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FIELD NOTE

**EXPANDED PROGRAM OF IMMUNIZATION
SCHOOLS BROADCASTS TO GRADES FIVE AND SIX**

SWAZILAND

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The educative influence of parents on children is a well established and universally accepted fact. The influence of children on their parents is a phenomenon less often explored and far less often pursued. Information carried by children, particularly information backed up with authority, can have a salutary effect on parents and this mode of intervention is one that should not be overlooked when introducing new health behaviors to a community.

In Swaziland, as in many developing countries, the voice of the teacher is considered an indisputable authority and there is much to be gained by having health messages carried from the school to the home by the students. The major challenges of this type of information dissemination are to ensure the accuracy of the information relayed and to motivate children to carry the information home and monitor their parents' acceptance of it.

The Swaziland Expanded Programme on Immunization set out to meet these challenges by providing a series of eight radio programs designed for children in grades five and six. Since radio is the most pervasive mass medium in Swaziland and since the Swaziland Broadcasting and Information Service already provides regular programming to schools, it was thought that this might be an effective way of reaching large numbers of children with a standard message at a uniform time and with relatively low expenditure.

The programs were broadcast on the English channel of the Swaziland Broadcasting Service during the third term (November) of 1986. Sixteen schools received the accompanying materials and participated in the pilot program. The preparation and presentation of the lessons was designed to make the best possible use of the radio medium to assist school children to influence their parents.

A RADIO PRODUCTION PRACTICUM

The planning, creation, and monitoring of the radio programs was itself designed to be an educational/training experience for health, education, and media professionals as part of a course in radio production.¹ The HEALTHCOM Project provided three

Important contributors to the Swaziland Schools Broadcast included Cecilia Verzosa, who taught and assisted in message testing, Vicki Freimuth, who conducted the evaluation, Beatrice Miller, graphic artist, and Mabongo Bongani and his fellow students in the radio course, without whom these programs would never have been created and broadcast.

consultants to help support the project: one to conduct a workshop in planning, radio scriptwriting, and production, one to teach and assist in message testing, and one to teach and assist in summative evaluation.

The radio course included a three-week workshop on scriptwriting about six months before broadcast to bring together those involved in this and possible future health communication activities. The workshop was attended by about 30 participants including school health nurses, rural health motivators, and officers from the Health Education Unit of the Ministry of Health, together with consultants in educational radio and message testing.

The last portion of the workshop introduced a simple but systematic methodology for pretesting print and radio materials. The materials created during the workshop were then pretested among 185 urban and 109 rural school children to determine whether children found the materials attractive, whether they were appropriate to the social and cultural context, and whether the lessons were understandable. Researchers also observed the level of participation among the students during the radio lessons. Changes in the materials were then made on the basis of this pretesting.

Setting Objectives

In the scriptwriting workshop, our first task was to outline the purposes of the radio schools broadcast. We agreed that the purposes of the EPI programs were:

- to teach children to know the six killer diseases and how to prevent them;
- to teach children to check if siblings have been immunized;
- to teach children to motivate family members to have baby siblings fully immunized in the first year of life.

We also established measurable objectives of the radio programs as follows:

- Children will be able to name the six killer diseases in English and siSwati;

- Children will know the consequences of babies not being immunized against these diseases.
- Children will know the vaccination ages.
- Children will recognize a BCG scar and know where it is; will know the other vaccination sites; and will know that there are normal reactions to the vaccinations.
- Children will encourage (motivate) family members to take siblings for immunization.
- Children will know the importance of the immunization card and encourage family members to take the card to the clinic when they take the baby.

Pre- and post-tests of our audience would determine to what extent our radio programs reached these objectives.

From Objectives to Products

We recognized at the outset that the specific and important information to be imparted during these lessons meant that programs would have to arouse the children's interest and allow them to learn and remember particular facts. We needed some way of ensuring that the students learned the facts that would enable them to achieve the measurable objectives without overloading them with information or boring them.

We decided, therefore, to use the interactive radio instruction mode together with a printed workbook which would be given to each student. Giving the children an opportunity to respond during the radio lessons (which is the goal of the interactive approach) would simulate their regular classroom atmosphere most closely and would, we hoped, motivate stronger interest and enjoyment. A workbook would enhance involvement during the lessons, provide a more lasting record of the facts covered, and would also provide children with a product they could share with family members. We believed that giving the children something to show their mothers would vastly increase the likelihood that the EPI messages would also be discussed.

THE CHILD AS AUDIENCE

Designing mass media for children presents some special opportunities but also special problems. The child, first of all, is a demanding listener, just as much or more than an adult is. He or she must identify with the situation presented, must be captivated by it but not overwhelmed by elements extraneous to the message, and must find the information presented memorable.

For children's instructional programming, several factors should be kept in mind:

- Children learn best when material is presented in small doses and distributed over a period of time.
- Children's attention span is short, so they require periods of relaxation even within a 15-minute program. Relaxation times can also be used, however, for learning.
- Children enjoy stories, games, and music.
- Children require immediate reinforcement of correct responses.
- Children learn best when they are actively involved in the learning process, rather than trying to absorb information passively.
- Children learn best when there is a sense of order. They like a degree of routine within a series of lessons, so they are not required constantly to learn a new approach to learning.
- Children enjoy having a "product" of their learning which they can keep, display, and share with others even when the learning experience is over.

As a medium of instruction, radio can lend itself to these requirements. However, radio can also make special demands upon a learning environment. Radio is, in many ways, an artificial medium, whether it is being used for adult or child education. It requires the audience to move into a world where all experience is gained through the ears alone. For an audience unused to or unsophisticated in listening to an electronic source, this can create barriers to understanding.

When gearing radio programs to children in a classroom, it is important to remember that the audience will be required to cope with two environments at once: the customary environment of the classroom, with all its attendant distractions, and the imaginary world of the radio. When the audience is children in rural areas of a developing country who not have much access to electronic media and almost none to sophisticated programming, it is most important to ensure that the medium in fact enhances the message rather than overrides it.

Given these concerns, we made several important decisions. We decided to use the interactive learning format for the programs to allow children to be involved in the learning process as actively as possible. The radio lessons were carefully structured to provide cues and signals for the children's involvement in much the same way that the classroom teacher provides cues and signals for students throughout a regular lesson. We also agreed that our workbook would be an essential part of the course and would follow the characters and presentation of the radio episodes as closely as possible.

In addition, we made decisions regarding the style of presentation which would be best for our audience. While we did not want the radio lessons to duplicate a classroom lesson and we did want to use radio's specific and special attributes, we were aware that an overuse of radio devices such as sound effects, musical bridges, cross fades, and many voices could be more confusing than helpful to these students. We resisted the temptation, therefore, to use production techniques and "gimmicks" which might distract our students from the content.

We restricted the use of musical themes to the opening and closing of the program and to the introduction of the story. Quiet, unobtrusive music was also used during workbook activities if more than ten seconds of silence was required during which children were to write. The only other uses of music were special songs which introduced activity segments. These songs were presented by voice alone. No sound effects were used in the programs, although we later decided it might have been helpful to use short effects at the introduction to various segments when children needed time to pick up their pencils and books.

We also restricted the characters in our format to two teachers, allowing the burden of instruction to be carried by one teacher (Alfred) throughout, with the second teacher (Lindiwe) reinforcing answers or introducing activity segments. Just as children are accustomed to having one teacher in the classroom, so it is easier for radio students if they can rely on one voice to be the main instructor. A third voice was used for storytelling, since children usually respond well to a "favorite character" being

established as the storyteller. In the case of the immunization programs, the storyteller was Uncle Elijah, a man with a deep, powerful voice and a talent for writing and telling stories.

Since this was the first time our scriptwriters had been involved in writing educational programs for children and since time and facilities were very limited, the presentations were kept simple, with variety and interest provided by the use of various segments and the workbook.

The attributes of a class environment that are usually most conducive to good learning include organization, discipline, clear instruction, and motivation. It must not be forgotten that the attitude and personality of the teacher are also very important factors in learning. We tried to consider all of these factors in our radio course, just as a teacher does in the everyday learning setting.

CREATING THE STORY AND THE LESSON

The artist for the workbook was brought into the planning session from the outset so that scripts and workbook could progress together. Frequently in development projects, the artist is engaged only after all program scripting has been completed and is thereby forced to adapt illustrations to the text. Ideally the artist should contribute to the creation of the text by discussing ideas which lend themselves best to illustration and by creating an initial "dummy" of the book into which the lessons can be fit as planning progresses. This workshop proved yet again that it is essential to include the artist's ideas at all stages of the program planning, and one of the successful attributes of the Swaziland project was the way in which the artist and the scriptwriters were able to work together to create a cohesive program of audio and print.

In planning the format of our immunization lessons, we first divided the material into eight programs. Each of these concentrated on one major topic so that children could have a reasonable chance of learning the facts, but each program also reinforced all the major messages of the campaign. This continuing reinforcement was achieved through the opening and closing songs and through the workbook. Before writing the script for any lesson we began by defining its primary purpose; setting down measurable objectives; and listing the messages/information we wanted to convey. (See attachment.)

The interactive method calls for each radio program to be presented in a series of segments that allow a variety of learning modes within each lesson. The title page shown below, which was used for each of the program scripts, illustrates the script format.

PR. NO: _____

TOPIC: _____

SEGMENT	1	STANDARD SONG AND INTRODUCTION	2:00
SEGMENT	2	SKILL DRILL:	3:00
SEGMENT	3	STORY:	2:30
SEGMENT	4	ACTIVITY:	3:00
SEGMENT	5	WORKBOOK:	2:30
SEGMENT	6	SUMMARY, CLOSE, SONG	1:30
TOTAL TIME:			14:30

TALENT REQUIRED:

RECORDING DATE

BROADCAST DATE:

The total program time of less than 15 minutes was divided into six parts, none of which was longer than three minutes.

Throughout each program, children were exposed to the lesson topic in four different ways: skills drills, story, activity, and workbook. Since there was considerable variety in the segment approach, the children were not bored, but were offered a greater opportunity to learn by participation. The more traditional method of radio programming which provides information at the start of the lesson and questions for the students to answer at the end is often unsuccessful because students do not have the chance to practice or be involved in the information while it is being presented. Interactive involvement is an essential element of any good learning methodology, and radio, like the classroom, can provide opportunities for student involvement if the appropriate methods are used.

An examination of the different components of the standard lesson in our radio program will indicate their appropriateness to children's programming.

The Song

Opening a children's educational program with a song provides not only ongoing reinforcement of the main message of the series, but also motivation to participate in the program and settling time for the class before any instruction takes place.

It should be noted that while education at grade five and above is conducted in English in Swazi schools, many of the children are still not fluent in the language and many of their families understand little or no English. It was necessary, therefore, to give children the main immunization message in both languages and the opening and closing songs of the programs seemed to offer the best opportunity for this. The opening song of each program was presented in English; the closing song in siSwati (the national language).

The song consisted of a chorus giving the names of the six killer diseases and an admonition to "Get your children immunized to prevent the six diseases." This was followed by a chorus of humming, over which was spoken a verse describing the vaccination ages and reciting the theme of the program: that "each and every baby must be fully immunized before he is one year old." Thus, every lesson began and ended with a reminder of the most important elements of the immunization campaign; it was a reminder in which the children could join with their own voices.

The Skill Drill

The "skill drill" was a segment of the program in which new material was taught for the first time. The skill drill in each of the eight programs followed the same pattern: modeling, involvement, reinforcement. First, the teachers would introduce and model the lesson. For example, the script for the start of the skill drill segment might be:

ALFRED: Children, in the song, you heard the names of six killer diseases that can kill and cripple children. We are going to learn the names of the six killer diseases in English. Listen carefully, while I say the names of the six killer diseases for you: Tuberculosis, Poliomyelitis, Diphtheria, Whooping Cough, Tetanus, Measles. Listen to them again: Tuberculosis, Poliomyelitis, Diphtheria, Whooping Cough, Tetanus, Measles.

Now children, say the name of each disease after me:

ALFRED: Poliomyelitis

PAUSE: 05 Seconds [for response from children]

ALFRED: Diphtheria

PAUSE: 05 Seconds

ALFRED: Whooping Cough

PAUSE: 05 Seconds

ALFRED: Tetanus

PAUSE: 05 Seconds

ALFRED: Measles

PAUSE: 05 Seconds

The two teachers might then model the method in which they wanted the children to handle the next stage of the skill learning. The demonstration might follow these lines:

ALFRED: Children, Lindiwe will say the names of the diseases with me. Listen, while Lindiwe says the names with me.

BOTH: Tuberculosis. Poliomyelitis. Diphtheria. Whooping Cough. Tetanus. Measles.

ALFRED: It's YOUR turn now, children. You say the names of the diseases with me: Tuberculosis. Poliomyelitis. Diphtheria. Whooping Cough. Tetanus. Measles.

Did you all join in with ALL the names? Let's do it again. Say the names of the six diseases loudly and clearly. Say them with me: Tuberculosis. Poliomyelitis. [etc.]

The skill segment of each program lasted about three minutes and gave the children an opportunity to practice the information to be learned with the teacher. The newly learned facts were then reinforced in a real life situation through the use of a story.

The Story

Each story was two and a half minutes long and was designed to be appropriate and interesting to children. The stories were "told" by Uncle Elijah and introduced by a special musical theme so that children would know that Uncle Elijah was about to

appear. During the format planning sessions, it was the artist who suggested that each workbook lesson should contain a full page illustration from the story. This would enable the children to recall the story and its message while they were coloring the picture at home, and perhaps motivate them to tell the story to their parents. By the end of the story, seven and a half minutes of program time had elapsed (half the program duration). We agreed that the lesson pace should be varied by the introduction of an activity at this stage.

The Activities

While the activity was primarily planned to relax the children, it was, nevertheless, associated with the topic of the program and again served as reinforcement of the program message.

Sometimes the activity was a game which the children could play while seated at their desks. For example, during the program that taught the parts of the body where vaccinations are given, the children were invited to play a game in which they touched parts of the body as the radio teacher said them: "Mouth, upper arm, lower arm, thigh." Throughout the program and in the game, the sites were always given in the same order so they became a sort of mnemonic chant, but the fun of the game was that the teacher said the names faster and faster and the children had to keep up with the increasing speed.

The lesson on the parts of the body at which vaccinations are given illustrates a very important point about instructional programming for children: the repeated presentation of facts in the same sequence. Indeed, most people of any age find it easier to learn a string of names, numbers, or facts if they are always presented the same way. The names of the six diseases, like the parts of the body and the vaccination ages, were always presented in the same sequence. To prevent this factual recitation from becoming rote learning, the information in the drills was used in other ways throughout the programs, for instance, in the stories and games.

Activity time could also be used for the teaching of songs. As advertisers have proven with their advertising jingles, many things are more easily committed to memory if they are set to music. So children also find it easier to remember information that is set to a catchy tune. During activity time, the children were taught the words of the opening and closing songs for the program, and they were taught a little refrain reciting the ages at which children should be vaccinated:

Immunization Ages
Immunization Ages,
Birth and 3, 4, 5, and 9.

A the simple but bouncy little tune made the song fun. Children also enjoy "join in" games where the radio teacher provides perhaps the verse of a poem and the children must come in with a chorus line at the end of each verse. This approach was used in the program designed to help children teach their parents the importance of the immunization card. The radio teacher read verses about the importance of the card, and at the end of each verse the children joined in with the line: "Always take the card to the clinic when you go."

The activity segment, which lasted three minutes, was followed by the workbook segment. Each program then ended with a short summary and the theme song in siSwati.

A DUAL-PURPOSE WORKBOOK

The workbook was used to provide a "segment" incorporated into the radio programs and also to provide activities to be done at home. Although the radio program segment using the workbook was only two and a half minutes long, it ensured that the children had an opportunity to be involved in yet another way in the major message of the program. The main reason for homework was to encourage children to take the book home and, we hoped, to influence their parents to take siblings for vaccinations.

The book was printed in black and white with line drawings, and the radio "teachers" as well as the classroom teachers encouraged the children to color the pictures. This served several purposes. It gave the children a further opportunity to be involved in and remember the program message in a fun way. It encouraged each child to have a stronger pride of ownership in the book. And since attractive print materials are rare in Swaziland rural homes, it was intended that the workbook, once colored, would be an item that families could be proud to keep and share with friends and extended family members.

The front cover was designed to attract immediate attention with its full picture of the six-headed monster (the six childhood killer diseases). It provided a place for the student to write his or her name, class, and school so that an immediate sense of ownership could be established. The inside front cover contained the words of the theme song in both English and siSwati so that children could sing along from the very first day of the programs. The inside back cover of the book showed the picture of a "happy baby" which is the symbol for all Swaziland campaigns related to childhood diseases.

The book devoted a double-page spread to each lesson. The left-hand side displayed the activity to be completed during the program and the homework activity. The right-hand page contained a picture that the children could color from the story of the program and a brief program summary. Sometimes the children would be required to write words in blanks; sometimes they would be asked to tick "yes" or "no" to a question about a picture; sometimes they would be required to fill in a number, for example in the lesson about vaccination ages.

The homework answers were at the bottom of the page in small print and upside down, so that, while the answers were not immediately apparent, it was possible for children to check their answers on completion of the work. We agreed that since the workbook was not designed to be a test, it was really not important if the children actually copied the homework answers. There was little need for children to do so, however, since the information they would need for their homework was very clearly contained within the double-page spread, either in the first activity or in the program summary. Our goal was that the children should enjoy an activity that reinforced the new information, and that they would take the book home and share it with their parents.

In order to make it possible for schools to produce their own workbooks if the programs are rebroadcast in future years, the book was presented on standard paper that can be duplicated easily, and as all illustrations are clear line drawings, the whole booklet can be reproduced easily and inexpensively.

As part of the workshop activities, the workbook was carefully pretested among urban and rural school children of the appropriate ages. This led to an assortment of mostly minor changes which nevertheless were important in making the material effective and easy to follow. Briefly, some graphic details were changed in the six-headed monster; the page numbers were made more obvious; some of the exercises were shortened so that they could be completed in the time allotted in the radio slots; one exercise which was too difficult was replaced with another; the exercises were labeled in such a way as to contrast with the workbook page numbers; and the homework assignments were located in consistent places in the workbook so they could be easily found.

REFLECTING ON RESULTS

The project designed a pre- and post-test to measure the children's learning from the radio programs and to determine whether the school children passed on knowledge learned to their mothers. The evaluation was carried out in March in an urban and a

rural school which had received the broadcasts and in an urban and a rural control school which had not been informed of the radio programs.

The evaluation showed that the programs were highly successful in teaching children the targeted EPI messages. Before the programs were broadcast, children in both the experimental and control schools scored about 4.5 points of a possible 26 points on a pretest including questions about the basic EPI facts. When given the same test after broadcast, children in the schools that were exposed to the radio programs increased their scores to about 21 of 26 points while the control group scores did not improve from the baseline level.

The evaluators attributed this success to aspects of the planning and testing process, as well as to design features of the programs themselves. These included:

- thorough planning, using representatives of the target audience, and the radio writers and the graphic artist working together;
- using the interactive teaching methodology in the radio programs to ensure student involvement;
- using an attractive black and white, easily reproducible workbook that provided students with more involvement and a product to share with their families;
- sample testing to ensure message integrity before final production.

The evaluation also included interviews with 132 mothers of children in the four experimental and control schools. The results indicated that the program's third objective, to help children become a vehicle for bringing EPI messages home to their families, was not as successfully accomplished.

In general, the evaluation showed few differences between the experimental group mothers whose children had heard the radio programs and the control group mothers whose children had not hear them. The interviews indicated that the clinic is by far the most significant source of health knowledge for mothers, who reported little or no learning from their children. On the other hand, four months after the broadcasts, approximately 20 percent of urban and rural experimental mothers remembered seeing the workbook. Among just the rural mothers, this figure was 42 percent. We speculated

that the attractive printed material was more novel in the rural areas and hence more likely to be noticed by mothers.

LOOKING TOWARD THE FUTURE

In reflecting on the schools broadcast program, we can make a number of recommendations for future interactive radio projects. Since transfer of knowledge from children to mothers was not as effective as desired, we would recommend that a workbook include some activities that would more directly involve mothers. For example, perhaps a workbook could include a replica of the immunization card and children could be asked to get their mothers' help in completing it for their family. The cards could be checked by the teachers and/or the school health nurses and some follow up could be done with those mothers who had not taken their children for vaccinations.

This points out the importance of involving school personnel more deeply in a broadcast program. A future project might create a campaign targeted to teachers to introduce them to these radio programs, motivate them to use the programs in the classroom, and suggest further activities building on the messages.

On a purely technical level, we found that broadcast reception of the programs was poor in some areas. Clear reception is essential for classroom listening. To solve this problem, cassette tapes should be offered to schools as an alternative or back-up to the broadcasts themselves.

A mass media project geared toward the school system faces a number of obstacles. The biggest constraints on this project were time and lack of trained personnel. Since all the members of the planning team were inexperienced at writing educational radio programs for children (although half of the team had written and produced adult radio programs previously) and since many of them had no prior experience in this type of intervention, considerable effort was necessary to plan and write the eight radio scripts and prepare the message testing in a three-week workshop. Once the workshop was over, it was difficult to get the necessary people together to complete the radio recording because of the pressures of their ongoing work. Preparation and administering the pre- and post-test, and analyzing the data, was also time consuming.

The project was seen as a training project for those involved in the preparation and presentation of programs and pretests, as well as an educational project for school children. While it is clear that all those involved learned a great deal that can be used in

future projects of this type, it is equally clear that ministries wishing to undertake similar interventions must be helped to understand the need for adequate training and time for personnel who contribute to the work.

NOTES

1. The course was part of a diploma program offered by the A.I.D. Development Communication Project and San Diego State University. The immunization schools broadcast activity was assisted by the HEALTHCOM Project and the CCCD Project, which funded the radio programs and production of the workbook.

ATTACHMENT

PROGRAM PLAN FOR LESSON 4

SUBJECT: Immunization Ages

MEASURABLE OBJECTIVES:

Children will :

1. know the immunization schedule.
2. know the names of the diseases their siblings are to be immunized against.
3. pass this information to their families.
4. remind their family when it is time for taking the child to the clinic/hospital.

CONTENT:

1. Immunization is a way of protecting the body against certain diseases.
2. For a child to have a full series of immunization, he/she must be taken to the clinic/hospital at birth, 3 months, 4 months, 5 months, and 9 months.
3. The names of the six diseases babies are immunized against are...tuberculosis, poliomyelitis, diphtheria, whooping cough, tetanus, and measles.
4. Share this information with your family--every child is to be taken to the clinic at birth, 3 months, 4 months, 5 months, and 9 months.
5. Find out how old your brother or sister is and mark the birth down on the calendar in your workbook. Mark the dates 3, 4, 5, and 9 months. Remind your mother when it is time for your brother or sister to go to the clinic/hospital.
6. Always at birth, 3 months, 4 months, 5 months, and 9 months, babies should be taken to the clinic/hospital.