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NEPAL RADIO EDUCATION TEACHER TRAINING PROJECT

End of Tour Report
for
Jack W. Graham

AID/Asia-C-1352

For the Period of July 1, 1979 through December 31, 1980

Prepared by
Jack W. Graham
December, 1980

NEPAL RADIO EDUCATION TEACHER TRAINING PROJECT

End of Tour Report

Jack W. Graham
Evaluation Specialist

Prepared December, 1980
for the period: July 1,1979 through December, 1980

A. Major Responsibilities

1. Coordinated the general evaluation and research efforts of the project.

2. Assisted in the development of an evaluation staff capable of conducting a meaningful research and evaluation program.

3. Assisted the other Technical Advisers and team members in conducting a program of formative evaluation.

4. Set up a program of summative research in keeping with the guidelines of the Project Paper including a cost-effectiveness study.

5. Assisted in the preparation of program summaries and special reports as suggested by the Team Leader and other Team members.

B. Major Activities

1. Evaluation Projects. This involved working with a number of people to conduct evaluation in a variety of areas: workshops and training programs, equipment and its functioning in Nepal, radio scripts and programs, self-instruction materials, and the collection of base data and progress data relating to the enrolled teachers during the Pilot Year. Highlights of the research to date are summarized in Appendix B. Formative research is summarized in Appendix C.

2. Research Reports. This involved writing, co-authoring or editing Research Reports No. 8 through 31. See Appendix A.

3. Staff Development. This involved the training of research staff of three persons and working directly with the Coordinator of Field Supervision. This was considered to be one of the major activities in that this group would be responsible for the continuation of the evaluation activities after the Technical Adviser left the country. Regular instruction was provided by formal classes; this was later replaced with staff meetings held twice a day to review on-going research. Staff development was hampered in that the research staff was not designated until November, 1979. The third person was not appointed until June, 1980. The basic background of the staff was limited in the areas of statistics, tests and measurement and research design.

4. Development of Evaluation Instruments. This involved working closely with the Nepali evaluators to help them understand the underlying principles and help them translate questionnaires and achievement tests "culturally". Some of the major instruments designed for the project were:

   Achievement Test (Nepali Reading, Social Studies and Mathematics)

   Teacher's Questionnaire
   School Questionnaire
   Evaluation Questionnaires I and II (Used during the Follow-Up Workshops)

   Pretests and Posttests (Related directly to the formative research for the instructional program of RETT)

5. Workshop Programs and Supervisors Manuals. This involved taking the lead in designing the details of the Orientation Workshop and the Two-Day Follow-Up Workshops based on the suggestions and comments from other team members and then writing out a rather detailed program and a manual to guide the Field Supervisors in conducting the actual workshops. See Appendix G.

6. Refining the Summative Evaluation Plan. This was designed based on suggestions of the Project Paper. A more realistic design was written near the end of the tour and is presented in Appendix D. It is hoped that the basic data can prepared for analysis by computer using the Statistical Package for the Study of the Social Sciences (SPSS).

7. Post-tour Activities. The adviser has agreed to help where possible, time permitting with a general coordination of data analysis on the SIUC Campus. He has also expressed a willingness to assist with any participant training of the evaluation team on the SIUC Campus if this is arranged. He will also be available for a return trip to Nepal near the end of the Project to assist with evaluation at that time. See Appendix F.

8. General Comment on Major Activities. It is the opinion of the Evaluation Specialist that the above list of activities exceeds the suggested responsibilities of the Evaluation Specialist for his eighteen month tour as outlined in the Project Paper. There is still much to be done and it is hoped that the base data collected and the staff training completed will permit the completion of the major summative research plan for the First Full Year of operation. This program will begin in August, 1981, and continue until June, 1982.

C. Related Activities

1. Assited as an observer and resource person for the Orientation Workshops in Walling, Pokhara and Kathmandu.

2. Report Writing. This involved assisting in the preparation of a number of reports for the Project including first drafts of the Revised Work Plan, various Contractors reports, materials for the 1979 and 1980 Joint Annual Reviews, and an article that was published in Front Lines. Several special reports were prepared, some of which were submitted for publication, outlining the plan of the project, research results, formative research procedures, and difficulties involved in radio education.

3. Made a trip to Kenya to set up an observation/study tour for two Nepali Educators to learn more about the development of radio education in Kenya.

4. Provided leadership for the Guidance Seminar sponsored by the Curriculum, Supervision, Textbook Development Center.

5. Served as a member of the Coordinating Committee for the Memorandum of Understanding between Southern Illinois University at Carbondale and Tribhuvan University.

6. Counseled a large number of students about possible admission to Southern Illinois University at Carbondale. This involved over 40 individual students. A total of 10 of this group were eventually admitted and nine of them arrived for registration. Hopefully a 10th student will enroll in the spring semester, 1981.

7. Interacted with a number of SIUC Alumni and with advisers involved in other projects in Nepal - USAID, UNICEF, UNESCO, CARE, and CERID of Tribhuvan University.

D. Evidence of Progress

The most obvious evidence of progress was the fact that when a schedule of weekly broadcasts was announced, one-hour programs were produced in keeping with this schedule and self-instruction booklets were printed and distributed. It is expected that the schedule of broadcasts started in mid-August, 1980, will continue as it has in 1980 into the enlarged schedule planned for 1981.

The weekly schedules of field testing the scripts and the self-instruction materials certainly helped to motivate the writers to improve the weekly production rate. After the dates for the Orientation Workshop were announced, a number of people completed a variety of important projects making it possible to have radios, textbooks, and evaluation instruments ready for distribution. The fact that these deadlines were met is remarkable in a country that has such limited resources and a minimum of experience in organizing such activities.

The achievement of the enrolled teachers was measured through a number of pretests and posttests. The scores increased for the posttests indicating that learning did take place as a result of the instruction received through the radio and the self-instruction materials. The basic objectives of instruction were met. This has given encouragement to the writers. There is also strong evidence that many people other than the enrolled

teachers are listening to the weekly broadcasts. This has the potential of providing real educational benefits for a much wider audience. Several have asked if they could be sent the self-instruction materials. A number of constructive comments have been received which should help in the development of future scripts and written materials.

The Evaluation Team has been most conscientious in its efforts. The team members have shown that they can learn. It has been difficult to design a formal class structure through which to teach important basic information in statistics, tests and measurements and report writing. They have learned by "doing" and they have shown increased ability to carry out a wide variety of responsibilities.

In the next few months the Achievement Test will be given to currently enrolled seventh grade students providing data against which to compare the achievement of enrolled teachers in the field.

It is hoped that the team members will learn more about report writing through their stateside participant training which is now in the proposal stage. An outline of next steps in evaluation is found in Appendix H.

E. Special Problems and Issues

Staff Selection and Development. It is unfortunate that staff were not assigned prior to the arrival of the Technical Advisers. Greater care should have been taken in selecting staff with a real interest in radio education and a willingness to learn new skills for a potential life long career. The work of the new Project Director in early 1980 certainly helped to motivate the assigned staff to improve the quality and quantity of their work.

Language. In a program of instruction using radio and self-instruction materials it is most important to have writers and Technical Advisers very familiar with the language of instruction. Many of the writers speak Newari as their first language. The national language, Nepali, is a comparatively new language and there are differences of opinion on what is the best word or phrase to use in a given situation. Spelling is not totally consistent. These difficulties have been felt by the writers, the evaluation team (in constructing valid test items) and the technical advisers.

Administrative Skills. The Radio Education Teacher Training Project is a complex undertaking requiring a wide variety of administrative skills on the part of the Project Director and the various coordinators. The complexity has been seen with the enrollment of 117 teachers during the Pilot Year. This will increase in future years when 1,000 and 2,500 teachers are to be enrolled.

The Team Leader and the Technical Advisers have attempted to give added administrative responsibilities to the various Nepali team members in an effort to help them learn new skills in planning, monitoring, and evaluating administrative and educational activities.

Equipment. It has been determined that the radios to be used for this project need to be portable so that teachers can use them both in school and in their homes. The radios selected for the Project have proven to be able to receive Radio Nepal in all parts of the country where tests have been made. The Solar Cells suggested for the project will work in Nepal; they limit the radio use to a fixed place. Dry cells appear to be the best source of power for the radios at this time. Solar energy should be explored for possible use in the future.

F. General Observations and Recommendations Regarding the Total Project

1. Staff Development

Staff Development Programs need to be continued to upgrade the present staff and to train any new staff members assigned to the Project.

2. Script and Self-Instruction Review Sessions

It is recommended that the Script Writers and Self-Instruction Writers spend more time in reviewing the general goals of a given unit of instruction, of reading each other's materials, and of making suggestions how the materials might be improved. This should help in stressing main points and eliminating unnecessary repetition. It could also build confidence and improve skills in writing.

3. Control Groups

These need to be selected early in 1981 to be ready to be tested in the summer. Hopefully there should be three groups:

(a) untrained teachers similar to those enrolled in RETT,
(b) teachers enrolled in the distance learning program, and
(c) students enrolled in the residential teacher training program for primary school teachers.

4. Cost Effectiveness

The basic plan outlined in the Project Paper to compare the Radio Education program with the residential program needs to be refined, updated and completed. See Appendix E.

5. Use of the Computer

Trial runs using SPSS at SIUC should be completed and expanded with the hope that computers using SPSS will soon be available in Nepal.

6. Logistics

The problems faced in the Pilot Year in shipping radios and materials to five workshop sites was difficult enough. Detail planning for 1981-82 must be completed early to assure that the logistical problems are met in time for the Orientation Workshops of 1981.

7. Cooperation with the In-School Broadcasts

Nepal has made significant progress in developing a number of in-school radio broadcasts. Earlier reports show that these are not being utilized in the schools to any great extent. It would be a sound move to combine the efforts of the staffs from the In-School

Radio Broadcasts and the Radio Education Teacher Training Program. More assistance and materials must be given to the teachers to help them make better use of the current programs. It might be well to concentrate efforts in one subject area, Nepali Language Arts for example, in providing daily instruction in a given grade level. The successful work in a number of other countries in formal classroom instruction should be reviewed.

8. Long Range Educational Programming Using Radio

When the new 1,000 watt shortwave radio transmitter and antenna are installed, the opportunities for increased radio education will be enhanced. This will provide for increased programming for the in-school broadcasts, teacher education, college credit courses, and non-formal education in agriculture, adult literacy, family planning health, and rural development. It is recommended that the Ministry of Communication and Radio Nepal seriously consider the establishment of two programs being broadcast simultaneously: "General Broadcasting" for news, entertainment, and special interest programs; and "National Broadcasting" to include a wide variety of educational programs both credit and non-credit. Basic procedures and policy should be determined to insure that the Ministry of Education has the opportunity to be very much involved in the educational programming of Radio Nepal.

After the new Recording Studio has been completed and the development of new programs becomes more routinized, care should be taken in selecting a small group of well qualified writers, producers, and evaluators to maintain and expand the program of radio education. It would then be possible to select well qualified and trained free lance writers to assist with the writing of specific programs, subject to the general review of the central staff.

Closing Summary

It has been gratifying to be a part of the early developments of the Radio Education Teacher Training Project. The work of Team Leader for the Project has been greatly appreciated. It has been through his untiring efforts that the basic research library was compiled, space made available, and continuing contracts made with appropriate personnel from the various Ministries and agencies of Nepal so necessary to carry out a program of evaluation.

It was good to note that progress made by the teachers enrolled in the program of the Pilot Year and to observe the expressions of these rural teachers as they learned to operate their radios and realized that they could learn within the confines of their own home and have a chance to be certified as a trained teacher.

It was rewarding to find that the Formative Evaluation program had the unexpected benefits of providing motivation to the writers to meet weekly deadlines and to provide a process that supplied constructive criticism in a manner that was not possible from the review by peers or supervisors. This in turn opened the way for assistance from the technical advisers to the writers and improved the quality of the scripts, radio programs and self-instruction materials.

The data collected in this project makes it clear that radio can be used creatively to provide instruction to rural primary school teachers. The total RETT Project is unique in that it is the only current program using radio education that leads to the certification of those successfully completing the program as trained teachers. With the growing need for trained teachers in many developing countries, the experience of Nepal should be of interest to educators around the world.

As the use of radio expands in Nepal, there needs to be established a general policy committee with representatives from both Radio Nepal and the Ministry of Education to assist in the development of quality radio programs in a number of areas for a variety of audiences.

APPENDICES

A. Research Reports Prepared Under the General Direction of the Evaluation Section.

B. Highlights of Research Studies Completed in 1979-1980

C. Formative Evaluation in Nepal Radio Education

D. Proposed Plan for Summative Evaluation with Related Comments Regarding Formative Evaluation and Cost Effectiveness.

E. Cost Effectiveness -- Tentative Plan of Study

F. Proposed Training Program for Three Months for Selected Participants in Area of Evaluation.

G. List of Instruments and Manuals Designed for the Radio Education Teacher Training Project.

H. Recommended Next Steps in Evaluation.

RADIO EDUCATION TEACHER TRAINING PROJECT

Research Reports Prepared Under the General Direction of the Evaluation Section

1979

No. 7 Shrestha, Kedar Nath, Bishwa K. Maskey, and Rajendra B. Pradhan, "An Investigation of the Comprehension of Radio Broadcasts by Selected Primary Teachers in Nepal." (A summary of Research Reports 1 through 6) March, 1979.

No. 8 Graham, Jack W. and Donald Paige, "An Evaluation of Solar Power Generation During Monsoon Season for Radio Reception." July, 1979.

No. 9 Joshi, Gautam Dhoj and Kedar Man Pradhan, "Attitudes of Lower Secondary School Teachers Toward Teacher Training by Radio in Nepal." July, 1979.

No.10 Graham, Jack W., "Evaluation of First Portion of the Writer's Workshop, July - September, 1979." October, 1979.

No.11 Paige, Donald and Jack W. Graham, "Recommendation of Broadcasting Frequencies for Proposed Shortwave Transmitter and Type of Reception Antenna for Eastern Nepal." November, 1979.

No.12 Graham, Jack W., "The Use of Radio and Self-Instruction Materials in Education." December, 1979.

No.13 Graham, Jack W., "Zones of Nepal with Greatest Need for Additional Trained Primary School Teachers." December, 1979.

No.14 Paige, Donald and Jack W. Graham, "Recommendations of Broadcasting Frequencies for Proposed Shortwave Transmitter and Type of Reception Antenna for Western Nepal." December, 1979.

1980

No.15. Paige, Donald and Jack W. Graham, "Comparison of Costs Per Hour of Various Dry Cells for Radio Reception." January, 1980.

No.16 Paige, Donald and Jack W. Graham, "Radio Reception throughout Nepal." February, 1980.

No.17 Graham, Jack W., "Primary School Teachers in Nepal and their Potential as Change Agents." January, 1980.

No.18 Graham, Jack W., "The Need and Use of Formative and Summative Evaluation in Education Programs." April, 1980.

No.19 Sakya, S.M. and P. Dhungana., "A Preliminary Survey of the Status of Primary School Teachers in Dhading, Gorkha, and Syangja Districts and a Brief Geographical Summary of the Districts." April, 1980.

No.20 Pradhan, Rajendra., "Radio Reception in Hill Areas of Eastern and Western Nepal." April, 1980.

No.21 Graham, Jack W., Donald Paige and Nanikaji Thapa., "Comparison of Costs Per Hour of Various Brands of Dry Cells for Radio Recept on Six Hours Per Week." April, 1980.

No.22 Graham, Jack W. and Donald Paige., "A Summary of Power Sources for Radio Reception in Nepal." April, 1980.

No.23 Graham, Jack W., Rajendra Pradhan, and S.M. Sakya. "Districts of Nepal with Greatest Need for Additional Trained Primary School Teachers." April, 1980.

No.24 Aikman, Arthur L.,"Summary of a Three Week Supervised Training Program Conducted in Kathmandu Relating to Radio Education Teacher Training, June 23, 1980 to July 11, 1980." July, 1980.

No.25 Graham, Jack W., "Formative Evaluation and Its Use in the Nepal Radio Education Teacher Training Project." September, 1980.

No.26 Pradhan, Arun., "Selection of Orientation Workshop Centers in Kaski, Syangja, Gorkha, Kathmandu and Dang Districts." October, 1980.

No.27 Graham, Jack W., "The Orientation Workshops for 1980." October, 1980.

No.28 Caldwell, Paul N. and Jack W. Graham.,"Electronic Training for Radio Technicians." October, 1980.

No.29 Graham, Jack W., S.M. Sakya, Rajendra Pradhan, M.B. Pradhan and Arun Pradhan., "A Summary of the Two-Day Follow-Up Workshops, October 6-7, 1980." October, 1980.

No.30 Graham, Jack W., S.M. Sakya, Rajendra Pradhan, and M.B. Pradhan., "A Description of the Teachers Enrolled in the Pilot Year of the Radio Education Teacher Training Project." November, 1980.

No.31 Caldwell, Paul N. and Jack W. Graham., "Radio Maintenance Training Program." November, 1980.

Appendix B

RADIO EDUCATION TEACHER TRAINING PROJECT
Highlights of Research Studies Completed in 1979-1980

1. Learning by Means of Radio and Self-instruction materials

   (a) Controlled studies using pretest and posttest evaluations showed that teachers could learn from a recorded cassette program and that teachers who spoke a language other than Nepali in their home could learn as well as those who spoke Nepali in their home.

   (b) Pretest and posttest evaluations of 117 teachers enrolled in the Pilot Year of the Radio Education Teacher Training Project showed significant gains in scores as a result of formal instruction using the radio and self-instruction materials.

2. Attitudes toward Radio Education

   (a) Lower Secondary teachers (a next possible target group for radio education) showed a strong interest in and a willingness to participate in a program of radio education; this included both trained and untrained lower secondary school teachers.

   (b) Morale and general approval of the radio education program was high among the 117 teachers enrolled in the RETT Program during the Pilot Year. They strongly supported the concept that the program would help them become more effective teachers.

3. Evaluation of Various Workshops and Training Sessions

   (a) Participants in staff development programs for writers, field supervisors, electronic technicians, radio repairmen and evaluation staff all indicated strong approval of the training they received.

   (b) The enrolled teachers in the Pilot Year spoke well of the information received and opportunities to learn.

4. Equipment

   (a) Radio Nepal signals can be received in all sections of Nepal where tests have been made from the far east to the far west. Shortwave reception is best in the early morning, late afternoon and evening hours.

(b) Solar panels and lead acid batteries will operate in Nepal and can provide a steady and ample supply of power to operate a nine-volt radio. They do reduce the portability of the radio and are still a very expensive source of energy.

(c) Dry cells appear to be the most cost-effective source of power for radio receivers for use in the Radio Education Teacher Training Project. They also lend themselves easily to the portable radio and are simple to use.

5. Need for Trained Teachers

(a) In 1978 there were 5,607 untrained Primary School Teachers with less than a 10th grade education. There is a wide variation among the various Districts and Zones of the country in their need for trained teachers.

(c) If Nepal is to continue to use only the current residential program of training primary teachers one can expect only 500 newly trained primary school teachers per year.

6. A Description of Teachers Enrolled in Pilot Year Program

(a) 55% were Brahmin; 84% spoke Nepali as a first language.

(b) 89% were male; 11% female

(c) Mean age was 31.9 years with a range of 17 to 65

(d) Teaching experience Mean was 9.1 years with a range of 1 to 25 years.

(e) 63% held a job in addition to teaching and most were involved in agriculture.

(f) The average class size ranged from 91.4 for class 1, 40.6 for class 2, and 29.8 for class 3. Over 18,616 pupils were indirectly affected by the improved teaching of the 117 teachers enrolled in the Pilot Year.

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Appendix C

Formative Evaluation in Nepal Radio Education

Formative evaluation is an essential part of any developmental educational program. It provides constant feedback during the preparation stage of new materials so that the authors and editors learn what is being understood and what is promoting learning.

Several types of informal formative evaluation were conducted during the preparation stages of scripts and self-instruction materials in the Radio Education Teacher Training Program in Nepal. This was a joint effort by the technical advisers, the writers and editors, and the evaluation team.

The main objective of the Radio Education Teacher Training Project was to train untrained Primary School teachers using the medium of radio reinforced with self-instruction materials and periodic workshops. The writers who were selected for the project had never prepared radio scripts or self-instruction materials. They had been teachers in the Institute of Education and staff members of the Ministry of Education. An intensive staff development program was conducted. The general objectives for a given lesson were outlined and the writers and the technical advisers worked very closely together to develop the early scripts and units of self-instruction materials. During these individual conferences suggestions were made and the materials revised. Although the advisers were partially familiar with Nepali, it was difficult to advise them on the use of particular Nepali words and phrases. There was a reluctance for the Nepali writers and supervisors to constructively critize the materials that were being prepared.

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Field Testing of Materials

After the daily lesson instructional objectives were written, a copy was given to the evaluation team. On the basis of these objectives a series of pre-test items were written. The evaluation team member would then read the objectives, the radio script and the self-instruction materials and revise or expand the pretest items. These were checked with the technical adviser who made suggestions for improving the style or simplifying the content of a given item to one main point. The items were then approved by the writers and test items which survived this writing process were combined into a simple pretest.

A group of untrained, primary school teachers living near Kathmandu came to the project office each Friday afternoon. Two groups of teachers of five members each participated in the field testing program. This consisted of each group of five field testing two units of work each week. The field testing program included completing the pretest, listening to the cassette program of twenty minutes, reading the self-instruction materials and completing the related exercises, and then taking a posttest over the materials presented. Following this the teachers completed an evaluation form giving direct feedback on how they liked and related to the script and self-instruction materials.

A statistical report and a general observation report were prepared by the Evaluation Team based on the results of the pretest and posttest, the general questionnaire, and the personal observation of the evaluator who was present during the field testing session. At the beginning of the process individual and group discussion sessions were held with the writers to help them understand the feedback information that was provided. This also helped to develop a working relationship between the writers and the evaluation staff. Later the reports were merely forwarded to the writers with the opportunity to discuss the total report or any part of it with the appropriate evaluation team member.

The reports provided information about the time it took to complete the different parts of the learning process, information on how well scores improved as a result of instruction, lists of words that the teachers did not understand, and comments from the evaluators on the general reaction of the teachers to the new materials.

Follow-up Workshops

During the Pilot Year of the project, 1980-1981, two-day follow-up workshops were held every two months. Initial pretest data was collected at the time of the initial Orientation Workshop and posttest information was collected on six units of work during the Follow-up Workshops. This data showed what kind of learning was taking place and whether any gain in achievement could be shown resulting from the instructional process. A careful review of the data by the writers showed areas where the materials should be revised.

Special Value of the Field Testing and Follow-Up Data

The weekly field testing of the materials provided an excellent motivation device for the writers in order that they meet the weekly deadlines to have materials written and radio programs produced.

Secondly the Field Testing provided a formal, non-personal process of judgement regarding the quality of the materials. It was found that colleagues would not read the materials of other writers nor would they make constructive criticism of the materials of their fellow writers. The data that came from the field testing was accepted and provided the Technical Advisers an opportunity to go over the materials to see how and where they might be revised. Some scripts and self-instruction materials were revised four and five times.

The general comments made by the teachers about the materials were generally positive. After several weeks of field testing using the same teachers, more candid comments were made by the teachers. Thus the actual achievement of teachers from pretest

to posttest became a very crucial element in judging the quality of the materials.

Yet the observations of the teachers and the evaluation team also provided useful data and this was summarized in the report provided the writers.

During the time of the Two-Day Follow-Up Workshops the teachers completed a posttest and the difference in scores was recorded. It was gratifying to note that in almost all cases there was an improvement in the scores. The writers were given the actual score sheets and encouraged to review them with the intent of determining where specific scripts might still be clarified and self-instruction materials made more succinct.

Summary

Formative evaluation is a most important part of any new program in educational development. The formative evaluation program in the Radio Education Teacher Training Project was helpful in (1) motivating the writers to meet realistic deadlines, (2) providing constructive criticism that was not being given or accepted by colleagues or supervisors, and (3) providing specific information helpful to the writers on ways to improve the quality of the materials.

The program of evaluation also provided a greater opportunity for the writers and evaluation team members to work together. It also provided a means whereby the expatriot technical advisers could work more creatively with the writers and radio producers in an effort to react positively to the constructive suggestions coming from untrained teachers and members of the evaluation team.

The techniques of field testing and providing constructive information for teachers had to be developed in keeping with this particular project. The data collected became more reliable as the various participants improved their skills in constructing test items, in making accurate observations, and in recording and reporting data.

The evidence is quite clear that the total formative evaluation process was a most valuable part of the Radio Education Teacher Training Project. It will be continued during the development of new scripts and self-instruction materials.

Appendix D

NEPAL RADIO EDUCATION TEACHER TRAINING PROJECT
(Contract AID/ASIA-C-01352 -Project 367 - 0123)

Proposed Plan for Summative Evaluation with Related Comments Regarding Formative Evaluation and Cost Effectiveness

by
Jack W. Graham, November, 1980

The main objective of this project is to develop and test a training program for untrained rural primary school teachers in Nepal through the medium of radio, reinforced by written, self-instruction materials and periodic short-term workshops. This project will attempt to create a cost effective process for assisting untrained teachers to meet certification standards. It will also assist teachers in becoming effective change agents as envisioned by Nepal's program of rural development.

A second objective of the project is to train a group of specialists capable of preparing the radio scripts, producing the program, and developing the self-instruction materials so that the concept of radio education can be expanded into a number of important areas of life.

Formative Research

New materials for use in radio education along with the accompanying self-instruction materials will be field tested by those directly concerned with their preparation. Revisions will be made based on the feedback received. Types of questions raised by the formative evaluation process include: Can the material be understood? Does it attract and maintain interest? Is the pacing satisfactory? How much new materials can be introduced in a twenty-minute program? How much written material can a Nepali primary teacher read in an hour? What is a reasonable set of self-instruction exercise for the Nepal setting?

Pilot Year Formative Research

The plan of the Pilot Year calls for a series of two-day workshops at which time data can be collected regarding the teacher's understanding of the radio programs and self-instruction materials presented during the preceding two months. This information will be shared with the writing teams in an effort to improve the quality of future programs and materials of the previous two months for the full-year program to follow.

An effort will also be made to administer achievement test items covering the actual material taught during the previous two months. These test items will be written in the same style as the Pretest items and will frequently be identical items. This should provide some measure of how much is being learned during the pilot year and will provide statistical data on difficulty for a bank of achievement items to be used in future Pretests and Posttests. This experience will also assist the Evaluation Team improve its skills in collecting and analyzing data.

Summative Research - An Overview

The basic plan for summative research as outlined in the Project Paper calls for an evaluation which will gauge the overall effectiveness of the project and provide an insight into the process through which the project operated. A cost effectiveness study is also to be completed. Smaller studies dealing with the functioning of the various pieces of equipment and its maintenance will be conducted.

The Project Paper calls for two major studies to determine the effectiveness of the project:

(a) In an absolute sense, how much have the teachers enrolled in the RETT Project progressed as a function of their participation in the program? How well have the teachers progressed in meeting the instructional objectives of the program? In what ways has their teaching knowledge and behavior changed as compared with their initial status as indicated through pre- and posttesting? How does this progress compare with that of a group of similar teachers not enrolled in the RETT Project?

(b) In what ways has the teaching knowledge and behavior changed for those enrolled in the RETT Project as compared with the progress made by those enrolled in the campus based instructional program for primary teachers.

Hopefully two additional comparisons can be made:

(a) In what ways has the teaching knowledge and behavior of those enrolled in the RETT Project changed as compared with the progress made by those enrolled in the Distance Learning Project - a special primary teacher training project using primarily self-instruction materials especially prepared for this program.

(b) In what ways is the progress different when comparing the progress of primary pupils - those taught by participants in the RETT Project as compared with the progress of those taught by untrained teachers with less than SLC Pass qualifications (being less than a high school graduate).

Summative Research Plan - Data Collection During the Pilot Year

1. The Pretest

At the time of the orientation workshop, a Pretest based directly on the learning objectives set forth for the year's instructional program will be administered (or for as much of the instructional program as is known.) This will provide base data from which to judge learning during the Pilot Year.

2. During the Year Testing

The instructional program is basically divided into five blocks of instruction through the medium of radio reinforced by self-instruction materials. Each of these blocks (or each two blocks) is to be separated by a two-day workshop. At the end of each block of learning the teachers will take an achievement test on the work just completed. This will be useful for formative evaluation but it will also provide a set of data showing progress toward meeting the instructional objectives as measured by the test items covering a given unit of instruction immediately following this instruction.

In addition the participants will have an opportunity to raise questions about material they did not understand, to make suggestions on ways to improve the radio broadcasts and self-instruction materials, and comment generally on how they are reacting to the RETT Project .

3. Posttesting

During the final four-week workshop a series of evaluation instruments will be administered:

(a) A year end Posttest made up of items from the Two-Day Follow-Up Workshop posttests except for the correction of any printing errors.

(b) A general evaluation questionnaire of the year's instruction.

First Full Year Summative Research (1,000 teachers)

A formal experiment will be conducted during the First Full Year based on comparing two groups:

(a) Experimental Group. 1,000 teachers enrolled in the Radio Education Teacher Training Project. This will include the 117 teachers who were enrolled in the Pilot Year Project and who will also be expected to repeat a portion of the work during the early part of the Full Year Program.

(b) Control Group. Approximately 75 teachers of similar background to the Experimental Group who are not enrolled in the Radio Education Teacher Training Project. These teachers will be invited to report to one or more test centers in the summer of 1981 to take the Pretest and again at the time of the closing workshop in June, 1982, to take the Posttest.

Basic Research Design Regarding Teacher Achievement

(a) Meeting the instructional objectives. A target percentage of 65% has been set for the Posttest. It will be expected that the teachers should be able to complete correctly 65% of the test items on the Posttest which reflects the objectives of the year-long instructional program.

(b) Comparison of progress of those enrolled with those not enrolled. The 1,000 teachers enrolled in the Full Year Program will be the Experimental Group (E). The 75 teachers not enrolled but with similar backgrounds to those enrolled will be the Control Group (C).

The total scores for the Pretest will be determined for the Experimental and Control Groups along with the Posttest scores and the differences between the pre- and posttest scores for each group.

The following "t" tests for unrelated samples will be made:

Pre - test :

$$M_E - M_C$$

Posttest : $M_E - M_C$

Difference between Posttest - Pretest Score or D:

$$D_E - D_C$$

A set of subscores based on the major parts of the curriculum, namely Nepali Language Arts, Mathematics, Social Studies, Education, Health, Art, Physical Education, and Home Science, will be tested in a manner similar to the total scores as outlined above.

An informal comparison will also be made of the percent of items correctly answered by the Experimental and Control Groups.

Summative Research During the Following Years

A general evaluation will be made of the evaluation process during the Pilot Year and the First Year. Based on what is learned during these two years, a more complete study will be planned for the third year when 2,500 teacher will be enrolled. The basic research design will be the same as outlined for the full First Year Program. If there is no need to revise the Pretest-Posttest, the same Control Group results from the First Full Year Program could be used as the base against which to compare teachers in the third year of the program. If there is need to revise or improve the basic examination, a new control group should be selected against which to compare the progress of the Experimental and Control group of teachers.

Cost Effectiveness Study

The Cost Effectiveness model outlined in the Project Paper will be refined with current data inputs as a basis for determining the cost effectiveness of radio education training in Nepal as compared with the Distance Learning Program and Residential Instruction. A special study will be made during 1980 to determine if this model is adequate and what corrections in the design should be made to reflect more accurately the true costs of the Radio Program, the Distance Learning Program, and the Residential Program.

Related Research

Various independent studies have been conducted as reflected in the Research Report Series for the Radio Education Teacher Training Project. Such studies will continue to be made as they relate to equipment (radios, power sources, recording equipment, transmitters, etc.), seminars and training sessions, special formats for radio programs and self-instruction materials, and general evaluation of the total project and individual staff members.

Tentatively Planned Research for Pupil Progress

The real test of the success of the Radio Education Teacher Training Project is to determine whether the behavior of the students taught by the teachers trained in the Radio Education program is different from that of pupils taught be teachers who are untrained or those trained under the Distance Learning Program or the Residential Teacher Training Program. Ideally it would be good to measure the beginning year achievement and end of year achievement of pupils from each of the three settings and compare the beginning and end of year progress of third grade pupils.

Comparisons could be made of the mean scores on the pretest and posttest as follows:

Pupils of Experimental Teachers vs Pupils of Untrained Teachers.

Pupils of Experimental Teachers vs Pupils of Distance Learning trained teachers.

Pupils of Experimental Teachers vs Pupils of IOE graduates.

General Comments

Test item construction. Observations have indicated that Nepali teachers are not familiar with multiple choice test items but that they can learn how to work with them. An effort has been made to keep the style of such items the same with the marking system and the general format as similar as possible from one test session to the next. A collection of such items is being made with the expectation that it will provide the basis for test items in the future. This would provide the basis for the development of equivalent forms of a test and open the way to complimentary test forms enabling the researchers to test a wider range of instructional objectives through the use of different test items covering different sets of learning objectives for use with different sub-groups of enrolled teachers.

Test Item Analysis. It is possible to transfer the marks of teachers from regular test booklets to separate answer sheets and have the test results analyzed by standard computer procedures. This should be done whenever possible.

General Evaluation. It is important for the project to summarize the outcomes of the Project in terms of the number of radios distributed, number of programs broadcast, number of teachers certified, and related data of interest. The progress made during the first half of the Pilot Year was tremendous in terms of the fact that workshops were conducted, radios distributed, teachers enrolled, self-instruction materials written and printed, broadcasts designed and produced, and an ever increasing number of Nepali educators were involved. The total story of the progress of the Project needs to be told.

Appendix E

RADIO EDUCATION TEACHER TRAINING PROJECT

Cost Effectiveness - Tentative Plan of Study

One of the primary purposes of the Radio Education Teacher Training Project is to demonstrate the feasibility of utilizing educational radio for instructional purposes from an economic point of view.

In the Project Paper the costs for the existing Level B residential Training program as conducted by the Institute of Education were outlined and compared with the projected costs for the radio-based system.

The primary study to be completed will be update the estimated costs of the Level B Residential Training Program. It must be realized that this program has been shifted as an area of responsibility from the Institute of Education to the Ministry of Education.

The basic model for projecting the costs of the Radio-based Program will be reviewed in keeping with suggestions from the model used in the Nicaragua Mathematics Project and suggestions provided by the Educational Testing Service. It is hoped that a special consultant can be secured from Southern Illinois University at Carbondale to review the data and help to refine the model finally adopted.

Costs of Campus Based Training

Cost Per Student for Campus-Based B Level Training
Based on 10 months of training

HMG Costs	Project Paper Estimates	1980 Estimates
a. Full salary of enrolled teacher		
Rs 135/month for 12 months	Rs 1,620	
Rs 155/month for 12 months		Rs 1,860
b. Full salary of substitute teacher while regular teacher away (not included in Project Paper)		Rs 1,550(10 months
c. Cost of Instruction Based on estimate of 45 students per year using 4 instructors for 12 months at Rs 650/mo in 1975 at Rs 725/mo in 1980		
Cost per student	Rs 690	Rs 775

d. Other costs per student Materials, books, library costs overhead. Est. 50% of instructor costs	Rs 345	Rs 388
e. Annualized capital cost per student	Rs 195	Rs 225
Individualized Costs		
a. Travel Costs		
From home to Residential Campus	Rs 60	Rs 75
b. Living Expenses Cost for 10 months; Housing; Meals above cost at home	Rs1100	Rs1,400
c. Other expenses		
Other extras due to living away from home: laundry Rs 20/mo	Rs150	Rs 200
Sub total	Rs1310	Rs1,736
Total Costs		
a. HMG Costs	Rs2850	Rs4,798
b. Individual Costs	Rs1310	Rs1,736
Combined Total	Rs4160	Rs6,759

Costs of Radio Education Teacher Training

This will be estimated based on costs paid for by USAID and by HMG and individual teachers enrolled. Costs will be amortized over an eight year period.

Original estimates show an annual cost per student of US$87 for radio education as compared with US$334 now estimated to be US$568 for residential education.

There is no doubt that once the program becomes operational, the costs of radio education will be much more cost effective. The revised costs of the start-up operation will be refined during the coming year.

Appendix F

RADIO EDUCATION TEACHER TRAINING PROJECT
Proposed Training Program for Three Months for Selected Participants in area of Evaluation

It has been proposed that the Evaluation Team complete a three month training program as Participants through USAID in the United States. It is suggested that this have two major components (a) General background through regular college courses in statistics, tests and measurement, research design, SPSS Computer Programming and report writing; and (b) Supplemental individualized instruction in application of formal training to the evaluation program of the Radio Education Teacher Training Project in Nepal.

Formal Courses

Below are a number of courses at Southern Illinois University at Carbondale which would have value for the evaluation team:

Guidance and Educational Psychology
- 502-3 Basic Statistics
- 422-3 Assessment and Classroom Models

Higher Education
- 535 Seminar in Questionnaires and SPSS

English
- 491-3 Expository Technical Writing

Informal Instruction

This will include individualized instruction in the following areas:

- Test item construction
- Questionnaire construction
- Observation and the development of observation scales
- Design of evaluation studies
- Analysis of data
- Review of the required activities for the RETT Project
- Sample report writing
- Practice in SPSS Processing
- Individual reading in evaluation and report preparation

Appendix G

LIST OF INSTRUMENTS AND MANUALS DESIGNED FOR THE RADIO EUDCATION TEACHER TRAINING PROJECT

Formative Evaluation

General Questionnaire
Statistical Report Form
General Formative Evaluation Form

Orientation Workshop

Teachers Questionnaire
School Questionnaire
Magazine Show Evaluation Form
Supervisor's Manual
Achievement Test

First Two-Day Follow-Up Workshop

Evaluation Questionnaire I
Magazine Show Questionnaire
Posttest I, Form A; Posttest I, Form B
Supervisor's Manual

Second Two-Day Follow-Up Workshop

Evaluation Questionnaire II
Posttest II, Form A; Posttest II, Form B
Supervisor's Manual

Appendix H

Recommended Next Steps in Evaluation

1. Establish norm groups for the Achievement Test and compare the general achievement of teachers enrolled in the RETT with that of a sample of 7th, 8th, and 9th grade students.

2. Construct Post tests for the next two or three two-day follow-up workshops of Pilot Year.

3. Construct Evaluation Questionnaires for Future Follow-Up Workshops and be sure to include questions suggested in the Project Paper not previously asked.

4. Complete research reports for each of the forthcoming follow-up workshops of Pilot Year.

5. Analyze the data collected from the secondary schools regarding attitudes toward radio education.

6. Determine on the basis of testing during the Pilot Year, the recommended number of test items for a test session of one and a half hours. On the basis of this study construct suitable Pretests in Education, Nepali, Social Studies, Health, Art and P.E. based on the projected year- long curriculum. This Pretest then will be the major instrument for evaluating the Project in terms of gain scores from Pretest to Posttest during the Full-Year Project.

7. Design a revised Teacher's Questionnaire and School Questionnaire based on experience of the Pilot Year for the First Full year; similarly design a revised evaluation questionnaire for any follow-up workshops or the end of year workshop based on questionnaires used during the Pilot Year.

8. Refine the plan for testing the Control Groups at the beginning and end of the Full-Year operation: Untrained Primary Teachers: Distance Learning Teachers; and students enrolled in residential program.