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Radio Language Teaching in Kenyan Schools

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I was tempted to call this paper "Radio: A New Technology." This was motivated in part by a desire to appear timely, like my colleagues discussing computers or laser disks. I gained control of my competitive instincts, however. What I really want to do is stimulate our thinking about radio as if it were a new technology. The potential of radio to instruct remains as vast as it ever was. Its potential to reach the poor and less worldly audiences is greater than any other medium. We need to bring the same enthusiasm and creativity to the use of radio for language teaching that we do to the use of the more glamorous--and more expensive--media.

What I propose to do in the following pages is offer a specific example of radio used in a new and effective way to teach language, hence, the present title. First, I will describe the Kenyan project briefly, including a summary of the research design, the radio lessons, and some preliminary results. Then I will discuss some of the implications of the project, particularly those lessons which challenge some of our current thinking about the use of technology for language teaching.

OVERVIEW

The Radio Language Arts Project (RLAP) is a research and development project designed to test the feasibility of using radio as the major medium of

instruction in teaching English at the first three primary grades.¹ The primary significance of the RLAP to the study of media and language teaching is in its emphasis on the intensive use of radio to serve as the major medium of instruction in the formal classroom setting. The project, now in its third and final year of lesson development, is systematically evaluating the effectiveness of formal, intensive radio in teaching English as a foreign language to young children. The techniques used to achieve these results are being carefully documented since there is little hard evidence or detailed methodological description of successful radio language teaching available in the literature at present.

The RLAP is also testing the cost and instructional effectiveness of radio to reach the disadvantaged rural population for whom educational opportunities are frequently limited because of the inadequacy or poor distribution of resources.

Language programs are broadcast as part of the normal school curricula during school hours. The daily thirty-minute lessons fit into the regular English period in the school time-table. Although radio is the major medium of instruction, teachers play an important role during the broadcasts, and in pre- and post-broadcast activities. The radio lessons are designed to assist teachers in the classroom, enhancing their effectiveness in teaching a difficult and important skill.

The project design draws on the results of several relevant projects in other countries, most particularly a radio-based primary-school mathematics

¹ The project is a joint venture between Kenya and the United States. The Kenyan executing agency is the Kenya Institute of Education, as authorized by the Ministry of Education, Science and Technology. The American executing agency is the Academy for Educational Development, under contract to the United States Agency for International Development. Major funding comes from USAID.

project conducted between 1973 and 1978 in Nicaragua, Central America (Friend, Searle and Suppes, 1980). It also builds on Kenya's extensive experience with educational broadcasts to schools which use radio in a supplementary rather than intensive role.

RESEARCH DESIGN

The RLAP research design uses a sample of thirty-one schools drawn from seven linguistic districts. Given the supposed importance of mother tongue as a variable in learning English, the districts chosen represent the major language groups and approximately seventy percent of the Kenya population. Schools were chosen by means of a stratified random sample on the basis of performance on the standardized primary school leaving examination, with equal representation from high, medium and low scoring schools.

The thirty-one project schools are divided into two groups. Ten schools are designated as observation schools in which radio lessons are observed to identify instructional problems with the radio lessons. The other twenty-one schools--three from each district--are used to test the effectiveness of the lessons in improving pupil performance.

Formative evaluation. Formative evaluation is an integral part of the instructional development process. It applies a technique developed by the Radio Mathematics Project based on the feedback system used in industry to control continuous processes (Friend, 1980). As applied in the RLAP, this model is labeled the feedforward revision system to underscore its emphasis on improving instruction through changes to future lessons. As it works, a team of two observers (professionals from the field working with the project on a part-time basis) is assigned to each of the ten observation schools. They observe three lessons each week, completing an observation form developed by the project staff which focuses attention on the instructional methodology

(teacher performance, pupil participation, common mistakes, etc.). They also talk to teachers and headmasters. The RLAP staff, which writes and produces the radio lessons, also observe once a week. Every Friday, the observers administer an achievement test which focuses on objectives that have been introduced or maintained during the week.

Formative evaluation data are compiled, analyzed, and summarized by the RLAP research specialist, who then presents the results to his colleagues. Problems are discussed and decisions are made about correction. In some cases, a specific problem will be solved by writing a limited number of segments to correct it. In other cases, a general concern will be raised, which may result in a new instructional design principle to be applied throughout future lessons.

When serious problems arise, of course, decisions are made to change lessons that have already been recorded. A segment which is observed to fail completely, leaving pupils confused and not participating, would evoke such a decision. But the emphasis of the feedforward formative evaluation process is on revisions to future materials. This requires that the instructional design principles on which materials are based be carefully validated to ensure that problems are the exception rather than the rule.

Before regular broadcasts began, the RLAP spent more than a year developing pilot radio lessons based on tentative principles about the most effective use of radio for teaching English as a foreign language, testing those lessons in classrooms, evaluating the results, revising the design principles, and so on. The result was a reasonable certainty that the radio lessons would be generally successful without an unacceptably high level of revision. In practice, this has proven to be the case. The radio lessons work well, and those problems identified by formative evaluation have been corrected without undue difficulty.

Summative evaluation. The project uses a set of twenty-one schools for both control and experimental purposes, administering a post-test one year to children who have not been exposed to the treatment and the next year to children in the same grade or standard who have been exposed to the radio lessons. This lapped-year design was chosen for two major reasons. The paucity of reliable data on school, teacher and pupil quality made any attempt to construct a comparable set of control and experimental schools impossible. The lapped-year design should ensure a closer match between control and experimental groups at the same schools than would be the case if two different sets of schools were used.

The second reason is that the lapped-year design completely avoids the problem of contamination of control schools. Control groups are tested before the broadcasts to their grade or standard begin, so there is no chance that they can be exposed to the treatment--the radio lessons--unintentionally.

The summative evaluation strategy for one classroom (the basic unit of analysis) is summarized in the following chart.

Summative Evaluation Design for One Classroom

<u>Year</u>	<u>Radio Classrooms</u> (<u>experimental</u>)	<u>Control Classrooms</u> (<u>control</u>)
1981 (no broadcasts)		School A Classroom 1 Teacher X Pupil cohort alpha
1982 (standard 1 broadcasts)	School A Classroom 1 Teacher X Pupil cohort beta	School A Classroom 2 Teacher Y Pupil cohort alpha
1983 (standard 2 broadcasts)	School A Classroom 2 Teacher Y Pupil cohort beta	School A Classroom 3 Teacher Z Pupil cohort alpha
1984 (standard 3 broadcasts)	School A Classroom 3 Teacher Z Pupil cohort beta	

In November, 1981, pupils in the alpha cohort in classroom one of this school (school A), having been taught for a year by teacher X without the radio English lessons, were given a post-test based on the Kenyan syllabus. Results from this test provided a pupil achievement record for the control group. In November, 1982, the same test was administered to pupils in the beta cohort. These children had spent a year in the same classroom (classroom one) with the same teacher (teacher X), but with the radio English lesson treatment. Their test results provided a pupil achievement record for the experimental group. The amount of time devoted to English each week was held constant from 1981 to 1982. A comparison of results between the control and experimental groups (as indicated by the arrow) was then used to evaluate the effectiveness of this use of instructional radio (Academy for Educational Development, 1981).

The same pattern was followed during 1983 and 1984. Pupil achievement and other variables will be measured in one year for control purposes and in the subsequent year, after treatment, for experimental purposes. The same control and experimental cohorts of children will be followed because the RLAP is interested in cumulative results (i.e. the effects of three years of radio-based instruction versus three years of conventional instruction).

Other methods of evaluating the project are also being used. For example, questionnaires distributed to teachers and headmasters at the end of each broadcast year measure attitudes towards the radio method on the part of school staff. Information about each school (such as repeater and drop-out rates, and attendance) is being gathered for future analysis. Finally, a cost-effectiveness analysis will be undertaken to consider the costs of delivering radio-based English instruction compared to the costs of delivering conventional instruction. The costs of radio-based instruction will also be compared to pupil performance.

RADIO LESSONS

The radio lessons are based on the Kenyan English syllabus, that is the lessons use the same linguistic content (vocabulary, structures) specified for all Kenyan government school pupils. The sequencing of the linguistic items has been changed in order to use radio more effectively, however.

The thirty-minute lessons have a standard format. Each lesson is divided into major blocks of time and content, and each block is divided into smaller segments. A segment may take as little as ten to fifteen seconds, or as much as a few minutes. A block may consist of up to four segments lasting five or six minutes all together. A typical block might consist of a transition segment, an instructional segment introducing new material, a song or game segment, and finally a short drill segment. All these might have a central linguistic point, for example, learning how to talk about events that took place in the past.

A fixed portion of air time is planned and allotted to each block and segment so that script writers know exactly how much material they have to produce for scripts each day and how much time they have to teach a particular item. Writing assignments are divided among the members of the writing team by means of these blocks and segments.

In addition to a standard format, a standard group of characters is used each year. In year two for example, Safiri and Tina are the designated program co-hosts. They also interact with other characters in a typical rural community and with the children in the classroom. Another featured couple, Sara and Rono, keep a little shop where some of the language exchanges take place. The main secondary characters are the Hamisi family--mother, father, son and daughter, grandmother, grandfather, an aunt and an uncle.

The settings most often used in the broadcasts are Sara and Rono's shop, the Hamisi family's house and community, and the classroom. The characters are used to give reality to the language use. New vocabulary and grammar are introduced in a social context that helps illustrate the meaning of the language.

The instructional segments are of course the heart of the lessons. New material is introduced and practiced in one or two segments. Previously introduced material is maintained through direct and conscious practice in two additional segments. These initial and maintenance segments make up the major portion of the lessons.

In the first year, considerable attention is paid to listening skills. Pupils are expected to respond physically to language cues even before they can speak complete sentences of their own. There is considerable directed physical activity and a great deal of repetition built into drills, songs, and games.

Mother tongue is never spoken by the radio characters. Since Kenya has such complex linguistic diversity, only English is used in the radio broadcast. The classroom teacher is directed by the radio to give explanations in mother tongue when it is felt absolutely necessary. As the children gain language ability, there is less and less reliance on mother tongue directions and explanations.

The radio lessons introduce meaning through specific language and sound effects in communication settings. Even difficult linguistic concepts are introduced by the radio with the help of visual effects carried out in the classroom by the children. The concepts of more and less water, for example, are demonstrated by two pupils holding bottles filled in advance of the broadcast by the classroom teacher to represent more and less. The radio

exercise then insures that pupils understand the meaning and can speak sentences related to the situation.

A typical instructional segment, then, begins with a context for the language use. Next, the radio characters model the language. Then some form of practice is directed by the radio. And finally, the radio characters reinforce the correct responses. The classroom teacher helps model the children's behavior but is never required to provide a language model for the children during the broadcasts. The language used in the broadcasts is academic English, that is language that is most useful in receiving instruction and reading textbooks in all subjects, as Kenyan children do beginning in grade four. Informal language is used in the family and community situations, but the linguistic content and the language functions are directly transferable to classroom learning through the medium of English.

The principal blocks of instruction over a period of several days contain the following types of activities which are familiar to language teachers:

- choral and individual question-and-answer exchanges between students and the radio
- structured conversation between the radio and the class or individuals
- nonverbal responses to radio language cues
- dialogues or stories that engage the pupils as participants
- reading aloud and silently from worksheets and the blackboard
- displaying and manipulating common classroom objects
- songs and games, and
- pattern drills.

PRELIMINARY RESULTS

Initial results are now available from the first year achievement tests and from the questionnaire distributed to teachers and headmasters after the first year of broadcasting. They show substantial achievement gains and strong support from school personnel (Owino and Christensen, 1983).

The year one achievement test consisted of forty questions measuring listening comprehension, based on English vocabulary and structures specified by the Kenyan syllabus. The test was developed by project staff with the help of outside consultants. It was administered at the end of 1981 to children in twenty-one project schools who had not heard the RLAP radio lessons. Exactly the same test was given to children in the same twenty-one project schools at the end of 1982. These children had used the radio method to learn English.

Although reading was not introduced in the grade one radio lessons until term three, children learning English by radio showed a 22.5% gain over children in the conventional classes. The results for listening comprehension were even stronger. Radio pupils showed a 50% gain. In other words, the intensive radio method of teaching English produced substantial gains in pupil performance after only one year of broadcasts. Improvement was found in every district and every vernacular language group represented in the project, and for schools scoring high, medium and low on the national primary school leaving examination.

The questionnaires completed by teachers and headmasters showed that the radio English lessons have been very well received.

- 89% of those expressing an opinion rated the radio lessons as "good" or "excellent." No one rated them "poor."

- 99% of those responding felt that the radio pupils spoke better English after one year than pupils who had not had the radio lessons. 90% felt that the radio pupils would be ready to use English as the sole medium of instruction after standard three.

These first year results along with anecdotal evidence from schools strongly suggest that intensive instructional radio will prove to be an effective tool for teaching English to rural primary school children. Pupils have already demonstrated significant gains in listening and reading comprehension. Teachers, headmasters and parents are convinced that this method works. They see improvement in their children's English, and they want to continue with the project.

IMPLICATIONS

If the final results of the Radio Language Arts Project (available early in 1985) are positive, as preliminary indications are showing, they will have important implications for radio's role in development. They will focus attention on the underutilized potential of radio to assume a primary role in the formal instructional process, improving student achievement in a cost-effective manner which can benefit rural schools as easily as urban schools. Furthermore, they will suggest that the earlier accomplishments of Radio Mathematics in Nicaragua are generalizable to other subject areas and other countries. The three years of RLAP radio English lessons will be added to the four years of radio mathematics lessons as a resource available to any country interested in adapting them for its own use. And the knowledge gained in developing those lessons will be available to professionals who wish to extend this methodology to other subjects and other academic levels.

The major objective of the RLAP in testing the role of radio in language teaching will have been met. The knowledge and experience gained in Africa may also have implications for industrialized countries applying more sophisticated technologies to the teaching of languages. In the following pages, I want to consider some of these implications. Much of what I am suggesting is mere speculation. Our research project in Kenya did not measure the media specifics that I am interpreting. Some of the implications are probably true and some are probably worth testing further. With this tentativeness now acknowledged, I will discuss them as if they were true.²

The power of the medium. It is a commonplace that each medium has its own unique power. The advantages of one over the other for specific instructional purposes are debated and documented in the literature. One contrast between radio and television seems worth highlighting, however, because radio holds some advantages for language teaching whether in a developing or developed country.

In language teaching, television has the power through pictures to transport the learner to that strange environment where people speak German or French. Having seen the people and the places, it seems less unnatural for the learner to try to communicate in a different language; the natives do it quite naturally. The more exotic the new environment, however, the more distracting the cultural differences may be. Attention may focus on the strong visual images of the exotic local rather than on the linguistic context or content.

² I am indebted to Udo O.H. Jung for posing the questions that challenged me to think about implications of the Kenyan project.

Looking at it from the perspective of the poor, rural learner, we can see how distracting the cultural baggage of Europe or North America might be. What is the child to make of luxury hotels, fast food restaurants, supermarkets, pet food, high fashion, and personal computers? Yet in wanting to make language specific to a particular context, any European language could legitimately make use of such settings. Unless we film in front of a blank wall, television cannot help but provide a strong visual context.

Radio, on the other hand, is restricted in what it can convey. The listeners, therefore, become more active partners in creating a sense of place and of character. But the learners' imaginations are bounded by what they know, what they have experienced.

At first, radio's constraints seem to have no redeeming value. Work with Kenyan rural children and radio has changed our minds. What we find is that the English language is not exotic and strange to these children. The teachers speak it. The radio characters speak it. They talk about relevant subjects and occurrences in their environment. We have made very few concessions to "make" the language lessons Kenyan or to make them culturally relevant. We have used Kenyan names for characters on the radio. Some of the vocabulary is more common to tropical Kenya than to Scotland or Canada, but for the most part, English seems relevant to the children because they can imagine the radio characters and themselves conducting the everyday affairs of school and community in English. But there are no McDonald's golden arches in the background to confuse the language-social situation in the foreground.

Television can easily provide more sensory and cognitive data than the learners can utilize all at once. Radio can focus more directly on the linguistic data. Simpler technologies may also be effective in complex technological societies because they limit the data the learner has to deal

with. One of radio's strengths is that it permits the learners to make their own imaginative ties to their experience and environment. Working at finding these ties between past experience and new knowledge and skills is what education is all about.

The Appropriateness of the Medium. The importance of selecting appropriate technology for the developing world has also had extensive coverage in the literature. The attitude in the industrialized world, however, seems largely to have been: "If we can sell it, let's build it." Experience in the developing world suggests that we should perhaps examine these attitudes and look at what it is children are actually learning through technological media. Just because we invent new technologies does not mean we should use them for all learners. We not only have to make appropriate use of the medium, we must choose the appropriate medium.

In our project, the medium was not chosen on the basis that it could provide a better teaching methodology and result in dramatically higher performance as a result of the methodology. The project has assumed that we can provide quality instruction more effectively through radio because it can solve some of the problems of textbook and materials distribution, it can standardize instruction at a relatively high level, it can accomplish these tasks cost effectively. The tasks could be accomplished by other means--without technology--but not in the same timely fashion or as cost effectively. Our experience suggests that learning may be its own reward. The novelty or newness of the medium is not what is needed to improve instruction, but rather the fact that the medium structures the learning experience more effectively than the poor classroom teacher can is what brings about improved results. Learning is the result of more effective instruction, not necessarily the result of a technological marvel.

We should not assume that children have to be constantly entertained. If we assume that this is the only way to teach, then instructional programming must compete--as entertainment--with other entertainment available, and it will generally fail to do that. High technology can be appropriate for learners if it significantly alters the learners' achievement and performance. It may also be highly distracting, with the interest and attention on the novelty of the technology rather than on the subject matter. For example, computer assisted language instruction, coordinated with other visual media such as video disks, may teach only about computers and video rather than the foreign language intended.

Developing the media package. The most speculative area of all in this discussion is some feelings I have about what kind of people can write and produce effective radio lessons for teaching language. I will not provide much detail here, but only some suggestions to give consideration when developing a media package. I could never show a direct relationship between especially good language lessons and the personalities who developed those lessons. At best I could support these hunches with a few anecdotes.

First, I think a writing and production team can produce better materials than a single individual. Contrary to the way most creative people would like to work, the interchange--sometimes painful and frustrating--between highly individual professionals generates more effective teaching materials. (If the team becomes completely demoralized by bickering this is the result of having team members who are professionally inadequate to the task.)

Individuals on the team have to represent, in some depth, the various professional competencies required to produce media language teaching materials. This includes expertise in instructional systems design, language curricula, linguistics, language teaching at the level of the target audience

in a variety of socio-economic situations, language teaching or classroom experience in the specific situation of the target learners, writing skills (preferably in the medium being used), media production directly related to the instructional purpose of the materials, and evaluation. Obviously a team with one individual representing each of these areas would be cumbersome. Persons with more general experience covering several areas would constitute a more workable team.

Professional expertise is not enough in developing a strong writing and production team. Unfortunately, personal characteristics, which are difficult and hazardous to evaluate, are often more important to the success of a project than technical skills. Let me list a few that seem most important to me from my own experience in working on team projects in the developing world. I have no reason to think they would be very different from projects in the developed world.

Team members need to have strong, individual self-confidence based on real accomplishments. They need to know and be comfortable with who they are. They need to be able to accept challenges and criticism of their work without crumbling with self-doubt about their technical abilities or their personal qualities.

They need to have a strong sense of where they are at present--the immediate environment, the time, the country, the city, whatever the context of work. They need to know and study the educational environment. The following rationale does not satisfy other team members: "Well, when I was in X-place (meaning somewhere other than where the speaker is now!) we did it this way" (meaning the way the speaker wants to do it but the others don't!). Conversely, they need to know what the rest of the world is thinking and doing. This argument does not convince either: "Well, it won't work here" (without giving serious thought to the issue or method).

Obviously team members need to be compromisers. The flexibility and willingness to see other points of view and meet others half-way is a necessity of successful team operations. That is what team-work means.

For creative programs to occur, however, individuals must take risks. They must be willing to take the personal and professional risks that will challenge the usual humdrum committee compromises. They need to defend these risks and convince others to be equally daring. Only through this kind of risk-taking can truly innovative instruction be developed. Most individuals are too willing to fall back on their previous tried-and-true experience, particularly when the going gets rough. Individuals need to be daring and to let others take risks.

The Human Factor. Although it is very appealing to think of educating ourselves by sitting alone and reading a book, it is naive to think that we can function in the world, or affect the affairs of state, without testing our ideas with other human beings. As one of the most human activities, speech and language require genuine communication.

In observing the radio classes being used in the classroom, it is strongly apparent that the classroom teacher has a large effect on the success of the lessons. In part, we have intended to capitalize on the teacher's presence, but we perhaps did not give enough importance to the teacher's effect. The Radio Mathematics Project tried to prepare teacher-proof materials. With backgrounds in Computer Assisted Instruction, the Radio Math team wanted to produce radio lessons which could teach without the teacher. In other projects where teachers were simply not available, the radio has been used without classroom teachers but at other times with correspondence teachers or paraprofessionals with minimal training to monitor learning.

Our experience strongly supports the importance of the teacher as the humanizer of the medium. Even though there is a strong effort to make the radio human and relevant through the use of characters with which the learners' can identify, radio is still an inflexible one-way medium through which genuine interchange is impossible. The effective classroom teacher in radio classes supplies the encouraging nods and smiles, enters into the broadcast as another learner but guides the pupils' responses, creates a more active and, therefore, more successful class. The teacher guides the pupils about when to respond to the radio, how quickly, how loudly. The teacher indicates that it is all right to talk to the radio, to stand up or run in place when the radio says to do so, to enjoy singing and language learning. The medium alone cannot generate a learning atmosphere as effectively as the classroom teacher can.

Learning styles as well as learning abilities are highly individual. The good classroom teacher, in concert with a variety of media, can modify the learning situation more effectively than any single medium. It is perhaps for this reason as much as any other that language teachers resist technology, intuitively or consciously. The medium seems too inflexible. I suppose what I am trying to identify is a quality that I would call "mothering" if it did not sound sexist. The most effective teacher can observe and sense what the learner needs, can vary the pace, can determine when a hug is more important than another phonetic contrast.

CONCLUSION

The Radio Language Arts Project in Kenya, demonstrates that radio can be used effectively in teaching language at the primary level in a rural setting. The implications for the developing world, where human and material

resources are scarce or poorly distributed, is obvious. Implications of this project for European and North American language educators are less dramatic, but the strengths of radio to reach certain target audiences is one significant conclusion from the Kenya project. Carefully designed, written, and produced radio lessons, aided by human interaction fostered by a teacher or other guide, can be an effective alternative to the more complex and more expensive newer technologies. In addition to being less threatening to teachers, simpler technologies such as radio may be less confusing and more effective for learners.

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