	L	MAJEMBENI		MKHABELA	4	5	4		5	90	75	R	10	Y
46	20	L	TAMBUTI		MAGAGULA	5	4	4		5	75	50		10	Y
47	20	L	UBOMBO RANCHES		SIMELANE										Y
48	20	L	UBOMBO RANCHES		NHLABATSI	5	5	4		4	75	75			Y
49	20	L	KHALAKAHLE		MTHIMKHULU	4	5	5		5	75	100	R	10	Y
50	20	L	TJANENI		MAGAGULA	5	5	5		4	75	75	R		Y
51	20	L	TJANENI		MABILA	5	5	5		5		75	R		Y
52	20	L	MANZINI INFANT		DLAMINI	5	5	5		5	75	75	L		Y
53	20	L	MAHLANYA		DLAMINI	5	5	5		5	100	100	R	10	Y

B.2

FORTNIGHTLY TEACHERS' QUESTIONNAIRES - FIRST 30 LESSONS

54	20	S	NKWENE	SIMELANE	5	5	5	5	75	75	R	10	Y
55	20	S	NKWENE	FAKUDZE	4	4	5	4	75	75	R	10	Y
56	20	S	ESANDLENI	HLOPHE	5	5	5	5	75	75	R	10	Y
57	20	S	NKWENE	GIMINDZA	5	5	5	5	75	75	R	10	Y
58	20	S	SIYENDLE	NHLABATSI	3	3	3	4	25	25	R	10	Y
59	20	S	SIYENDLE	ZWANE	5	4	5	4	75	75	R	10	Y
60	20	S	SINGLE TREE	KHUMALO	4	5	5	5	75	50	R	8	Y
61	20	S	SINGLE TREE	MAGAGULA	4	5	5	5	75	50	R	8	Y
62	20	S	ESANDLENI	SIBANYONI	4	4	4	4		75	R		Y
63	20	M	MPHETSENI	MOZINISO	5	5	5	5	100	100	R		Y
64	30	H	DEDUSIZI	ABNER	5	5	5	5	98	96	R	3	Y
65	30	H	FORBES REEF	VILAKATI	5	5	5	5	75	100	R	10	Y
66	20	H	DEDUSIZI	ABNER	5	5	5	5	97	98	R	10	Y
67	20	H	DEDUSIZI	SHAYE	5	5	5	5	97	98	R	10	Y
68	30	L	MAJEMBENI	KHABELA	5	5	5	5	95	75	R	7	Y
69	30	L	TAMBUTI	MAGAGULA	5	5	4	5	75	75	R	7	Y
70	30	L	UBOMBO RANCHES	SIMELANE	4	5	4	5	75	75	R	7	Y
71	30	L	TJANENI	MAGAGULA	5	5	5	4	75	75	R	10	Y
72	30	H	MALANDZELA	MASANGO	4	4	5	5	75	75	R		Y
73	30	S	ESANDLENI	HLOPHE	4	5	5	5	75	75	R	7	Y
74	30	S	SINGLE TREE	MAGAGULA	4	4	5	5	75	75	R	7	Y
75	30	S	SINGLE TREE	ANGELINE	4	4	5	5	75	75	R	7	Y
76	30	S	NKWENE	GIMINDZA	4	5	5	5	75	75	R	7	Y
77	30	S	NKWENE	SIMELANE	5	5	5	5	75	75	R	3	Y
78	30	S	NKWENE	FAKUDZE	4	4	4	3	75	75	R	2	Y
79	30	S	ESANDLENI	SIBANYONI	4	4	4	4	75	75	R	7	Y
80	30	S	MLAMBO	MALINDZICA	5	5	5	5	100	75	R	7	Y
81	20	M	MAHLANYA	SHONGWE		5	5	5	80	80	R	10	Y
82	30	M	DWALILE	DLAMINI	5	5	5	4	100	75	R	8	Y
83	30	M	DWALILE	SHABANGU	5	5	5	5	100	100	R	8	Y
84	30	M	KUTSIMLENI	RUTH	5	5	4	5	75	75	R	7	Y
85	30	M	KUTSIMLENI	SIDZANDZANE	4	5	5	5	75	75	R	7	Y
86	30	M	?		5	5	5	5	100	98	R	8	N
87	30	M	MANZINI INFANT	DLAMINI	5	5	5	5	75	100	R	9	N
88	30	M	MANZINI INFANT	LUPUPA	4	4	5	5	75	75	R	8	Y
89	30	S	SIYENDLE	NHLABATSI	4	4	5	3	50	50	R	7	Y
90	30	S	SIYENDLE	ZWANE	5	4	5	5	100	75	R	7	Y
91	30	M	MPHETSENI	RADEBE	4	5	5	4	75	75	R	6	Y
92	30	H	ESIGANGENI	MDLOVU	5	5	5	5	98	90	R		Y
93	30	H	ENDZINGENI	LEANORS	4	4	5	5	75	95	R	7	Y
94	30	H	ENDZINGENI	MSIBI	4	4	5	4	95	90	R	7	Y
95	30	H	ESIGANGENI	MASUKU	5	5	5	5	98	96	R		Y
96	30	L	MAJEMBENI	MDLOVU	4	5	4	5	85	95	R	7	Y

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	MEMO	
FREQUENCY VALUE	=1	0	0	0	0					=2	3
	=2	0	1	0	0					=3	2
	=3	3	4	2	5					=6	1
	=4	42	32	15	20					=7	16
	=5	45	58	78	70					=8	8
TOTAL	=	95	95	95	95	94	91			=9	4
AVERAGE SCORE	=	4.44	4.54	4.8	4.68	75.063	76.813			=10	39

	Y=0	R=86	Y=94
	N=1	L=5	N=2
TOTAL=4		91	73
			96

FINAL TEACHERS' QUESTIONNAIRES

FINAL TEACHER'S QUESTIONNAIRE

ENTRY	REGION	SCHOOL	STREAM	TEACHER	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	MEMO		
1	MANZINI	KUTSIWLEMI		SIDZANDZANE	4	4	5		4	75	75	10	4	5	Y	Y				5	5	5	5	Y	Y	Y			
2	MANZINI	KUTSIWLEMI		MANYATSI	4	4	5		5	75	75	10	4	5	Y	Y				5	5	5	5	Y	Y	Y			
3	LUBOMBO	RAJEBENI		NDLOVU	4	5	4		5	90	95		5	5	Y	Y									Y	Y	Y		
4	LUBOMBO	RAJEBENI		MKABELA	4		5		5	90	95		5	5	Y	Y									Y	Y	Y		
5	LUBOMBO	TJANENI		MAGAGULA	5	5	5		5	75	75	10	5	5	Y						Y				Y	Y	Y		
6	LUBOMBO	KHALAKAHLE		NTSHINIMULU	4	5	4		5	75	75	10	4	5	Y	Y				Y	Y						Y		
7	LUBOMBO	KHALAKAHLE		DLANINI	4	5	4		5	75	75	10	4	5	Y	Y				Y	Y					Y	Y		
8	NA	- HEADMISTRESS REPORT																											
9	LUBOMBO	TJANENI		MABILA	5	5	5		5	75	75	10	5	5	Y	Y				Y	Y				Y	Y	Y		
10	LUBOMBO	TAMBUJI		MAGAGULA	5	5	4		5	75	75	7	4	5	Y	Y				Y					Y	Y	Y		
11	LUBOMBO	LUBOMBO RANCHES		SIMELAME	4	4	4		4	75	75		4	4	Y	Y									Y	Y	Y		
12	LUBOMBO	LUBOMBO RANCHES		MHLABATSI	4	4	4		5	75	75		4	5	Y	Y									Y	Y	Y		
13	MANZINI	MPHETSENI		KADEBE	4	5	5		5	75	75	10	4	5	Y	Y				Y	Y				Y	Y	Y		
14	SHISELWENI	SITENDLE		MHLABATSI	4	5	5		4	75	50	10	4	5	Y	Y				NA					Y	Y	Y		
15	SHISELWENI	SITENDLE		IZANE	4	5	5		4	80	75	10	4	5	Y	Y				NA					Y	Y	Y		
16	SHISELWENI	ESANDLENI		SIRAWONYI	5	5	5		5	75	75	10	4	5	Y	Y									Y	Y	Y		
17	SHISELWENI	ESANDLENI		MLOPHE	5	5	5		5	75	75	10	4	5	Y	Y									Y	Y	Y		
18	SHISELWENI	MLAMBO		MALINDZISA	5	5	5		5	75	75	10	5	5	Y	Y					Y				Y	Y	Y		
19	MANZINI	MANZINI INFANT		LUPUPA	5	5	5		5	75	75	10	3	4	Y	Y									Y	Y	Y		
20	MANZINI	MAHLANYA		DLANINI	5	5	5		5	100	100		5	5	Y	Y				Y	Y				Y	Y	Y		
21	MANZINI	MAHLANYA		SHONGWE	5	5	5		5	96	96				Y	Y									Y	Y	Y		
22	MHOHO	ENDZINGEMI		MSIBI	5	5	5		5	75	95	10	5	5	Y	Y				Y	Y				Y	Y	Y		
23	MHOHO	ENDZINGEMI		KHUMALO	4	4	5		4	85	95	10	5	5	Y	Y									Y	Y	Y		
24	MHOHO	FORBES REEF		EUNICE	5	4	5		5	95	100	6	4	5	Y	Y				Y	Y				Y	Y	Y		
25	MHOHO	MALARDZELA		MASANGO		5	5		5	75	100		4	5	Y	Y				Y	Y				Y	Y	Y		
26	MHOHO	DEBUSIZI		ABNER	5	5	5		5	98	97	10	5	5	Y	Y				Y	Y						Y		
27	MHOHO	SIGANGEMI		MASUYI	5	5	5		5	90	90		5	5	Y										Y	Y	Y		
28	MHOHO	SIGANGEMI		NDLOVU	5	5	5		5	90	90		5	5	Y										Y	Y	Y		
29	SHISELWENI	MEWEM		SININDZA	5	5	5		5	75	75		4	5	Y	Y									Y	Y	Y		
30	SHISELWENI	SINGLE TREE		MAGAGULA	4	5	5		5	75	75	10	4	5	Y										Y	Y	Y		
31	SHISELWENI	MEWEME		FAKUDZE	5	4	5		5	75	75		4	4	Y	Y									Y	Y	Y		
32	SHISELWENI	MEWEME		SIMELAME	5	5	5		5	75	75		4	5	Y	Y									Y	Y	Y		
33	SHISELWENI	SINGLE TREE		EMBELINE	4	5	5		5	75	75	10	4	5	Y										Y	Y	Y		
34	MANZINI	DVALILE		SHABANGU	5	5	5		5	100	75	10	5	5	Y	Y									Y	Y	Y		
35	MANZINI	DVALILE		DLANINI	5	5	5		5	96	98	10			Y	Y									Y	Y	Y		
36	MANZINI	MANZINI INFANT		DLANINI	5	4	5		5	75	75	10	3	4	Y	Y				Y	Y				Y	Y	Y		

FREQUENCY VALUE	=1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
=2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
=3	0	2	0	0	0	0	0	0	0	0	0	4	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0
=4	14	8	6	5	5	5	5	5	5	7	5	19	4	0	0	0	0	0	0	0	0	0	0	0	0	0	
=5	20	24	29	30	30	30	30	30	30	10	71	10	31	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL	34	34	35	35	34	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	
AVERAGE	4.60	4.66	4.82	4.80	4.81	4.76	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	4.81	

YES	35	30	11	11	31	30	34
NO	0	4	23	0	0	0	1
NA			2				
TOTAL	35	34	34	13	31	30	35

B.4

ENGLISH IN ACTION EVALUATORS' FINAL QUESTIONNAIRE

(H,M,S,L)	(NAME)	(1-5)	(1-5)	(1-5)	(1-100%)	(1-5)	(1-5)	(Y/N)	(1-5)	(1-5)	(Y,N)	(Y,N)	(Y,N)	(Y,N)	
ENTRY	REGION	NAME	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	MEMO
1	MANZINI	HLOPHE	4	3	4	75	4	4	Y	4	4	Y	Y	Y	Y
2	LUBOMBO	NXUMALO	5	4	5	80	5	5	Y	4	5	Y	Y	Y	Y
3	SHISELWENI	MAVIMBELA	5	4	5	90	5	4	Y	4	5	Y	Y	Y	Y
4	HHOHHO	NXUMALO	5	4	4	75	5	4	Y	5	5	Y	Y	Y	Y
AVERAGE:			4.75	3.75	4.5	80	4.75	4.25		4.25	4.75				

REGIONAL EDUCATION OFFICERS' FINAL QUESTIONNAIRE

FINAL REO'S QUESTIONNAIRE

(H,M,S,L)	(NAME)	(1-5)	(1-5)	(1-5)	(1-100%)	(1-5)	(1-5)	(Y/N)	(1-5)	(1-5)	(Y,N)	(Y,N)	(Y,M)	(Y/N)	(Y,N)	
ENTRY	REGION	NAME	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	MEMO
1	LUBOMBO	DLAMINI	5	4	5	95	NA	4	NA	NA	4	Y	Y		N	Y
2	SHISELWENI	DLUDLU							Y			Y				Y
3	MANZINI	NHLENGETFWA	5	4	5	75	5	5		5	5	Y	Y	Y	N	Y

REGIONAL INSPECTORS' FINAL QUESTIONNAIRE

(H,M,S,L)	(NAME)	(1-5)	(1-5)	(1-5)	(1-5)	(Y/N)	(1-5)	(1-5)	(Y/N)	(Y/N)	(V,C,CE,CT,CH)	(Y,N)					
ENTRY	REGION	NAME	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	MEMO				
1	SHISELWENI	DLAMINI	4	5	5	5	Y	5	5	Y	Y	V,C,CE,CT,CH	Y				
2	SHISELWENI	MAMBA	3	5	5	4			4		Y	V	Y				
3	LUBOMBO	SIMELANE	3	5	3	3			5	Y	Y	V,C	Y				
4	LUBOMBO	DLAMINI	4	5	5	4		4	5	Y	Y	V,CT,CH	Y				
5	SHISELWENI	KNUMALO	3	4	3	4	Y	4	3	Y	Y	V,CT,CH	Y				
6	MANZINI	DUBE	5	3	5	1			1	N	Y	V	Y				
7	MANZINI	MALAZA	5	5	5	3	N		5	Y	Y	V	Y				
8	MANZINI	MYLET	2	3	3	2	N	3	3	N	Y	V	Y				
9	MANZINI	EININGCA	3	3	3	3		3	1	Y	Y	V,CH	Y				
10	HHOHHO	MAHLALELA	3	4	5	4	Y	4	5	Y	Y	V	N				
11	HHOHHO	SITHERE	5	5	5	4	N	5	5	Y	Y	V	Y				
12	HHOHHO	TSAREDEZE		5	5	4		5	5	Y	Y	V,CE	Y				
AVERAGE:			3.6	4.27	4.27	3.27		4	3.81								
						YES 3			9			12			11		
						NO 3			2								

(V) -VIDEO
 (C) -CLASS VISIT
 (CE)-CONVERS. EVAL.
 (CT)-CONVERS. TEACH.
 (CH)-CONVERS. ADMSTR

B.5

EVALUATORS' DAILY OBSERVATIONS - REMOTE SCHOOLS

SORTED BY DISTANCE

REGION	SCHOOL	L.#	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	
H	ENDZINGENI	1		Y	Y	3	Y	NA	NA	3	25	4	50	3	50	75			Y	3	
H	ENDZINGENI	7	5	Y	Y	5	Y	NA		4	75	5	75	4	75	75		R	Y	3	
H	ENDZINGENI	12	5	Y	Y	4	Y		Y	3	50	5	100	5	100	75	50	R	Y	4	
H	ENDZINGENI	21	5	Y	Y	3	Y	Y	Y	5	100	4	75	4	75	75	95	R	Y	5	
H	ENDZINGENI	29	3	NA	Y	5	Y	Y	Y	4	75	5	100	5	100	75		R	Y	5	
H	ENDZINGENI	37	3	NA	Y	3	Y		Y	5	100	4	75	3	75	50		R			
H	ENDZINGENI	40	5	NA	Y	3	Y	Y	Y	5	100	3	50	4	75	75	90	R		3	
M	DWALILE	1	4	NA	Y	3	Y	NA	NA	4	75	5	100	4	75	75		R	Y	4	
M	DWALILE	6	4	NA	Y	3	Y	Y	Y	4	75	4	75	4	80	75		R		4	
M	DWALILE	14	3	NA	Y	4	Y	NA	Y	4	60	4	75	4	75	65	65	R	Y	4	
M	DWALILE	17	4	NA	Y	3	Y		Y	4	75	4	80	5	75	75	75	R	Y	4	
M	DWALILE	20	4	NA	Y	4	Y	NA	Y	4	75	4	75	4	80	75	75	R	Y	4	
M	DWALILE	25	4	NA	Y	4	Y	Y	Y	4	80	4	75	4	75	75	75	R	Y	4	
M	DWALILE	34	4	NA	Y	4	Y	NA	Y	4	90	4	85	4	95	90		R	Y	4	
M	DWALILE	39	4	NA	Y	3	Y	Y	Y	4	75	4	80	4	90	85	80	R	Y	4	
L	MAJEMBENI	6	4	NA	Y	5	Y	NA	NA	4	75	4		4	75	75		R	Y	4	
L	MAJEMBENI	19		NA	Y	4	Y	NA	Y	4	90	4	80	4	80	80	100	R	N		
L	MAJEMBENI	28	4	NA	Y	4	Y	NA	Y	4	85	4	80	4	80	75		R	Y	4	
L	MAJEMBENI	33	4	NA	Y	5	Y	NA	Y	3	85	4	80	4	75	70		R	N	3	
L	MAJEMBENI	38	5	NA	Y	5	Y	Y		5	95	4	90	4	90	80	100	R	Y	4	
FREQUENCY VALUE			=1	0						0	0		0							0	
			=2	0						0	0		0							0	
			=3	3						3	3		2							4	
			=4	10						13	15		14							12	
			=5	5						4	4		3							2	
TOTAL			=	18	20	20	20	20	17	18	20	20	20	19	19	20	20	9	19	17	16
AVG.			=	4.11			3.85			4.05	78	4.15	78.94	4.05	79.75	74.75	81.11			3.88	

B.6

EVALUATORS' DAILY OBSERVATIONS - REMOTE SCHOOLS

SORTED BY RECEPTION REPORTS

REGION	SCHOOL	L.#	01	02	03	04	05	06	07	08	09	010	011	012	013	014	015	016	017	018	
H	ENDZINGENI	1		Y	Y	3	Y	NA	NA	3	25	4	50	5	50	75			Y	3	
H	FORBES REEF	4	3	NA	Y	3	Y	NA	NA	5	50	4	75	5	75	75		R	Y	5	
H	FORBES REEF	6	3	NA	Y	3	Y	NA	Y	5	75	4	75	5	100	75		R	Y	5	
H	MALANDZELA	8	5	Y	Y	3	Y	Y	NA	5	100	4	100	4	75	75		R	Y		
H	ESIGANGENI	9	3	Y	Y	3	Y	NA	NA	5	100	4	75	4	100	75		R	Y	5	
S	SIYENDLE	1		NA	Y	3	N	NA	NA	3	60	4	70	3	65	55		R	Y	3	
S	ESANDLENI	6	4	NA	Y	3	Y	NA	NA	4	90	4	90	4	95	98		R	Y	4	
S	MLAMBO	7	4	Y	Y	3	Y	NA	NA	3	50	3	50	4	75	65		R	Y	3	
S	SINGLE TREE	13	3	NA	Y	3	N	NA	Y	2	20		55	3	50	50		R	Y	3	
M	DWALILE	1	4	NA	Y	3	Y	NA	NA	4	75	5	100	4	75	75		R	Y	4	
M	MAHLANYA	5	4	NA	Y	3	Y	NA	NA	4	90	4	85	4	80	80		R	Y	4	
M	DWALILE	6	4	NA	Y	3	Y	Y	Y	4	75	4	75	4	80	75		R		4	
M	MANZINI INFANT	9	4	Y	Y	3	Y	Y		4	75	4	75	5	68	70		R	Y	4	
L	TAMBUZI	9	4	Y	N	3	N	NA	NA	4	75	4	75	4	75	50		R	N	3	
M	MANZINI INFANT	15	3	NA	Y	3	Y	Y	Y	4	60	3	75	4	75	70	70	R	Y	4	
M	DWALILE	17	4	NA	Y	3	Y		Y	4	75	4	80	5	75	75	75	R	Y	4	
H	QEDUSIZI	10	5	Y	Y	3	Y	Y	NA	5	100	4	100	4	75	75	75	R	Y	5	
H	MALANDZELA	11	5	Y	Y	3	Y	Y	Y	5	50	4	75	5	100	75	50	R	Y	3	
H	MALANDZELA	17	4	NA	Y	3	Y	NA	Y	4	100	5	100	3	60	50	75	R	Y	4	
H	ESIGANGENI	20	3	NA	Y	3	Y	NA	Y	4	100	4	75	4	75	50		R		3	
H	ENDZINGENI	21	5	Y	Y	3	Y	Y	Y	5	100	4	75	4	75	75	95	R	Y	5	
M	MAHLANYA	19	4	NA	Y	3	Y	NA	Y	3	60	3	65	3	60	60		R	Y	3	
S	ESANDLENI	21	5	Y	Y	3	Y	Y	Y	5	98	5	98	5	98	98	75	R		4	
S	SIYENDLE	25	3	NA	Y	3	Y	Y	Y	3	55	3	75	4	78	75	75	R	Y	3	
H	ESIGANGENI	28	3	NA	Y	3	Y	N	Y	4	75	3	50	4	75	50		R	Y	3	
S	SINGLE TREE	34	5	NA	Y	3	Y	NA	Y	4	80	4	85	5	95	80		R	Y	5	
H	MALANDZELA	32	4	NA	Y	3	Y		Y	5	100	3	75	4	65	75		R		4	
M	DWALILE	39	4	NA	Y	3	Y	Y	Y	4	75	4	80	4	90	85	80	R	Y	4	
H	ENDZINGENI	37	3	NA	Y	3	Y		Y	5	100	4	75	3	75	50		R			
H	MALANDZELA	39	3	NA	Y	3	Y	NA	Y	5	100	4	75	4	75	75	80	R	Y	3	
H	ENDZINGENI	40	5	NA	Y	3	Y	Y	Y	5	100	3	50	4	75	75	90	R		3	
H	ESIGANGENI	13	3	Y	Y	1	Y	N	N	3	50	4	75	4	75	50	50	R	Y	3	
H	ESIGANGENI	35	4	NA	Y	1	Y	NA	Y	4	95	4	75	4	75	75		R		4	
FREQUENCY VALUE		=1	0			2				0		0			0					0	
		=2	0			0				1		0			0						0
		=3	11			31				6		7			6					13	
		=4	13			0				14		22			20					12	
		=5	7			0				12		3			7					6	
TOTAL		=	31	33	33	33	33	30	32	33	33	32	33	33	33	33	12	32	26	31	
AVG.		=	3.87			2.87				4.12	76.	3.87	76	4.03	77.39	70.03	74.16			3.77	

APPENDIX C - EVALUATION COMMENTS

C.1 - FINAL COMMENTS OF TEACHERS OF ENGLISH IN ACTION:

ENTRY 1 / MANZINI / KUTSIMLENI / SIDZANDZANE

I liked the sounds for animals and the way you put it. As we have been teaching names for animals only. The time is too short extend it please. Your preparation in other lessons is not well clear but some of the things are very good.

ENTRY 2 / MANZINI / KUTSIMLENI / MANYATSI

I liked the songs and the pupils enjoyed them and the sounds of animals it is easy for them to know the animals, and the commands are very good. The English is easy and well understood. The pauses are fine, and the dividers are okey.

ENTRY 3 / LUBOMBO / MAJEMBENI / NDLOVU

The program was an easier way of teaching English than the English I'm using. Pupils also developed the listening skill. The radio reception was good only except 3 days when there was no English in Action on air.

Length of the pause

The pauses were too long for the pupils to answer.

Teachers notes

The notes were good but they need to be added a little so that the teacher can use them even if theres no lesson on air.

Pupils worksheets

Pupils worksheets were good except that they easily get torn.

Characters voices

Good.

Music

Good

Physical activities

They were good and they helped pupils to keep on moving and it helps them to not fall asleep.

Songs

Songs were good. Through them pupils learn something e.g names of animals and their sounds.

ENTRY 4/ LUBOMBO / MAJEMBENI / MKHABELA

The program proved to be an easier way of teaching English because they understood it better than English we teach in our classes. The radio reception except for three days when it was not in the air.

Length of the pauses

The pauses were too long for the pupils to answer. to make them shorter than what they were.

Teachers notes

They were good but I think they should carry almost that could be done for each lesson to enable the teach using the notes when there is no lesson in the

Pupils worksheets

Pupils worksheets were good only that they should be a small book-let.

Characters voices

Good

The music

It was good only for few songs e.g listen to the cat the instruments make it difficult to hear the names of animals.

Physical activities

Good and well done.

Songs: Good

Musical dividers

Good enough time for pupils to get into places mentioned in certain activities.

ENTRY 5 / LUBOMBO / TJANENI / MAGAGULA

Children had developed a high listening skill compared to ordinary English. They pronounce clearly English words and learnt good spelling compared to prior lessons. Reception was good except for lessons 23, 24 and 27. The length of the pause were very good and children participated

Pupils worksheets were useful because the children could refer to the pictures as they are instructed. The characters were loud and clear, the music was good and they enjoyed it. During physical activities the children participated actively listening to all the instructions.

ENTRY 16 / SHISELWENI / ESANDLENI / SIBANYONI

At the beginning we thought it was too quickly for the children but in few days time we found it our mistakes to say so because they found it a very happy and easy speed to continue even to the other classes.

ENTRY 17 / SHISELWENI / ESANDLENI / HLOPHE

At the beginning we thought it was too quickly for the children, but in a few days time we found our mistake to say so because they found it very happy and easy speed to them. Please let the programme continue.

ENTRY 18 / SHISELWENI / MLAMBO / MALINDZISA

1. The English in Action programme is of great value to the pupils. They easily learn and understand. This is through the way they are taught.
2. The pupils work book should be fastened harder.

ENTRY 19 / MANZINI / MANZINI INFANT / LUPUPA

Radio reception: Often quite clear. Length of pupils response is reasonable. Teachers pupils worksheets are very useful. Worksheets are legible attractive and clear. Characters voices very clear. Pronunciation of words and speed suits the first grade. Activities and songs very pleasant. Children enjoy singing and dancing. The simplicity of the tunes enables the pupils to learn quickly.

ENTRY 20 / MANZINI / MAHLANYA / DLAMINI

The English in Action makes pupils to understand English quicker.

ENTRY 21 / MANZINI / MAHLANYA / SHONGWE - NO COMMENT

ENTRY 22 / HHOHHO / ENDZINGENI / MSIBI

English in action programme is very helpful. It is useful to the pupils in class and also to the teacher and even the pupils do not want to be absent from school.

ENTRY 23 / HHOHHO / ENDZINGENI / KHUMALO

This English in action is very helpful, it is helpful to the pupils in class and also to some pupils who are not in class. People enjoy the programme, as a result they make sure that they tune the MW at 10:00 AM. The number of absentees has decreased because of this program.

ENTRY 24 / HHOHHO / FORBES REEF / EUNICE

If only all information was taped into cassettes there would not be any problem about poor reception vidio tapes would be good too, and would help pupils to see real action. Pronunciation should be clear e.g " she is are woman" instead of " she is a woman", "that's are horse, intead of that is a horse".

ENTRY 25 / HHOHHO / MALANDZELA / MASANGO

I feel as if the radio lesson can continue in schools. The radio lessons I found them quite right, the whole set up are well prepared. It works or goes together with the school English oral, I also find that the children are always having interest in every lesson and the time is okey.

ENTRY 26 / HHOHHO / QEDUSIZI / ABNER

I still say I like the programmes so much though I used to change about even with the other English, but this is more interesting the children must always be aware even the teacher as well. There's no chance of doing something else than listening carefully until the lesson ends. Again at the end you do the follow up activity. The only thing Thuli takes a long pause when saying " I put one finger up", the children some times begin saying yet she hasn't stated counting. Siphoo too does the same.

Any-way I should say everything was done well. Well done to our English in Action program. It is quite interesting, I wish and pray that this program should continue to all the other schools. There's just little disturbance within only 10 minutes before the lesson begin, though its when we give out these books. Please kindly carry on with the lesson. Thanks very very much.

ENTRY 27 / HHOHHO / SIGANGENI / MASUKU

The English in Action was very successful, pupils were very interested although not all children participated actively in class. The radio lessons has improved children's pronunciation of words. The children are able to say out some words with confidence.

ENTRY 28 / HHOHHO / ESIGANGENI / MDLOVU

Its good for children, they learn to concentrate. Children enjoy it very much, they think they are playing yet they are learning. They achieve the same thing.

ENTRY 29 / SHISELWENI / NKWENE / GININDZA

English in Action is more interesting to kids. Pupils recognise more vocabulary and sounds made in a previous lesson.

ENTRY 30 / SHISELWENI / SINGLE TREE / MAGAGULA

It did not affect our classroom English teaching experience instead the lessons are very successful.

ENTRY 31 / SHISELWENI / NKWENE / FAKUDZE

English in Action would be very good if the radio teacher could go according to his instructions. The radio vocabulary is remembered more easily.

ENTRY32 / SHISELWENI / NKWENE / SIMELANE

English in Action is more interesting to the kids. Pupils recognise more vocabulary and sounds made in a previous lesson, so I should suggest that this programme may continue.

ENTRY 33 / SHISELWENI / SINGLE TREE /ANGELINE

The English in action did not affect our classroom English teaching, experience instead. The lessons are very successful.

ENTRY 34 / MANZINI / DWALILE / SHABANGU

Your programme was excellent, pupils participated actively in all the lessons. There only one problem in the radio. The sound is not very clear. I think it is affected by the distance away from the radio station and we are next to the boundary of south africa.

ENTRY 35 / MANZINI / DWALILE / DLAMINI

I was very much interested on how my pupils responded to the radio teachers, even those who are slow learners responded very easily to Thuli and Sipho and I hope that the EIA programmes will be introduced to the other schools in Swaziland.

ENTRY 36 / MANZINI / MANZINI INFANT / DLAMINI

In some of the lessons children were asked to print at a boy/girl then while pointing the radio will tell them to say donkey/water or cat. Suggestion the radio teacher should first say children hands down. Then after that children say donkey or whatever not while pointing.

C.2 - FINAL COMMENTS OF HEADMASTERS OF E.I.A. PILOT SCHOOLS:

LUBOMBO / TJANENI / TFWALA

English in Action as a whole is very good for the children. The children learn English quickly in a short space of time.

Characters voices: They were loud and clear, children understood what was expected of them. As a whole, English in Action is good for the children. They develop a high listening skill.

The songs were wonderful the children learnt them quickly, they are always alert and wait for action. I personally feel that English in Action is a wonderful way of teaching English. The children will really be disappointed when they don't have the lessons in English in Action.

MANZINI / MAHLANYA / GININDZA

I feel that the radio lessons were a success because of the following reasons:

1. Children enjoyed them whilst going to a lot of vocabulary.
2. There was an integration of other subjects e.g numbers in maths.
3. The children become more relaxed and fluent in English.
4. These lessons form part of the N.C.C material we use.

It would be better if these lessons would be implemented in all schools starting from the first grade upwards. Secondly I feel that lessons should cater for the three school terms.

SHISELWENI / MLAMBO / KHUMALO

I wish to point out that the radio lessons in our school have played an important role in the improvement of spoken English in grade 1.

The grade 1 teacher has also been greatly assisted because of the less work that she had to do. This is because mostly, some of the work had already been prepared for her.

Our grade 1 pupils have shown some enjoyment in the lessons and indirectly, they were learning a lot.

I had the hope that new lessons would be taught next term. Since these lessons will not continue next term, I wish to point that they were a great success. They are recommended to be taught in all schools in the near future.

MANZINI / MANZINI INFANT / MAHLALELA

This is one of the most appropriate activities for the English beginners. On observing these lessons we discovered the pupils benefited so much that explanation of certain things in siSwati ended up being unnecessary. This has proved to be the right instrument to use when introducing English.

I personally feel it should be done continuously to improve the standard of English in Swaziland. This also improves the children's listening abilities.

MANZINI / MPHETSENI / MDZINISO

Personally I would say that the program should not stop because children learn better. Last year's pupils could not at this time comprehend nor respond to the teacher.

The teachers and community appreciated this and children enjoyed very much indeed. I wish our ministry would implement the program and supervise it effectively. The programme goes hand in hand with the existing English program.

MANZINI / SINGLE TREE / MOTSA

At times you find that the radio reception is not quite clear particularly when there has been a thunderstorm, then you find that the program is disturbed in that way or out.

Coming to the advantages of the program, I can say this has developed the language skill to the pupils it has also developed the learning interest to the pupils. The pupils responded well to all physical activities, they are able to answer some questions without the help of their teacher. So I can say this English in Action program is very much helpful to the pupils it has developed the learning skill of the language and the speed at which they speak. For example; "stand up, sit down", when the pupils say this they develop music, physical activities and simultaneously the language skill of the program.

SHISELWENI / SIYENDLE / SHONGWE

Radio learning project, English in Action. I have observed that pupils in the radio classroom are active and lively as they learn by radio. Radio lessons help develop listening skills which is examinable at the higher levels of the primary education. English in Action involves both the teacher and pupils in the learning process. Pupils in the radio classroom are different from those who have not used it. I therefore wish that the radio learning project English in Action could go beyond grade 1 and grade 2.

C.3 - FINAL COMMENTS OF EVALUATORS OF ENGLISH IN ACTION

ENTRY 1 / MANZINI /HLOPHE

The most important point to consider in implementing a program is the monitoring perception and attitude. To speak specifically with our rural schools where reception is almost nil, it is important to take that into account before all schools are expected to implement the program. Orientation is very important before a program is launched. Supervision is another key element to success.

ENTRY 2 / LUBOMBO / NXUMALO

1. One of the advantages of English in Action was the intergration of subjects e.g maths, music.
2. Vocabulary- Children's vocabulary increased greatly. Teachers learned to use or follow up lessons through the radio.
3. Pronunciation- both teachers and children had a good chance of pronunciation.
4. Interpretation of noise e.g horse, donkey etc. taught children to be aware of sounds for other places local to them e.g donkey, hen.
5. Brought teachers awareness of noticing difficult words when teaching e.g differences between she/he continuously confused children. The programme itself is very good especially because English is the basic for teaching other subjects.

ENTRY 3 / SHISELWENI / MAVIMBELA

Pupils highly enjoyed the lessons and they were highly involved in them every day. Children learn better when they are interested in whatever lesson taught and these radio lessons accommodated such and the teachers themselves enjoyed these radio lessons.

Children have been given basic skills for the listening skill exercises because they were trained in following directions and responding to them as required and thus improving their communication skills in listening and speaking.

Throughout the forty lessons taught, their vocabulary has been greatly widened. I would not imagine grade 1 children in the first term of school knowing the correct pronunciation and meaning of such words as crowing, snap, stamp, able, group, frog, hooter, drum, wind, bell, hold, cough, laugh, smile, hold, whistle, drive, train, welcome, etc in rural areas except perhaps in urban areas.

Children have been exposed to using sounds appropriately, e.g a dog is barking, a cock is crowing, a bird is singing, a baby is crying, etc. They could also use expressions where numbers and plurals were drilled, e.g one boy two or more boys, one hand two or more hands, one pencil two or more pencils.

They were also exposed to using pronouns in appropriate gender e.g he for masculine, she for feminine and it for the neuter gender. They were drilled in using the demonstratives which are tricky even in the upper grades e.g this and that, these and those.

There were drilled in the appropriate use of prepositions e.g at, on, under, etc. They were also drilled in answering questions in positive and negative responses e.g yes, it is/no, it isn't, yes, she is/no, she isn't etc

They were drilled in using possessives in the right way e.g my, our, your, his, her, their etc. They have been exposed to music in very simple, enjoyable and lively tunes to break the monotony and reinforce the words that the children were learning in segment by segment.

The lesson notes have been made so clear that the teachers had no difficulty in following and providing whatever teaching aids needed for the day. During the broadcast, the characters voices were so clear that it was very easy to grasp whatever they intended teaching/saying.

There has been the reception of the lessons which was quite good for the little children. Finally the lessons mostly had to go hand in hand with the grade 1, NCC books except a few which were also used in strengthening children in speaking/learning English as a second language. It was quite commendable that most of the requirements of the grade 1 English syllabus have been accommodated.

ENTRY 4 / HHOHHO / NXUMALO

The language used is simple, the songs and the radio teachers who acted for being Swazi has made the programme easily followed and understood. The medium wave is a bit a disturbance, the programme would be nice to be expanded nationwide but there are areas which need to be cleared first.

C.4 - FINAL COMMENTS OF REGIONAL EDUCATION OFFICERS:

ENTRY 1 / LUBOMBO / DHLAMINI

1. One can not make judgements at this stage since the program is only introductory.
2. Consistency of funding should be assured every year in order to make the program a permanent part of English teaching.

ENTRY 2 / SHISELWENI / DLUDLU

1. The program was well prepared and if improvements are constantly done it would finally be perfect.
2. Commitments on the side of government should be secured before plunging into the implementation.
3. The above in NO 2 is also directed to the replacement of radios and have standing firms to service the radio.
4. Common radio should be bought so that it will be easy to service them.

ENTRY 3 / MANZINI / NHLENGETFWA

1. The sound and pronunciation are quite good, particularly for grade 1 classes.
2. There was singing when the teacher was explaining some concepts in siswati. There should be complete quietness when the teacher is saying something to the pupils.
3. The only problems I should foresee are;
(a) Shortage of radio sets.
(b) Theft, because some of our schools do not have nightwatchmen.
4. (RE: Usefulness of SBS MW service) I would think that it is quite good.
5. The program should be introduced to all schools for grades 1 to 4 as soon as possible.

C.5 - FINAL COMMENTS OF REGIONAL INSPECTORS:

ENTRY 1 / SHISELWENI / DLAMINI

This program if continued can help our children to speak and understand English very well. I pray that the Swaziland government will approve this program and later commit herself in seeing to it that the program grows from strength to strength by training the teachers who will handle the lessons, and also supplying the schools with radio and other learning materials. I hope the programme will be a success.

ENTRY 2 /SHISELWENI / MAMBA

No doubt the program is not only good but useful in the teaching of the English. However all depends upon the Swaziland government ... how committed it will be in supplying the replacement (radios) in order to enable the programme to continue successfully. Similar programs have come and disappeared because they lacked government supports.

Otherwise I fully endorse the introduction of this programs in schools in Swaziland.

ENTRY 3 / LUBOMBO / SIMELANE

In places where reception is not good I would recommend cassettes be used instead. I am aware that recording the radio program on cassette is expensive but it would be very helpful to have one.

ENTRY 4 / LUBOMBO / DLAMINI

Pupils are actively involved in the lesson, which creates a very good learning situation. Addition of teaching materials in the form of flash cards and physical objects might be helpful, since some children are not familiar with animals/objects mentioned in the lessons. These programs would be very useful in improving the standard of English in our primary schools.

ENTRY 5/ SHISELWENI / KHUMALO

The program could work very well if those schools concerned could use radio cassettes instead of radio so that even if the reception is not good all schools participating could learn or follow up very well with the programs.

The standard of the program should improve so that pupils after the lessons could indicate some improvements in spoken, written and listening skills.

ENTRY 6 / MANZINI / DUBE

The program looks good it makes pupils listen to the radio, some change need to be made though. For example the greeting is dragged and does not sound good and real.

ENTRY 7 /MANZINI / MALAZA

The program is ok, but there are many things which need to be improved before this program goes to all the schools in the country.

ENTRY 8 / MANZINI / MYLET

Sounds- the use of proper actions e.g stamping of feet and walking, this should be done properly.

ENTRY 9 /MANZINI / GININDZA

It seems the current English curriculum needs some improvement so as to improve the radio program. Pupils must really touch, see and make real sounds of objects. There should be some graded activities e.g vocabulary, recitation, story telling, playway method, reading lessons, revision etc. Mrs. L. L. Masuku could be invited to the revision of the program.

ENTRY 10 / HHOHHO / MAHLELELA - NOTHING

ENTRY 11 / HHOHHO / SITHEBE

The video radio lessons are good for our schools, I wish it continues.

ENTRY 12 / HHOHHO / TSABEDZE

Fluency of pupils in grade 1 is a good sign of how successful the program is. Problems for expansion would be :

1. Supervision personal.
2. Efficiency of the broadcasting station.
3. Provision of radios.

APPENDIX D - ANALYSIS OF SBS MEDIUM WAVE SERVICE

D.1

April 9, 1990

FINDINGS OF EXPERT ANALYSIS OF SBS MEDIUM WAVE SERVICE

Mr. C. Derek Shaw was employed to analyze SBS's medium wave equipment. Mr. Shaw is the engineer who originally commissioned the medium wave equipment. His charge was to examine all equipment in the signal path. He was to note the state of repair of the equipment, the settings at which they were operating, the quality of the signal at all points in the transmission chain, to make adjustments and repairs where possible given the spare parts available, to take stock of the spare part inventory, to diagnose weak points in the system and make recommendations for improving it, and to help us develop a list of parts needed to insure reliable continuing service.

Mr. Shaw arrived at SBS at 8:00 AM Monday March 26. His arrival occurred at a fortunate time. The MW signal had become noisier over the last week, the hiss level increasing with the signal modulation. (The noise "splashed" as the announcer spoke.) The signal would also rapidly attenuate to 0 as the signal strength dropped, as at the end of words and on fading music. The result of this was lost intelligibility of speech as initial and final sounds of words were lost. (This sounded like a misadjusted noise gate). Worst of all, we had been off the air for the last 2 school days following storms the previous Wednesday night. By the Monday of Mr. Shaw's arrival we were back on the air, due to the efforts of Chris Motsa, an SBS engineer, who had fixed the more severe problems over the weekend.

Mr. Shaw first met with Stan Motsa, chief engineer. We agreed on the scope and sequence of work and collected the necessary test equipment and tools. Mr. Shaw was then introduced to Director Tembe. We proceeded from this meeting to begin analysis. The signal path is as follows:

- SBS English svc. studio (tape players, mixing board outputs)
- Microwave transmission equipment rack at SBS. (housing the transmission part of the studio-transmitter link, or the STL)
- Mangwaneni Hill microwave receiving and retransmitting (STL) equipment
- Sidvokodvo microwave (STL) receiving equipment
- Sidvokodvo transmitter (2 Continental Electronics 50 KW transmitters, a combiner and control console)
- Sidvokodvo antenna tower

(On Mangwaneni hill there's also a 10KW Continental Electronics transmitter and antenna that are now out of service.)

MONDAY: ASSESSING CONDITION OF THE SYSTEM

SBS STUDIO AND STL INSPECTION:

The studio was taken as a given. The state of repair of one of the tape machines and the console are known to us as being adequate for playback purposes. Monitoring in the studio reveals adequate signal to noise (S/N) ratio (a clear sound), though regular maintenance is required. The Moseley STL transmitter at SBS appeared to be functioning properly. After surveying the STL transmitter we proceeded to Mangwaneni hill.

MANGWANENI HILL INSPECTION:

We found that the Moseley STL Aural Receiver (Model PCL 505) was set up at the IEC level where it is designed for NAB standard. It was reset thus improving signal to noise (S/N). It appears to be a data receiver that has been converted to use as an aural receiver. It seems to work fine in this mode.

There was a Moseley TGR 340 Gain Rider in the path there that was felt to be unnecessary now with readjustment of the receiver. We removed it from the signal path.

The 10 KW transmitter appeared to need minor work to recommission it. The antenna looks fine.

We noted need for new light bulbs.

SIDVOKODVO INSPECTION:

STL: The transmitter was being overmodulated. One of the receivers is very noisy. The other was intermittent.

A Moseley TAL-320 Audio Limiter was removed so that it could be better utilized at SBS studios to prevent overmodulation of the first STL.

TRANSMISSION LINE: We were very concerned about this because water in this line could be the cause for the "splashing" audio distortion we were hearing. We found that the transmission line cable dehydrator had been switched off due to its running continuously. Either there is a fault in the unit's pressure sensing switch or the line is losing pressure. We inspected the end nearest the transmitter and found no water in the line there.

We could not inspect the other end of the line (beneath the antenna in the matching unit shed, as the door was locked and no one had the key.

TRANSMITTER: Transmitter (TX) #2 is clearly in poor shape. Many parts have been taken from it to keep TX #1 running. There was evidence of rat infestation...droppings, chewed wires. The step start switch appeared to be faulty. A significant amount of work will be required to bring it back into service.

TX #1 seemed to be in good working order, though we had unexplained switch-offs to account for. Some capacitors were found to be faulty. A few were replaced using TX 2 parts. Some evidence of rats chewing wiring harnesses was found. The Magni-phase unit showed a problem with the impedance matching from the transmitter to the tower.

CONTROL CONSOLE: We noted some wiring damage. This will require rewiring to bring it back to full service.

STAND-BY AC POWER GENERATOR: We had heard from SBS engineers that this unit no longer worked. Being under the Ministry of Works, there is little sense of control over its condition. With a description of the problem, but with no time for a physical inspection, Shaw felt that it was likely due to a simple problem in the control circuitry that could be inexpensively fixed.

ANTENNA: The bush under the antenna is supposed to be eliminated for a radius equal to the height of the tower. There are copper conducting wires buried less than a foot under the soil radiating around the tower. This area is now completely overgrown. Similarly, the area right around the matching unit shed is thickly overgrown with bushes reaching up to the window from which the high voltage antenna wires leave the shed. One can see the burned tops of the bushes, clearly indicating electrical arcing. This could have something to do with the impedance mismatch. This bush should be cut immediately (under close supervision, as it is a hazardous job using knives so near the live wires).

- TUESDAY:** 1) FREQUENCY RESPONSE AND DISTORTION TEST OF STL's AND ASSOCIATED ADJUSTMENTS
2) REPAIR AND REMATCHING OF ANTENNA AND TX

We installed the Moseley Audio Limiter at SBS and arranged for various frequency signals to be sent to Mangwaneni hill for testing. At Mangwaneni hill we adjusted the ballistics of the meters in the receiver and transmitter to match the newly limited signals coming from SBS. This seemed to take care of most of the "splashing" (together with yesterday's adjustments for overmodulation at Sidvokodvo).

So the sound was improved as English In Action went on the air Tuesday at 10:00 AM. But after a few minutes the program abruptly went off the air. The transmitter at Sidvokodvo had tripped off. As there are no communications to the site and no skilled operator there, there was nothing to do but proceed with the STL work and see to the TX problem later. Our working assumption was that there was an electrical arcing going on that was tripping the TX.

SBS TO MANGWANENI STL: Our frequency sweep and distortion tests revealed excellent frequency response and distortion figures for this link.

SIDVOKODVO STL: The intermittent receiver prevented us from getting all the frequency sweep and distortion test frequencies we needed but we were able to assess certain facts. Both receivers showed roll off of the high frequencies indicating that the transmitter from Mangwaneni was not pre-emphasizing the high frequencies as it should. (A flat signal is being sent.) It was impossible to assess distortion completely with the faulty receivers. The intermittent one was fixed and is now working reasonably well. The few distortion figures we do have (13%) are probably due to the above mentioned frequency roll off. In sum, there are significant problems with the Mangwaneni - Sidvokodvo link creating a noisier signal than is necessary.

We feel the need to do some additional study to produce final recommendations for the best way to improve this link. Time constraints and problems with communications from SBS to Sidvokodvo and with the receivers there impeded resolution of this question. A survey should be undertaken to see if the equipment now in place is suitable for the distance of and possible obstructions to the microwave path. We certainly need to discuss available resources for a maintenance/upgrade plan, as there are very different costs associated with different potential approaches. Suggestions we have received from Shaw and James Burnett of Trans World Radio indicate possible approaches to improving this weak link in the system chain:

- 1) - Moving the STL receivers to a new fiberglass shed that could be placed at the base of the receiving tower. As it is now there is a long run of coaxial cable from the masthead amplifier (which we assume is working well) to the transmitter building. This kind of cable loses fidelity quickly on long runs. It is advisable to shorten the coaxial cable run by cutting it at the bottom of the tower and placing the receivers (the good one and the fixed second unit) there and running audio cable to the building. This would improve S/N (signal to noise ratio).

2) - Putting an amplifier on the transmission end. This would require getting a new frequency allocated by Posts and Telecoms (to avoid feedback with the first STL), installing new crystals in the STL equipment - and/or buying a new link transmitter.

3) - Exploring the possibility of using existent FM transmitting equipment to convert this link to an FM link.

4) - Building a new repeater link. Probably too costly.

TOWER: We inspected the tower while under power for signs of arcing on the insulators and elsewhere. None could be found, though the insulator closest to the shed appeared to have lost its porcelain sheath. This does not appear to be a practical problem. (In later discussions I learned that this was a replacement part of a different design from the others installed by TransWorld Radio).

TRANSMISSION LINE CABLE AND MATCHING UNIT: We observed the matching unit under power. There is no evidence of arcing there. The door switch, designed to shut off the power to the unit when opened, is faulty. Once the door was opened and power was shut off it would not return when the door was closed. To continue we had to override it. This should be repaired immediately and until then, to avoid a fatal accident, a sign must be placed at the facility indicating that the door switches have been overridden (via jumper wires in TX 1 at bottom of distribution cabinet). We bled the air from the transmission line cable and found no evidence of water in the line. The line's low points are elsewhere so we can not be sure about this, but in absence of other evidence we can assume the line is free of water.

Still the Magniphase reading on TX 1 was unexplained. We hadn't found the cause - no obvious arcing other than the burned bush at the window to the tower. We needed to use an impedance bridge to try to locate and correct the problem. I decided to contact TransWorld Radio to get such equipment from them. This was done.

ASSESSING IMPEDANCE AND INDUCTANCE: The transmitter is designed to send its signal into an antenna with an impedance of 50 ohms J (inductance) 0. The bridge showed us that the antenna was presenting 55 ohms J 12.

MATCHING TRANSMITTER AND ANTENNA: We fabricated a copper extension band and after repeated attempts rematched the unit to 50 ohms J 6. J 0 was not attainable on this single inductor type matching unit. Next we matched the 100 ohm point in TX 1.

The J O point was still hard to attain. This was due to the combiner and we left final tuning of the dummy load till Wed.

While testing the new arrangement an electrical arc, visible as a blue spark at the rear of the TX 1 distribution cabinet, tripped the transmitter off the air again. This was a blessing in disguise, as it allowed us to locate an intermittent problem that had likely been the cause of the loss of that day's broadcast. We located a loosely wired 5KV-3KV overload relay as the source of the problem and resoldered it. The problem has not recurred.

A second blessing in disguise occurred when, a few minutes later, a power failure left us in darkness and the service off the air again. Believing the last word I had heard on the subject, we assumed we'd be without power till local service was restored. However, the night watchman went to the generator and started it up and we were back on the air. Apparently, only the automatic start-up controls are out of order. This indicates a very minor problem with the back-up power supply. The unit seemed to automatically turn off when the power came back on. It should be noted that all accounts are that the Sidvokodvo area has notoriously inconsistent electrical power. Therefore, the generator is of critical importance to MW reliability.

WEDNESDAY: 1) ANALYSE 10 KW TRANSMITTER AND ATTEMPT FIX
2) FINISH MATCHING
3) COMPILE PARTS LISTS

SBS AND MANGWANENI: I made copies of Stan Motsa's trimmed parts list for use in our later discussions. We made some minor adjustments to STL equipment settings and replaced lightbulbs at Mangwaneni hill. We began analysis of the 10 KW transmitter while the day's English In Action program was broadcast. We determined that a number of parts needed replacing to repair the 10 KW TX.

SIDVOKODVO: The transmitter, dummy load, and combiner system were brought to J O. Still the Magniphase unit was giving a reading that was worrisome. It was found that this unit was missing a diode. We swapped this unit for the one in TX 2. The substitute unit gave a good reading and so will function now as intended as a safety circuit.

There still appeared to be clipping of the last phonemes of words. This sounded like an improperly set "downward expansion" type noise reduction circuit. We found the negative limiter on TX 1 to be permanently on. We swapped its module with that of

TX 2 but noted no improvement in the sound. There is a noise reduction switch inside the STL receiver at Sidvokodvo (but not at Mangwaneni, as it turns out). We turned it off with notable improvement in intelligibility and some increase in hiss. (The hiss is what we would hope to reduce with adjustments to the STL link from Mangwaneni to Sidvokodvo).

We retrieved a few parts for the 10 KW TX.

MANGWANENI: We attempted to fix the 10 KW TX. We found additional blown parts. Analysis revealed that this transmitter could be easily fixed for very little money.

Finally, we finished parts lists and rough pricing. I asked Mr. Shaw to prepare the following lists of parts and cost estimates:

- Parts needed to return TX 2 to operation.
- Spares for 12 months of Sidvokodvo operation at 50 KW.
- Additional spares (if any) for operation at 100 KW.
- Parts needed to return Mangwaneni 10 KW TX to operation.
- Spare for 12 months of operation of 10 KW.
- Annual contingency budget for unforeseen items.

I also asked Mr. Shaw to tell me how much expert labor might be required to affect the changes we are discussing:

- Consultancy labor required to repair TX 2
- Consultancy labor required to repair console and return Sidvokodvo to 100 KW operation.
- Consultancy labor to repair 10 KW TX.

THURSDAY: 1) PARTS RECOMMENDATIONS MEETING - S. MOTSA
2) SUMMATIVE MEETING - TEMBE, S. MOTSA

SBS: Stan Motsa, Derek Shaw and I agreed on parts required to bring the system back to proper shape for either 50 or 100KW operation.

We then met with Dir. Tembe to discuss Mr. Shaw's findings, with which I concur. I present them below in a somewhat more detailed manner than he did at that time.

SUMMATIVE RESULTS:

- The system is a fine one that can deliver many more years of reliable service. It is a major investment. (Shaw estimated about 2 million emalangeni in replacement cost.)
- Certain parts of the system are in relatively good shape (the STL link to Mangwaneni hill, TX 1, the tower, etc., the 10 KW transmitter..)
- Other parts of the system are in need of attention, as such a system requires much in the way of maintenance. Some equipment has been decommissioned due to exhaustion of the spares supply. Parts to repair TX 2 are not in stock and spares to keep TX 1 on the air are either not in stock or are in very short supply.
- Parts should be bought to return TX 2 to operation. Regardless of whether or not we choose to operate at 100KW the second transmitter should be maintained so that the country can enjoy uninterrupted MW service.
- A one year supply of spares should be bought.
- The rats and snakes must be brought under control. Their access to the building can be prevented with some simple measures. Rat poison first and immediately. Physical barriers next and soon.
- The brush around the tower base must be cleared soon (under supervision).
- The old arrangement whereby locals were hired to keep the brush around the tower cut (for a radius equal to the tower height) should be resurrected. Cutting close to the ground and pouring fuel oil on the roots to prevent regrowth is the recommended method.
- The Sidvokodvo site should be staffed with an operator / maintenance person(s). James Burnett informs me that two individuals (Jabulani Simelane and R. Dlami i) were trained for 2 months by TransWorld in precisely this capacity as part of a former understanding with SBS. Such an operator would be most helpful.
- The Sidvokodvo site should be automated to help maintain continuous operation when no operator is present. This can be done at relatively low cost (\$1240 - E3100).

- The generator controls should be fixed and maintained. The watchman will not always be present to turn on the generator. Power outages which are unavoidable in the area need not affect our service. This is not a high cost item. Coordination with the Ministry of Works may be required.

- The switches on the matching unit door need to be fixed. Until then a sign needs to be placed on the unit door and in the transmitter room noting the present override.

- The dehydrator pressurizing system should be fixed. Mr. Shaw feels that the most likely cause of the problem is leaking of air at the flanges. These can be resealed.

- The 10 KW transmitter should be fixed. It would not be expensive to do so or to maintain spares for it. It would make a fine alternate frequency for some areas of the country where this signal might be clearer than the one originating at Sidvokodvo. This transmitter could also serve as a backup in case of unforeseen downtime of the main TX.

- Mr. Shaw is a potentially valuable asset. He has intimate knowledge of SBS's medium wave system and extensive experience in maintaining and installing such systems in southern Africa. He can help SBS economize in purchasing and sourcing locally parts that would be much more expensive ordered from Continental direct. He also knows which rebuilt parts can give equal service at 1/2 the cost.

Note: In each succeeding year the spares inventory will grow. Not all spares will be used in the first year, so a more diversified inventory will result. Mr. Shaw estimates that the spares budget may be reduced after about 3 years of purchases at the recommended levels.

MEDIUM WAVE MAINTENANCE AND PARTS COSTS:

Parts to return TX 2 to service (+ 20% contingency) -	\$14,484
Associated labor - 1 week -	1,200
Annual spares for 1 year's operation at Sidvokodvo * -	25,616
Annual contingency fund spares for Sidvokodvo * -	5,000
Recommissioning console to run Sidvokodvo at 100 KW	
Associated labor - 1 week -	1,200
One-time spares for STL -	2,400
Costs of parts to return 10 KW TX to service -	71
Associated labor - 5 hours -	150
Annual costs for 1 year's spares for 10 KW TX (and maintenance of STL) * -	4,888
Moselely link labor - 1 day -	240
Equipment to automate Sidvokodvo TX changeover -	\$1,000
Associated labor - 1 day -	240
Consultant expenses (3 weeks) -	1,275
Consultant travel costs -	350
Additional consultancy contingency - 3 days labor -	720
Extra parts (this year only) 3 guy wire insulators -	6,000
1 antenna skirt insulators -	1,300
	<hr/>
TOTAL	\$66,134
	or E165,335

* Annual expenses (\$35,504) should be inflation indexed.

For a full cost picture, it also should be noted that TransWorld Radio is owed 3 replacement insulators - 2 at about \$2000 each, and 1 at about \$1300. (Add \$5,300 as a one-time back account settlement.)

We must also have a reliable picture of how much SBS owes critical suppliers as future appropriations for new expenditures will not be effective if they go to restore -----

STUART LEIGH, Director, Swaziland Radio Learning Project

Attachment: Report of Derek Shaw dated April 6 - 16 pages

cc: Patrick Fine, USAID
Thomas Tilson, Director, Radio Learning Project, E.D.C.
Abner Tembe, Director, SBS
Ezrum Khumalo, Dep. Director, SBS
Stan Motsa, Chief Engineer, SBS
Tim Shongwe, Education Programs Officer, SBS

SHAW BROADCAST SERVICES CC

C.A. 19/30618/23

Telephone/Fax:
(011)705-2773

FAX 011- 465 3790

P.O. Box 848
Lynchburg 2062
Johannesburg
South Africa

6 April 1990

U.S. AID
P.O. BOX 750
MBABANE
SWAZILAND.

INTRODUCTION

This Technical Report and cost study has been compiled in accordance with discussions and site visits with Mr. S. Leigh U.S. Aid and Mr. S. Motsa S.B.S.

The prime objective of the report is to determine a cost effective proposal for re-establishing a reliable A.M. Broadcast Service in the Kingdom of Swaziland.

SCOPE OF INVESTIGATION

The following subsections detail the various investigations carried out by the writer to establish the technical status of the existing facility.

TRANSMITTER 1	2.1
TRANSMITTER 2	2.2 to 3.4
TRANSMISSION LINE AND DEHYDRATOR	3.5
COMBINED POWER LOAD	3.6
CONTROL	3.7
STANDBY GENERATOR	3.8
ANTENNA AND MOUNTING UNIT	4.1
PROGRAM LINKS	5.1 and 5.2
10 Kw MEDIUM WAVE TRANSMITTER	5.3
SUMMARY	6.1
SPECIFICATION SHEETS	7 to 10
REQUIRED SPARES LIST	11 and 12
RECOMMENDED SPARES LIST	13 and 14
LABOUR CHARGES	15 and 16

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EQUIPMENT ASSESMENT 100Kw M.W. SITE

This will be dealt with item by item under the following headings.

1. Transmitter 1
2. Transmitter 2
3. Combiner / Dummy load
4. Control console
5. Standby generator
6. Transmission line and Denydrator
7. Antenna and matching unit

2.1 TRANSMITTER 1

This is the only operational transmitter on site and it's overall physical condition is good apart from rodent damage to the external wiring.

The transmitter was indicating an antenna fault, having high magna phase reading (safety circuit which monitors the antenna) this unit was disabled in order to keep the transmitter on air. The peak plate tuning trace was tilted which again pointed to an antenna problem. (Covered more fully under antenna heading.)

The sampling capacitors from both the peak and carrier tubes were damaged, these were replaced by capacitors removed from transmitter 2 as none were held in stock.

The magnaphase unit was found to be faulty due to a missing component, here again we had to use transmitter 2 as a spares source.

The negative limiter in the audio input board was faulty swopped with transmitter 2.

The transmitter was specification checked into the dummy load and performed satisfactorily although the distortion figures at 10 KHz were 1% outside specification. The figures for this transmitter are attached.

2.2 TRANSMITTER 2

This transmitter is generally in a very poor state and will be delt with cabinet by cabinet.

2.3 H.V. RECTIFIER CABINET

Evidence of damage to the wiring harness by rats. The inter cabinet H.V. cable has also been damaged and would require replacement.

1.1 P.A. CABINET

1. Damage to wiring loom by rats.
2. Fan belt missing.
3. Indications of rust probably due to leaking roof.
4. Carrier sampling caps missing.
5. IC 34-35-36 missing.
6. Carrier and peak tubes indicate they have been running hot-very discoloured - probably require replacement.
7. Parasitic trap missing from peak tube.

2 DISTRIBUTION CABINET (FRONT)

1. External loom to 2TB badly damaged by rats and to a lesser degree than the internal loom.
2. IC's have been removed from the transmitter logic modules and would require a complete set of replacement IC's.
3. 2 X 3-3000 tubes and 1 X 4-4000 tube missing.

3 DISTRIBUTION CABINET (REAR)

1. Coils missing from 2 K7 and 2 K6
2. 2 C13 incorrect capacitor.
3. 2 T4 suspect.

4 H.V. TRANSFORMER CABINET

The step start switch 4 K2 suspect. This could be due to problems elsewhere in the transmitter but without a detailed diagnosis difficult to confirm.

5 TRANSMISSION LINE AND DEHYDRATOR

The dehydrator had tripped out on my arrival at the site, the transmission line pressure was zero. The unit was reset and appears to be performing satisfactorily but is tripping due to almost continuous running as the transmission line is not holding pressure. The line was vented at the matching unit end to check for evidence of water - none found.

The line pressure could be corrected by applying sealant to both flanges.

1.6 COMBINER / DUMMY LOAD

These units are in good condition and do not require any expenditure.

1.7 CONTROL CONSOLE

This unit is in good condition although requires re-installation due to rodent damage to the external wiring.

1.8 STANDBY GENERATOR

This unit appears to be operational and capable of supplying one transmitter. The unit has to be manually started due to a fault in the automatic panel.

..... Antenna

14.1

ANTENNA AND MATCHING UNIT

The above is completely over grown with thorn bush, in some areas 10' tall. The tower base is completely overgrown with evidence of arcing from the R.F. window in the matching unit to the surrounding bush, which could cause the transmitter to trip. This area should be cleared as a matter of urgency.

ANTENNA IMPEDANCE

The antenna was bridged and found to be 55 Ohms +J12 This was readjusted for 50 Ohms +J6, as the matching unit only consists of a single inductor the + J could not be adjusted out without lowering the antenna impedance. The J factor was compensated for in the transmitter output network.

The change in impedance was probably due to bush encroachment specifically around the tower base.

The antenna appears to be in good physical condition.

MATCHING UNIT

This unit is also in good condition with the exception of a faulty door interlock switch. This is a safety device to prevent anyone entering the matching unit receiving R.F. burns (fatal). This requires immediate attention.

.1. PROGRAM LINKS - S.B.S. STUDIOS - HOSPITAL HILL

The first portion of the programme link between the S.B.S. studios and Hospital Hill was specification checked and found to be working satisfactorily with the exception that the receiver had been adjusted for 0 Db output (0.775V) rather than +10 Db required to properly modulate the link transmitter to the M.W. site.

The discrepancy had been compensated for by placing a gain rider between the receiver and the transmitter. This was removed from circuit after adjustment.

This transmitter at the S.B.S. studio's was being heavily over modulated. This was corrected by placing a spare limiter from the M.W. site between the studio and the link transmitter.

The figures for this portion of the link are attached.

5.2 HOSPITAL HILL - M W SITE.

Multiple problems were encountered on this portion of the link.

Both receivers at the M.W. site were faulty - one with extremely poor signal to noise and the other intermittent. The latter unit was corrected by disabling the carrier mute circuitry. A frequency sweep was carried out on this portion of the link which indicated a very steep high frequency roll off. I am of the opinion that the transmitter is transmitting a flat signal and not pre-emphasised, both receivers indicated the same roll off.

The standly transmitter was placed in circuit but this proved to be unusable due to the poor signal to noise ratio.

Although not surveyed in detail I am of the opinion that the path on this leg of the link would be marginal. A Triac mast head amplifier has been installed in an effort to improve matters but this inturn feeds a coaxial cable run of approximately 250 - 300 meters, which in all likelihood negates the gain of the head amplifier. I would suggest placing the link receivers at the base of the tower in a fibre glass housing and running the audio to the building. This will result in a substantial reduction in coax cable and improve the signal to noise ratio.

The link also had unacceptable high distortion, figures attached.

5.3 10 Kw Medium Wave Transmitter HOSPITAL HILL

This transmitter is not in operation due to a faulty modulator. It's overall physical condition is good and would be a useful standby if required.

I have diagnosed the modulator but S.B.S. do not have the required spares in stock.

SUMMARY

The Medium Wave station with proper maintenance and spares should realistically have a life expectancy of at least 20 years. I would also expect off air time for such an installation not to exceed 1 hour per month.

The foregoing can only be achieved with permanent staff on site. The writer has personal involvement with 5 such installations in Southern Africa, all of which are manned.

Whilst it is obviously an expensive exercise to staff such a site perhaps S.B.S. would be prepared to have an engineer present 1 hour prior to and during the U.S. Aid broadcast.

Regarding the condition of the equipment I feel that Transmitter 2 should be rebuilt without delay and if fitted with an automatic change over unit this will improve reliability substantially.

The control console will have to be re-installed as this is required to switch the transmitters to the antenna.

The above will also bring the station back to 100 Kw capability whether or not it is utilised as such.

The standby generator automatic panel requires attention as this is also contributing to the present down time.

The programme links require attention but little expenditure.

I have included budgetary costs to upgrade the present facility to an acceptable engineering standard plus 12 months spares holding. S.B.S would also require at least \$5,000.00 in reserve for unforeseen spares requirements.

The 10 Kw M.W. transmitter on Hospital Hill could be repaired at very little cost and would be a useful standby facility.

I would estimate approximately 3 weeks labour would be required to return the total system to factory specification.

To date the writer has addressed the obvious technical problems but there are two areas that require attention from S.B.S. to ensure that this situation does not reoccur.

1. VERMIN CONTROL

This should be attended to immediately to prevent further damage to the equipment.

2. SPARES

A firm commitment by S.B.S. to purchase ongoing spares otherwise U.S. Aid would merely be delaying the inevitable.



C. DEREK SHAW
SHAW BROADCAST SERVICES. 0000

HOSPITAL HILL - M.W. SITE S.T.L. LINK FIGURES

As we had no communications between S.B.S. Studios and the M.W. site the test run was done at preset times. Due to problems at both sides we did not accomplish a full frequency or distortion sweep. We obtained sufficient information to evaluate the link.

<u>FREQUENCY SWEEP</u>	<u>DISTORTION FIGURES</u>
50 Hz - 0.6 Db	100 hz - 15%
100 Hz - 0.6 Db	1 KHz - 13%
250 Hz - 0.2 Db	5 KHz - 13%
500 Hz ± 0 Db	
800 Hz ± 0 Db	
1 KHz ± 0 Db	
2 KHz - 0.4 Db	
3 KHz - 1.1 Db	
4 KHz - 2.0 Db	
5 KHz - 4.0 Db	
6 KHz - 4.0 Db	
7 KHz - 5.0 Db	
8 KHz - 7.0 Db	
9 KHz - 8.0 Db	
10 Khz - 9.0 Db	
11 KHz - 10 Db	
12 KHz - 11 Db	
13 KHz - 12 Db	

TRANSMITTER 1 FIGURES FEEDING DUMMY LOADFREQUENCY SWEEP

50 Hz	-0.4 Db
100 Hz	-0.1 Db
200 Hz	0 Db
300 Hz	0 Db
400 Hz	0 Db
500 Hz	0 Db
600 Hz	0 Db
700 Hz	0 Db
800 Hz	0 Db
900 Hz	0 Db
1,000 Hz	0 Db
2 KHz	0 Db
3 KHz	0 Db
4 KHz	0.2 Db
5 KHz	0.2 Db
6 KHz	0.3 Db
7 KHz	0.3 Db
8 KHz	0.4 Db
9 KHz	0.4 Db
10 KHz	0.4 Db
12 KHz	0.5 Db
15 KHz	0.8 Db

TRANSMITTER 1 CONTINUED

<u>DISTORTION</u>					
1 KHz	@	25%	=	2.3%	
1 KHz	@	50%	=	2.5%	
1 KHz	@	100%	=	2.0%	
100 Hz	@	25%	=	2.2%	
100 Hz	@	50%	=	2.2%	
100 Hz	@	100%	=	2.5%	
5 KHz	@	25%	=	2.6%	
5 KHz	@	50%	=	3.2%	
5 KHz	@	100%	=	3.6%	
10 KHz	@	25%	=	3.2%	
10 KHz	@	50%	=	3.4%	
10 KHz	@	100%	=	4.2%	

Output line current was set at 29 amps (42 Kw R.F.)
 although the transmitter was capable of 32 amps. (51 Kw R.F.)

BROADCAST HOUSE - HOSPITAL HILLFREQUENCY SWEEP

50 Hz		-0.2 Db
100 Hz		+0.3 Db
250 Hz		0 Db
500 Hz		0 Db
800 Hz		0 Db
1 KHz		0 Db
2 KHz		0 Db
3 KHz		0 Db
4 KHz		+0.1 Db
5 KHz		+0.1 Db
6 KHz		+0.1 Db
7 KHz		0 Db
8 KHz		0 Db
9 KHz		0 Db
10 KHz		0 Db
11 KHz		0 Db
12 KHz		0 Db
13 KHz		0 Db
14 KHz		-0.1 Db
15 KHz		-0.1 Db

DISTORTION

100 Hz	=	0.45%
1 KHz	=	0.6%
5 KHz	=	0.47%
10 KHz	=	0.46%

LIST OF SPARES REQUIRED TO REBUILD TRANSMITTER 2
 THE FOLLOWING PRICES ARE FOR BUDGETRY PURPOSES ONLY
 AND ARE F.O.B. THE PEAK AND CARRIERS TUBES PRICES
 HAVE BEEN EXCLUDED AS 2 ARE HELD IN STOCK

QUANTITY	DESCRIPTION	PRICE U.S. \$
1	FANBELT	30.00
1	C34 SAMPLING CAPACITORS	50.00
1	C35 SAMPLING CAPACITORS	50.00
1	C36 SAMPLING CAPACITORS	50.00
1	PEAK TUBE PARASITIC TRAP	160.00
3	METRES H.V. CABLE	30.00
2	3-3000A MODULATOR TUBES	1,800.00
2	4-400 RF DRIVER + AUDIO DRIVER TUBES	420.00
1	2K7 CONTACTOR	60.00
1	2K6 CONTACTOR	60.00
1	2C13 SCREEN SUPPLY CAPACITOR	150.00
1	2T4 (SUSPECT) TRANSFORMER	2,000.00
1	4K2 (SUSPECT) STEP START CONTACTER	5,510.00
1	SET OF CARRIER SAMPLING CAPACITORS (5 per set)	250.00
1	SET OF PEAK SAMPLING CAPACITORS (5 per set)	250.00
20	ICS 4069	40.00
20	ICS 555	40.00
20	ICS 4017	40.00
10	ICS 7400	20.00
10	TRANSISTORS 2 N 697	20.00
10	TRANSISTORS 2 N 2102	20.00
1	SET INSTALLATION MATERIALS	1,000.00
1	SEALING KIT FOR TRANSMISSION LINE	20.00
		<u>12,070.00</u>
	20% CONTINGENCY	2,414.00
		<u>\$14,484.00</u>

STL SPARES

UANTITY	DESCRIPTION	PART NO.	PRICE U.S. \$
4		SUB - 8M085	261.24
4	TRANSISTORS	DN10-12B MRF840	427.72
4	TRANSISTORS	CTC-D1-12B SUB 26054	177.36
4	TRANSISTORS	TRW J03402A SUB -MRF840	427.72
4	TRANSISTORS	TRW J03401A SUB -8M085	261.24
1	ANTENNA	PR450	845.00
		F.O.B. TOTAL	<u>\$2,400.28</u>

LIST OF SPARES REQUIRED TO REPAIR 10KW TRANSMITTER

4	TRANSISTORS	DTS 423	45.60
2	RESISTORS	.5 ohm 4602901	10.00
1	RESISTOR	680 2 watt RCR07G470JS	5.00
1	RESISTOR	10 ohm 2 watt W/W 1804	10.00
		TOTAL	<u>\$70.60</u>

RECOMMENDED SPARES LIST (12 MONTHS)

QUANTITY	DESCRIPTION	PART NO.	PRICE U.S. \$
10	IC	351-1552-020	20.00
10	IC	351-7702-010	20.00
10	IC	351-1689-010	20.00
10	IC	351-8216-010	20.00
10	IC	351-4705-010	20.00
10	IC	351-1131-020	20.00
10	TRANSISTOR	352-0646-010	20.00
10	TRANSISTOR	352-0714-010	20.00
10	TRANSISTOR	352-4063-010	85.00
10	TRANSISTOR	352-0711-020	20.00
2	TUBE 40X35,000c	(rebuilt)	9,000.00
1	RECTIFIER	353-5101-010	841.50
1	RECTIFIER	353-5100-010	44.70
1	RELAY 2K10	410-6029-010	4,461.00
1	RELAY 2K2	410-5006-010	62.15
2	RELAY	970-3545-010	101.70
6	RELAY	410-6003-000	218.40
10	RELAY	410-6073-010	383.00
4	TUBE	4-400	829.00
4	TUBE	3CX3000 A1	3,436.00
2	CAPACITORS	951-5002-020	370.50
2	CAPACITORS	951-5001-050	436.20
2	CAPACITORS	951-5001-020	299.20
2	CAPACITORS	930-0101-010	120.60
2	CAPACITORS	930-5003-00	144.40
4	TEF. BY PASS CAPS	142762-2	240.00
4	LAMP	267-5015-010	36.80
2	INNER COLLET	220-6009-050	550.00
2	OUTER COLLET	220-6009-060	522.40
1	CONTACT SET		1,047.56
2	TUBE BASES	73019-11	1,170.86
2	REED RELAY	W102VX-49	200.00
1	RESISTOR	ADJW/W 1000 ohm - 1362	100.00
1	RESISTOR	ADJW/W 25 K ohm 1368	150.00
1	RESISTOR	2.2 K ohm 2 watt - RCR42G222JS	25.00
1	RESISTOR	12 K ohm 2 watt RCR42G123 J S	30.00
1	RESISTOR	25 ohm 175 watt 1158	120.00
1	RESISTOR	10 ohm 50 watt 056	55.00
1	RESISTOR	1 ohm 50 watt 056 OA	55.00
1	RECT	HIV. RECT 67-0578	300.00
	F.O.B.	TOTAL	<u>\$25,615.97</u>

RECOMMENDED SPARES LIST (12 MONTHS)10 KW M.W. TRANSMITTER

UANTITY	DESCRIPTION	PART NO.	PRICE U.S. \$
12	TRANSISTORS	DTS 423	136.80
2	TUBES	4 CX 15000 A (rebuilt)	4,000.00
2	RELAY COIL		121.50
1	RELAY	K1 343-5418	150.00
1	RELAY	K2 A200KACW-H29	150.00
1	RELAY	K3 7022PF	60.00
1	RELAY	K4	60.00
1	RELAY	K12	120.00
6	RESISTORS	0.5 ohm 4602901	30.00
6	REWISTORS	0.1 ohm	30.00
2	RESISTORS	10 ohm 20 watt W/W 1804	30.00
	F.O.B. TOTAL		<u>\$4,888.30</u>

LABOUR CHARGES1. 50 KW A.M. TRANSMITTER

I would estimate approximately 5 days to recommission this transmitter due to the extensive damage to the wiring harnesses. Plus I anticipate further problems over and above the obvious faulty and missing components. It is also possible that the recommissioning could be delayed due to spares not on the recommended list.

The transmitter will require at least one day for cleaning purposes prior to commencing the rebuild.

5 days labour @ R600.00 per day.	R3,000.00
6 days per diem @ \$85.00 per day.	1,275.00
Travelling expenses @ 0.24 U.S. cents per mile. (Johannesburg to Mbabane and return Johannesburg,	496.80
Plus hotel to site 5 days) TOTAL 828 Miles	
TOTAL	<u>R4,771.80</u>

2. RE-INSTALLATION OF CONTROL CONSOLE

Installation materials for this unit have been included with the replacement parts list for transmitter 2.

5 days labour @ R600.00 per day	R3,000.00
5 days per diem @ \$85.00 per day	1,062.50

If included with the above 5 days per diem and hotel to site travelling expenses approximately 60 miles per day @ 0.24 U.S. cents.

TOTAL	<u>180.00</u>
	<u>R4,242.50</u>

Item 2 includes all miscellaneous repairs to the site i.e. sealing the transmission line, repairing the matching unit interlocks and any repairs to cabling etc. within the building.

It does not include moving the link receivers.

LABOUR CHARGES CONTINUED3. 10 KW M.W. TRANSMITTER

Labour 5 hours @ R75.00 per hour	R375.00
Excluding per diem and travelling expenses	

4. MOSELY LINKS

Repair and re-alignment.	
Approx. 8 hours at R75.00 per hour	R600.00
Excluding per diem and travelling expenses.	

Please note that all of the labour estimates are approximate and for budgetary purposes. I would suggest using 15 days as a conservative guideline, it should certainly not exceed this period.

On this basis U.S. AID would be looking at a minimum figure of:-

12 days @ R600.00 per day	R6,200.00
13 days per diem @ \$85.00	2,550.00
Travelling expenses maximum	748.80
	<hr/> R10,498.80 <hr/>

Or a maximum figure of:-

15 days @ R600.00 per day	R9,000.00
16 days per diem @ \$85.00	3,187.50
Travelling expenses maximum	856.80
	<hr/> R13,044.30 <hr/>

APPENDIX E - MAINTENANCE PLAN

23/4/90

Submitted to Mr. Abner Tembe, Dir., SBS

MAINTENANCE PLAN FOR SBS MEDIUM WAVE EQUIPMENT

RATIONALE:

(For detailed analysis see "Findings of Expert Analysis of SBS Medium Wave Service", report of C. Derek Shaw and Stuart Leigh, in collaboration with Stan Motsa, Chief Engineer, SBS, 10/4/90)

The SBS medium wave system is a multimillion emalangeni investment. It can deliver many more years of reliable service if properly maintained. It has great potential as an educational tool for the entire nation. Certain parts of the system are in good working condition. Other parts of the system are in need of attention. For example, one of the two 50 KW transmitters at Sidvokodvo, Transmitter 2, has been decommissioned due to exhaustion of the spares supply. Parts have been taken from Transmitter 2 to keep Transmitter 1 operating. Spares to keep Transmitter #1 on the air are either not in stock or are in very short supply. Reliability of the medium wave service has thus been reduced.

There are various other service needs along the equipment chain from SBS to Mangwaneni Hill to Sidvokodvo. (This includes the small 10 KW transmitter at Mangwaneni Hill.)

USAID is interested in supporting SBS's medium wave service, which carries Swaziland's educational broadcasts, by obtaining certain critical parts and labor to upgrade the system. This will help guarantee ongoing service of high quality to the entire country. One of the results of USAID's contribution will be return of Sidvokodvo's transmitter #2 to working condition, thus making possible transmission at full power. Other improvements in the equipment chain will be undertaken to improve the quality of the medium wave sound nationwide.

Maintenance of the system is the responsibility of SBS and will require certain annual investments and actions to insure that the system remains reliable.

A plan for the maintenance of the medium wave system follows:

ACTIONS AND EXPENDITURES CONSTITUTING THE MAINTENANCE PLAN

YEAR 1 (work to be completed by December 1990):

LABOR:

- The rats (and snakes) that currently can enter the Sidvokodvo transmitter building and do damage to the transmitter wiring will be brought under control. Rat poison will be used. Access of vermin to the building will be prevented by construction of a number of physical barriers at access points.
- The vegetation around the Sidvokodvo tower base is to be cleared and kept clear.
- The bush around the tower will be cut (for a radius equal to the tower height). Cutting close to the ground and pouring fuel oil on the roots should prevent regrowth.
- The automatic controls on the backup AC generator will be repaired. The generator will be maintained through close and regular coordination with the Ministry of Works.
- An operator will staff the Sidvokodvo site. This will allow for operation at 100 KW and provide for regular maintenance.
- The switches on the matching unit door are to be fixed.
- The dehydrator pressurizing system will be fixed. The most likely cause of this equipment's current problem is leaking of air at the transmission line flanges. These will be resealed.
- SBS engineer(s) will work with USAID consulting engineer during his 2-3 week term of service in upgrading the system.

COMMODITIES:

- | | |
|--|---------|
| - A contingency fund for spare parts for the Sidvokodvo transmitters will be established. | E12,500 |
| - 3 guy wire insulators will be bought as spares - | E15,000 |
| - 1 antenna skirt insulator will be bought as a spare - | E 3,250 |
| - TransWorld Radio is owed 3 replacement insulators (2 for guy wires, 1 for antenna skirt) - | E13,250 |
| | <hr/> |
| TOTAL COST YEAR ONE PARTS | E44,000 |

YEAR 2 AND ANUALLY THEREAFTER:

LABOR:

- The Mangwaneni and Sidvokodvo sites will be kept free of vermin.
- The area around the tower base and matching unit will be kept free of vegetation.
- For a radius around the tower equal to the tower height. the bush will be kept clear.
- The backup AC generator will be kept in working order so that it will automatically provide power in the event of a local interruption of power to the transmitters.
- Regular maintenance service at Sidvokodvo will be provided by an on-site operator.
- Ongoing maintenance at all points in the equipment chain will be provided by SBS engineers.

COMMODITIES:

- Itemized spare parts for Sidvokodvo equipment	-	E64,000
- Contingency fund for Sidvokodvo parts	-	E12,500
- Itemized spares for Mangwaneni site and STL	-	E12,220
		<hr/>
TOTAL COST OF FUTURE YEAR PARTS		E88,720

NOTE 1: Annual expenses must be inflation indexed. The above figures are based on April 1990 U.S. dollar prices and an exchange rate of E2.5 = \$1.

APPENDIX F - INVENTORY OF COMMODITIES

F.1

NATIONAL CURRICULUM CENTER:

Unisys Series 300 Personal Workstation
with Monochrome monitor

Epson LQ-850 Printer

Wordperfect 5.0 Wordprocessing Software

Lotus 1-2-3 Release 2.2 Accounting and Data Management Software

10 Epson #7753B Ribbon Cassettes

50 3 1/2" Computer disks

50 TSP 200 Radios:
37 given to schools
13 in storage at NCC

1 International Radio Cassette Recorder Model SW-212

Books:

The ABC's of 1-2-3

Wordperfect Workbook

Lotus Manuals (3)

Wordperfect Manual

Unisys Manuals (2)

Epson Manuals (2)

Interactive Radio Instruction

Sharp EL-1611A Calculator

Desk Fan

Assorted office supplies

Video dubbing kit

F.2

SWAZILAND BROADCASTING AND INFORMATION SERVICE:

Yamaha YS 100 Digital Keyboard

Tape production supplies

Electric Kettle

6 coffee mugs

APPENDIX G - VIDEO TAPE

F.1 - Program 1: Testing Interactive Radio English in Swaziland

F.2 - Program 2: Using English in Action:
A guide for Swazi Teachers