

THE ROLE OF THE CLASSROOM TEACHER IN  
SWAHILI LANGUAGE INSTRUCTIONAL RADIO BROADCASTS

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ABSTRACT

This study aimed at defining the role of the classroom teacher in a situation where radio broadcast lessons are put into use, particularly in the teaching of Kiswahili as a language. For that goal to be fully appreciated, one needs to consult the entire dissertation in all its sections without exception.

The first section of the introductory chapter - to be precise, the sub-section entitled 'background of the problem' - combed various views by several educational technologists. To sum up it can be said most of the views were in support of instructional media in general and instructional radio in particular though there were apprehensions here and there. These apprehensions rose from some quarters (e.g. the Open University) that felt less emphasis should be placed on the radio.

However, the investigator may venture to say, with some amount of confidence, that those views in favour of radio seem to have overwhelmingly overshadowed the misgivings, as witnessed by the number of countries (both developed and developing) that have been using this tool with a decent measure of success.

In the same sub-section, the views of three Kenyan scholars (viz. Achungo, Kinyanjui and Kafu)

regarding instructional media were considered. While Achungo supported the 'aids' theory and Kinyanjui thought they could be more of 'motivational instruments' motivating the students as well as sustaining their interest, Kafu voiced the idea that they should be regarded as 'instructional media in their own right'.

This contradiction in views constituted the investigator's problem which he saw in three dimensions. The first was expressed in the view that instructional media could 'provide the panacea to all classroom ills'; which could be interpreted to mean that they were capable of replacing the classroom teacher. The second is the one that laid the emphasis 'on the individual teacher and on helping him as much as possible to tackle the real live tasks'. This view seemed to him to support the traditional method or, in other words, Teacher Instruction. The third view is the one which claims that 'broadcasts stimulate the teacher to produce work of a higher standard'.

The aim of this research emerged out of consideration of these three views. It was to find out which one of these deserved to be recommended as against the others and, in the process, establish the place (or the role) in which the classroom teacher would fit.

Two hypotheses were therefore formulated. The first stated that:

✓ 'The active participation of the classroom teacher in the guiding role when students listen to a Swahili radio broadcast lesson results in a more effective learning as opposed to an alternative situation where the only medium of instruction is the radio.'

This hypothesis was meant to take care of two of the views mentioned above. The one saying 'broadcasts stimulate the teacher to produce work of a higher standard', and the other stating that instructional media could solve all the classroom ills'. The second hypothesis, which was meant to cover the third view went thus:

✓ 'The active participation of the classroom teacher in the guiding role when students listen to a Swahili radio broadcast lesson results in more effective learning than when only the conventional Teacher Instruction/Pamphlets/Notes method is used'.

This hypothesis was not only meant to test the traditional Teacher Instruction method but to compare the results of the 'individual teacher's initiative with those of the teacher who uses radio broadcasts, aiming at producing work of a higher standard.

He then reviewed literature related to our study. The review revealed that several factors were to be taken into account if radio broadcasts were to be a success in classroom instruction. The most important of these factors were: that the students had to be trained in listening skills, and given a chance to

fully participate in the course of the lessons and not just sit back, listening passively. On the other side, the teachers had to be free to select the relevant materials for their respective lessons. They had also to be familiar with the programmes and had to have a fore-knowledge of the lessons. They needed to prepare their lessons for balancing them with the ability of the students. Provision had to be made for teachers to acquire recording machines, radio notes and printed radio materials to aid them in their preparation and presentation of the lessons.

After explaining the way he conducted his research in Chapter III, he analysed the data in Chapter IV. The analysis revealed that the teacher who uses broadcasts produces work of a higher standard; which means that the twin hypotheses were accepted.

Finally, he looked at the views of the teachers he had to deal with in the field in Chapter V. This venture led him to sub-divide the problems they claimed to be facing into two categories. He has chosen to define them as the physical and the technical problems.

The physical problems include such as the geographical positioning of the schools. For example, there are those schools that suffer air transmission problems. In this category falls also the problem of facilities. All the schools in the sample did not have

radios in the first place, not to mention recording machines. They had not been provided with radio lesson notes and any other essential materials that usually go with broadcast lessons.

By technical problems, he means, for example, that neither the teachers nor the students had been trained in listening skills. Neither had both the parties any fore-knowledge of the programmes, which implies that they were not familiar with the whole exercise. Under such circumstances, discussion was bound to be impossible; and if at all it had been encouraged, it would have been somehow stunted and appeared artificial.

In the last chapter, the investigator made his conclusion which was in support of the view that says radio broadcasts stimulate the teacher to produce work of a higher standard. He also laid out the implications of his study and made several suggestions to guide those who would like to delve deeper into studies related to his.

## CHAPTER ONE

### INTRODUCTION.

#### 1.1 Background.

Instructional radio was widely used as early as the beginning of 1920 in the United States (Jamison, D., Suppes, P., Wells, S. 1976). Though it is not extensively used at present, we learn from the same source, that a number of school districts continue to use it.

In Britain, it dates back to 1924 and covers all school ages and the field of further education (Atkinson, N.J., Atkinson, J.N. 1975). In the 1960s a massive experiment was launched in the form of the Open University which would open all avenues to the use of media in education (Gardner, R., 1979). This experiment excited much enthusiasm and was lauded by prominent scholars in this field as Schramm. However, after much of the initial enthusiasm subsided, people began to question the validity of using great quantities of media in education. It is claimed that of recent, the Open University itself has placed less emphasis on radio.



It was not until 1970 that an experiment was conducted using B.B.C. radio series in 'O grade Modern Studies' broadcast in Scotland (Packham, D., Cleary, A., Mayes, T., ed. 1971). It had two main hypotheses and two subsidiary ones. Analysis of the results showed that booklets improved the pupils' comprehension and that there was an interaction between the mode of preparation and the use of short check-tests after broadcasts.

Radio instruction has made huge strides since then. Currently 63 educational radio series are broadcast to schools in England (Jamison, D., Suppes, P., Wells, S.). Almost all of these series use illustrated pupil pamphlets to support the lessons at the reception end. Within Britain, school broadcasting emphasises collaboration between the classroom teacher and the radio teachers (Jamison, D., et al 1977). We are also informed that the radio primarily provides lessons which the children might not otherwise receive, such as art, music and foreign languages.

In Australia, the interest in Instructional Radio dates back to at least the 1930s (Jamison, D., et al 1976). In 1960 over 90 per cent of the schools received some radio lessons. Curriculum enrichment

broadcasts, similar to those of B.B.C. are used in the urban schools and even more extensively in the one-room rural schools. At the higher education level, the Radio University of New South Wales enrolled over 6,000 students in 1965 (Jamison, D., et al, 1976).

Another country that has history of widespread use of Instructional Radio is Japan. In 1935, Nippon Hoso Kyokai, the Japan Broadcasting Corporation began a small programme of radio broadcasts to schools (Jamison, D., et al, 1976). After World War II a decision was made to modernize completely the Japanese educational system, in terms of both curriculum and teaching technique. Radio played a large role in this modernization in compensating for the many textbooks lost during the war and in rapidly disseminating the new method of instruction. A 1958 survey by Broadcasting Culture Research Institute of the Nippon Hoso Kyokai reported that 47 per cent of the lower secondary schools and 27 per cent of the upper secondary schools regularly used radio broadcasts. In Japan, it is claimed that it is possible to receive a secondary level diploma without attending a classroom through a combined programme of correspondence and radio lessons (Jamison, D., et al, 1976).

Of several developing countries, Thailand is reputed to have made the most successful use of radio since 1957 when broadcasts to schools were started (Jamison, D., et al, 1976). By 1965 radio student enrolment had reached over 800,000 with lessons in English, Social Studies and Music.

Another developing country that took interest in Instructional Radio is Colombia which, with the help of an organization called Accion Cultural Popular (ACPO) started radiophonic schools in 1947 (Gardner, R., 1980). Since then, millions of students have in various ways gone through a basic and practical education devoted and dedicated to rural development. Its emphasis is on literacy, work, health and religion. This move has, ever since, spread to 25 other Latin American countries, embracing those of the Carribean and some Atlantic Ocean Islands.

Here in Africa, a number of countries have experimented extensively in this area. Chief among them is Zambia, Malawi, Botswana, Tanzania and Kenya (Perraton, H., 1981). Botswana campaigns geared mainly towards rural development. Kenya on the other hand has daily programmes broadcast on the Voice of Kenya - the national radio. So far, there have been

no clearly stated objectives as regards the programmes though several scholars have expressed their views on the issue, some of which are quoted below:

Educational Broadcasts are not meant to replace or take over from the classroom teacher at all. They are meant to be treated as a supplementary teaching aid, just in the same way as you use your library or visual aids (Achungo, A.L. 1976:3).

This view is supplemented by another which states that the broadcasts are meant:

To supplement instruction in each subject in the same way that a classroom teacher would offer extra help to the slower students, to encourage them, sustain their interest, answer their questions and help solve their problems. The radio programmes have proved particularly useful for speech work in two language courses as well as for maintaining good rapport between the student and the teacher (Kinyanjui, P., 1975:258).

However, these views are held in contradiction by another scholar who argues that:

There is a common feeling that teaching materials and equipment are 'aids', only used when a situation warrants them; they do not regard them as instructional media in their own right...in a country like Kenya, the new media are expected to overcome the problems of crowded classrooms, shortage of teachers, and enable children to enjoy the learning process. (Kafu, 1976:48).



This contradiction in views is not unique to the Kenyan situation or restricted to Kenyan scholars. It is world-wide and constitutes our problem, the details of which we intend to discuss in the next section.

1.2. Statement of the Problem.

It appears there are three distinct views concerning the use of the radio among other media, proponents as well as critics.

The first view advocates the use of radio and other media as 'instructional media in their own right'. The proponents of this view maintain that media are just as capable of instructing students in class as the classroom teacher and/or perhaps even better. Some extremists in this line of thinking have looked forward to the day when media will do all the work in the classroom hitherto tacitly understood to be the monopolistic domain of the classroom teacher. As Dr. Kenneth Cripwell of the University of London, Institute of Education, Department of Education in Developing Countries observed:

The growth of new media in recent decades has had educationists to look to media for solutions to teaching problems in the hope that each new gadget bigger and better than the last, will provide the panacea to all the classroom ills. Where

the levels of teachers' qualifications and classroom competence are low, some planners have looked to the media to replace the teacher by providing teaching programmes that are teacher-proof (Gardner, R., ed. 1980).

This view is contradicted by another one which contends that, of recent, great technology has been thrown aside and 'the emphasis is on the individual teacher and on helping him as much as possible to tackle the real live tasks' (Gardner, R., ed., 1980). Proponents of this view see everything in the classroom environment revolving around the teacher. They argue that 'few planners would see the radio... as the core of the programme', and that... 'In U.K., the Open University places a low emphasis on radio', claiming that 'research has suggested that the schools do not make use of these elements of the courses'. This group sees the teacher as the most important element equipped to solve the 'classroom ills' with the medicine he would use best being his own initiative.

The third view has it that 'broadcasts stimulate the teacher to produce work of a higher standard' (Hayter, C.G., 1974). The supporters of the view, to say the least, are numerous and more emphatic in their proposition. Among them is



Dr. Michael Young, also of the University of London, who in answer to Dr. Cripwell had this to say:

I see the real live human teacher as the important element...but an element which I believe (to I think a greater extent than he does) can be supported and valuably supported by the mass media, particularly the radio...(Gardner, R., 1980).

The present investigator has noted the varying implications of all these views and the consequent problem that is posed therewith. This study seeks neither to approve nor to reject any single one among them. It aims at investigating the effectiveness of the radio as an instructional medium in student performance, as well as its latent and apparent viability, flexibility and potential for the classroom teacher's contribution to it as a guide.

### 1.3 Need for the Study.

It would appear that the one single factor that presents itself rather obviously against the radio is its one-way communication process. Given the circumstances, it would thus appear that the need for the classroom teacher to establish the missing link, enhance interaction, observe the

effectiveness of the instruction through evaluation of feedback (for example with the use of achievement tests) would be necessary. Such a position would enable him, among other things, to recommend adjustments which may be necessary for trying to perfect the programmes and at the same time making the instruction through this medium more interesting and fruitful. This is rendered necessary by the state of affairs whereby there is no direct contact between the radio-instructors and their lesson planners with students which limits direct evaluation and feedback in the teaching-learning process.

#### 1.4 Purpose of the Study.

The purpose of this study is to try and establish the importance of the classroom teacher's role in Swahili language radio instruction. It might be argued that since trained personnel (professional teachers) prepare these lessons using all their professional skills, it therefore suffices to just broadcast them straight to the intended target audience (in this case, students) without employing the services of an intermediary (the classroom teacher); but one might perhaps, in connection with this, want to pose this question:

How are these radio teachers, physically alienated from the classroom as they are, able to gauge students' concentration when the lessons are on the air? How are they to immediately observe the students' reactions, assess their achievement through the feedback and subsequently evaluate the effectiveness of their instruction? It should also be borne in mind here, that with some of the students being very young in the lower classes (Forms I and II), concentration could prove very difficult as, at their age, they would easily be distracted by any trifle when left on their own.

#### 1.5 Rationale of the Study.

The Swahili language has assumed an important role in the secondary school curriculum since being declared one of the prerequisite qualifications to achieving a good aggregate grade (locally known as Division) in the National Examinations at the end of the four-year secondary school course. Consideration could also be made of its controversial political status as the country's national language.

With the problem of shortage of teachers and teaching equipment (Kafu, 1976; Gorman, 1974) some quarters might feel called upon to suggest

available resources at the Kenya Institute of Education be put into maximum use by means of radio broadcasts which have the advantage of being able to reach classrooms scattered all over the country at the same time.

However, there is the question of the centralized curriculum, which forces people with differing foundations of Kiswahili to sit for the same Swahili paper in the National Examinations. Results of tests administered to pupils from randomly sampled schools throughout the country revealed that scores of pupils from different backgrounds (notably those from towns as against those from rural areas) were significantly different (Claessen, A., Gorman, T.P. 1974). This could prove that their mastery of the language is not similar which would mean their receptiveness to radio lessons may, by that very token differ thus rendering their effectiveness questionable. Since the radio lessons are the same for everybody regardless of such differences, classroom teachers at once face the challenge of assessing their pupils' level of comprehension which could help in giving the appropriate guidance.



1.6 Hypotheses.

The research is based on two Hypotheses.

These are as follows:-

- 1.6.1. The active participation of the classroom teacher in the guiding role results in more effective learning when students listen to a Swahili broadcast lesson as opposed to an alternative situation where the only medium of instruction is the radio.
  
- 1.6.2. The active participation of the classroom teacher in the guiding role results in more effective learning when students listen to a Swahili radio broadcast lesson than when the Conventional Teacher Instruction/Pamphlets/notes method is used.

## CHAPTER TWO

### REVIEW OF RELATED LITERATURE

#### 2.1 Instructional Radio: Views.

Many commentators and researchers in educational technology have commended the radio as an effective instructional medium. One such researcher is Dodds who stated that 'the radio could be used not only as a teaching aid but to fill the gap left by a shortage of teachers' (Dodds, 1967), a view also held by Wells (1976) and Kafu (already referred to) several years after.

Forsythe (1970) is even more explicit on this issue. He goes so far as to back his hypothesis with examples. We quote him below as saying:

Research already indicates that the radio is effective in instruction. Experimental studies comparing radio teaching with other means and media have found radio as effective as the so-called "conventional methods". Even though radio has been criticized for being only an audio medium, studies have shown that visual elements in learning are not uniformly important. In many educational situations visuals may be more harmful than helpful. Also, the efficiency of combined audio and visual media has been challenged by studies which show that multi-channel communications may not be inherently more effective than single channel presentations.

To objectify his observations, Forsythe



pinpointed, among others, studies of Carpenter (1934), Cook Nenzek (1939), Harrison (1932), Heron and Zebarth (1946), Lumley (1933), Miles (1940) and Wiles (1940). He also referred to two experiments by Nippon Hoso Kyokai - the Japan Broadcasting Corporation (1955, 1956) that favoured radio. Forsythe, along with Chu and Schramm, concluded that Instructional Radio compares well with Teacher Instruction.

Commenting on education of rural population in Tanzania, Widstrands (1966) was quoted as saying: 'one of the fundamental approaches to this problem is the use of the radio...', while Kassam (1978:51) appears more confident in his analysis of the same situation. He declares:

It is widely acknowledged that in a country with scarce educational and financial resources as well as a scattered rural population, one of the cheapest methods of educating the rural population on a mass scale is through the media, particularly the radio.

In spite of all this enthusiasm about this particular medium, technological media in general have, nevertheless, not always been advocated as the best way out of the predicament. There have been instances - for example in Britain - where research revealed that, teaching aids were found

'locked up in a cupboard' (Maclure, 1968). And, in fact, Instructional Radio has not survived this onslaught despite the ostensible popularity. There have been, for example, statements like: 'it is arguable that the most powerful aid in international communication is provided by radio, especially sound radio' (Dyer, 1972).

From literature on the use of mass media for educational purposes, it has been noted that the use of one single medium is inadequate (Ohlinger, 1968, Schramm et al, 1967). The argument put forth is that the need to combine and integrate mass media or to reinforce the utilization of any one medium with other educational methods is necessary.

From the above discussion it has been shown that the radio as an instructional medium has not gone unchallenged. Neither has any other single medium for that matter. And yet the evidence in support of radio to be precise is, to say the least, encouraging. One is thus led to conclude that it is a somewhat popular tool, recognized widely as a powerful medium of instruction even if limited in a number of ways.

## 2.2 A Survey of Research in the Area of Adult Education.

In this section of the study, two Instructional Radio Campaigns in the field of Adult Education will be reviewed. These are the Tanzanian 'Study Group' programme (Kassam, 1978) and the Canadian Farm Forum (Dodds, 1967).

In the Tanzanian programme, the study groups were patterned on the Swedish 'Study Circle' concept and method. However, the four yearly campaigns that have, so far, gained the reputation of having been the most successful followed a 'systems approach' (Kassam, 1978) by integrating the radio media with printed study materials and organized study groups conducted by study group leaders.

Kassam is of the opinion that the study group method rejects the authoritarianism of the teacher, which is characteristic of traditional methods of education. He claims that it develops and reinforces the cooperative spirit of the people in the field of education and also generates a feeling of comradeship and commitment. He further claims that in the study group, the principal basis of the learning-teaching situation is the discussion method which can utilise the experiential resource of adults for learning. He finally declares that the learning that takes place through discussion is not only enjoyable but also more permanent.

As for the organization and method used, Kassam informs us that the study groups first listen to the radio programmes of a given study campaign and immediately after listening to each programme, discuss it, 'usually under the guidance of a trained study group leader'. In addition to the radio programmes, the study groups receive printed study materials from the sponsoring organization of the campaign. The study materials are normally accompanied by a study guide and manual in order to assist the study group leader and members in directing their learning activities.

Out of the Canadian Farm Forum experience started on a national scale in 1941 (Dodds, 1967) we note a number of observations that were arrived at. Among these was that a more 'direct teaching' approach be used. It was suggested that the organizers arrange panel discussions, question-answer sessions between the radio tutor and people with practical experience relevant to the subject matter being taught. It was also observed that a clearly defined structure of the main points being taught and a summary of the programme could assist the students to learn. A suggestion was made to the effect that occasional programmes should be devoted to answering



questions and problems raised via the post by students. This, needless to say, would mean that students be encouraged to raise any problems they might have to their radio tutor by means of the post. Further observations were made on the organization of the listening end and of guided feedback. The role of the classroom teacher was expressly laid out including how he would go about evaluating the effectiveness of both his guidance and his counterpart's instruction.

We may note here that there seem to be striking similarities between the two campaigns particularly as regards the method used by students and teachers alike, not to mention the role of the classroom tutor (group leader in the case of Tanzania). In both, the discussion method seems to have been used somehow successfully. In the Canadian experiment, as in the Tanzanian, the role of the leader, among other activities, is to guide.

Other countries that have used the radio for the instruction of the adult population to a certain measure of success are Botswana, Malawi, Zambia, Carribean and Atlantic islands, Latin American States, India (Farm Forum) and some West African countries, just to mention a few (Perraton, H., 1981; Gardner, R., 1980).

### 2.3 A Survey of Research in Schools.

In this section, we are going to confine ourselves to the discussion of two experiments which we hope will serve as an illustration of the point we want to make here.

The first experiment was conducted in 1970 in Scotland using B.B.C. radio series in 'O Grade' Modern Studies (Packham, D., Cleary, A., Mayes, T. ed. 1970). It had one main hypothesis and two subsidiary ones. They were:

1. Pupils receiving structured (programmed) workbooks as a preparation for radio broadcasts would be equal or superior in their understanding and retention of the concepts communicated by the broadcasts when compared with pupils who received preparation by the teacher and based upon the conventional 'Teachers' Notes'
2. Short (fifteen item) tests administered immediately after a broadcast will improve pupils' retention of that broadcast content.
3. Pupils receiving the broadcast as an uninterrupted whole will be inferior in their understanding and retention of the broadcast content when compared with pupils who received the broadcast a series of



short sections separated by class discussion.

Analysis of the results revealed that the booklets improved the pupils' comprehension and that there was an interaction between the mode of preparation and the use of short check-tests after broadcasts.

We can only volunteer to say in connection with the above experiment and its subsequent findings that what appears to be favoured is multi-media instruction. In other words, from this point of view, it occurs that radio cannot go it alone, but rather, with subsidization, the results are expected to be pretty encouraging.

The other experiment is an early study of Wisconsin Research Project in School Broadcasting (1942) of radio lessons in music. After a music course being broadcast in 1922, the evaluation undertaken in 1929, indicated that the course was highly successful (Jamison, D., et al). This was an encouragement to the Wisconsin School which, as a result began a series of weekly broadcasts called 'Journeys in Music land', the effectiveness of which was studied during 1937 and 1938.

The Wisconsin Research Project evaluated six

other radio series in addition to the one we have described above, and it is claimed that the volume they produced remains perhaps the best single source of evaluative material on Instructional Radio (Jamison, D., et al).

Other experiments include one comparing it with Instructional Television. The study was conducted among University students and summarized by Macluhan (1964). He alleges that better results were obtained with Instructional Radio 'because of efforts to engage the students - asking them to look at certain illustrations , etc...'

#### 2.4 A Look at Radio Broadcasts in the Classroom with Specific Reference to Language Instruction.

##### 2.4.1 Effectiveness of Broadcasts: Factors to be Considered.

Several scholars, prominent among whom are Hayter (1974), Gardner (1980) and Vernon (1971) have conducted research in the area of broadcasts in a bid to determine their effectiveness and potentialities in the classroom, as well as the necessary conditions for their productive operation. These studies, while by no means exhaustive in their findings are particularly relevant to this research

not only because they form an important link between the preceeding and following sections of the thesis, but also because they are important theoretical prerequisites to what follows. However, instead of subjecting their analysis to any detailed examination, what we shall do is to give a critical appraisal in a somewhat summarized form.

Regarding the effectiveness of broadcasts in general and in language instruction in particular Vernon's opinion is that the following factors be considered of utmost importance.

First, that the radio or tape recorder should be placed centrally since visual focus helps aural concentration.

- That the teacher's example, in the course of instruction, is vital; that is, the teacher has to be knowledgeable.
- That movement or comment needs to be controlled because they are distracting.
- That pupils should neither be making notes, nor turning over the pages of the pamphlets during transmission.
- Finally, that the leading by the teacher of the response to the voice asking questions or conducting pronunciation exercises will be necessary at first to overcome 'the natural' barrier that exists between the

unseen speaker and the class; but, Vernon adds that, with familiarity, the shyness will disappear.

Gardner, suggests that during preparation, the teacher needs to 'anticipate' the vocabulary used in the programme in case any necessary explanations are required. He also notes that linguistic features such as inversion, negation and embedding appear to keep a barrier between the broadcaster and the audience, and naturally make understanding difficult. Other linguistic forms that have been noted to yield the same unsatisfactory results are impersonal forms of language like passive speech and impersonal verbs. However, Gardner does not give concrete examples. He, nevertheless, suggests a solution of some sort to these obstacles, which is that whoever is directly concerned with the programmes should employ writers with imagination and creative talent with words.

Other observations that can be attributed to him are such that the broadcasts need to be supported by printed materials and that the students have to be trained in listening skills. As for concentration, he recommends short broadcasts of not more than four minutes instead of very long, wordy programmes that might turn out too demanding and tiresome to the audience. He emphasizes that broadcasts should have a clear main theme that will

lend itself to proper interpretation by the classroom teachers concerned, which will, in turn, stimulate interest in both the teacher and the students.

On his part, Hayter sees broadcasts making the classroom situation active and lively. He claims that they can be manipulated by both students and teachers and can be taken just when needed. He sees this freedom and flexibility as being one of the strongest factors of the broadcasts. He further alleges that this freedom has been especially noted in classroom situations where individual and group work is planned to maintain the interest and participation of pupils of widely varying ages and abilities.

His main criticism regards integration of content and method of presentation of the broadcasts which should be done, according to him, during preparation. He claims that some teachers have ended up preparing broadcast lessons whose content is suitable for average children whereas the method of presentation is 'too patronising' and fit for children years younger. As a solution, he advises teachers to 'evolve critical ability' to enable them to 'select for quality'. In other words, the content and the method of presentation should be relevant to the group listening to the broadcast.



#### 2.4.2 Teacher/Pupil Involvement and Participation In Radio Programmes.

Before we look at the involvement and participation expected of teachers and pupils prior to, in the course of, and after a radio lesson in order to make the lessons in a given programme successful, let us first of all consider some definitions arrived at by the educationists we have chosen, as to the role and function of the teacher in general.

Hayter has it that 'the teacher is the ultimate channel of communication with the pupil, the agent upon which the nation's educational administrators and experts depend to implement their policies and achieve their ends.' He expounds on his view by stating that 'in the classroom, the teacher is often, quite properly a conveyor of information'.

Gardner, however, sees the role of the teacher being more than just conveying information. He says the teacher 'must try to anticipate all points of difficulty for pupils of widely differing abilities', which appears to be a much more intricate and involving role. According to this line of thinking, the successful teacher is one who becomes aware of the problems in the classroom, deals with them, and leaves unsaid points that he feels pupils do not require detailed clarification. He will need to

know the precise objectives of the methodology upon which the course of learning which he is teaching is based. In other words, he should be completely aware of the kind of objectives he hopes to achieve with particular group of students. Gardner hastens to observe that the above will be easy to accomplish when a sufficient number of trained evaluators visit classrooms of individual teachers. In the same context, the teacher's role is seen as that of establishing a balance of the content, method of presentation and the level of the pupils in the classroom, which is best done by forward planning at all stages.

At this juncture, Gardner proposes that the teacher using radio broadcast lessons in his class should pre-record the programmes as a way of being fully prepared. The teacher who fails to do this or prepares himself only partially faces the difficulty of not being able to prepare his pupils to make effective use of the broadcasts. It is finally suggested that the teacher should pre-listen and decide whether a programme is useful or not and hence to use it only at a time suitable for the class.

After having looked at Hayter's views concerning the teacher, we now concentrate our

attention on what he thinks about the radio programmes themselves.

He states that facilities must be made available so that a programme can be heard before and after the scheduled air date. The strength of this, he says, lies in its being possible to replay and check up any detail. This, of necessity, involves having a tape recorder or better still, a radio cassette along with the school radio. He goes a long way to claim that the teacher will be able to know how much time is available, with the ability to pre-listen; which will thus determine his aims and the method of presentation. He then suggests that the teacher should involve himself in the production of materials and also have a critical examination of its use in the classroom; this, he argues, will make the teacher be clear about whatever his stated aims are and the laid out method of presentation. He further sees what has been discussed above as a necessary condition, on the part of the teacher, for being able to communicate his ideas - which he has gained from experience - to others who are encouraged by recognising common elements in their own development.

On selection of the broadcasts, Hayter says that the teacher should have in mind long-term as well as short-term objectives of his work. For the long-term planning of a unit of work, the teacher

should be aware of both the content and form of presentation of the broadcasts to be used. The argument here is that it is only in this way that related source materials can be selected and arranged. For short-term purposes - and especially with young and less able pupils - Hayter points out that this fore-knowledge is required to ensure that effective links are made between the pupils' direct experience and the broadcast material before a programme if the latter is to have maximum relevance. He argues that given the ability to pre-listen to programmes and to decide how and when they should be used, the teacher's role changes from that of a mere supporter, evolving into that of the manipulator, with the programmes reduced to a subordinate, yet effective role of a tool in the learning process. He states thus:

With the teacher playing a much more prominent role, it would seem...that the individual teacher's skill counts far more than it did before in the quality of learning which results. (Hayter, 1974:245).

Having discussed the programmes, Hayter turns his attention to discussion and cooperation among staff members; and without much ado, recommends the employment of these. He alleges that they serve as a springboard for curricular development.



In line with this, Hayter sees the classroom teacher's preliminary planning and the consequent interchange of ideas and experiences derived from what has occurred in the classroom as better placed to help him improve his knowledge of his subject area, and by that token be able to give his lessons greater depth and himself greater confidence in dealing with any questions that pupils ask. Owing to all this, the scholar arrives at the opinion that the teacher needs to look with 'greater intensity' at the nature of the syllabus, the additional resources needed, the methods, content and style of presentation of individual programmes.

He is not blind to the fact that all this may imply high level consultation and discussion specifically between members of whatever department is concerned. His opinion in connection with this is that the ideas, teaching methods and modes of organization developed can be applied in other areas.

From the above suggestions and observations, it would appear that the effective use of broadcasts in widely differing circumstances requires not only application and skill on the part of the teacher but also the right provision of equipment, and ready and secure organization of its use.

Examining the teacher as an individual and as



a member of a group, Hayter's opinion is that rethinking as to how he might best use broadcasts increasingly involves him in consideration of the whole educative process within the classroom and within the school as a whole. As a result, broadcast programmes may tend to become - in widely varying ways - an integral part of the curriculum. From Hayter's point of view, such broadcasts' intrinsic values will become more evident the more their planned use leads to wider fields of interest and activity. He sees this in many cases leading to a greater measure of selection of programmes of which, he argues, much more detailed and significant use could consequently be made.

Having reached thus far, Hayter goes back to make another brief mention of the teacher seen in an ostensibly new light. He says the teacher has to be in a position to choose educational broadcast material and decide how it can be used most effectively. He declares that as the teacher is controlling the teaching-learning situation and, at the same time, guiding development, more dynamic demands are required of him. Also that, meeting these demands is a training in itself as too, is the appreciation of what the broadcaster is doing and how best his efforts and those of the classroom teacher can be joined.

As using broadcasts is no easy task, Hayter

suggests that during the pre-service education and training, provisions be made for teachers to become aware of the range and availability of broadcast material, and of the many ways in which it can be used to enrich the learning situation. He invests on the classroom teachers the responsibility to foster in the child, good listening habits if good results are to be expected. He insists they should be aware that students need to be prepared for every broadcast and also see to it that there is adequate follow-up activity, which may vary from teacher to teacher. He further emphasizes that more young teachers become aware of the scope and use of broadcast during their initial training in colleges of education.

With regard to pupils, Hayter accepts the view that says radio broadcasts have a particularly direct and personal appeal. Expounding on this, he says that such a state is not only confined to pupils of a particular age but broadly embraces all ages. To concretise the view, he says this is possible due to the broadcasts' ability to dramatize events and situations. He also alleges that the radio broadcasts leave more to the imagination of the pupils thus placing it in a position to stimulate varied responses. Nonetheless, he notes that their effectiveness, or lack of it, is subject to several conditions, some of which are that, as stated above, pupils need to be

trained in listening skills. Secondly, that if the students are trained to make full use of the machines, they can make tremendous strides, not only in improving their spoken language, but in understanding and appreciating the texts.

Thirdly, that enthusiasm on the part of the teacher will make the pupils interested in the whole venture. Also that when the students are familiar with the programmes and, on the other hand, the teacher is experienced enough in his integration of broadcasts with all the teaching/learning activities, the students' attitude towards the programmes changes to the better; that is, it changes from enjoyment only or 'work-pleasure-work' to a 'work-man-like entry ready to observe, criticise and query'. They thus become a source to be used in the same way as other material such as books, tapes and films.

Yet another observation is that the teacher needs to be sensitive to the relationship between himself and the pupil, particularly as regards reactions between the individual pupil and himself, (i.e. the teacher), and also between the pupil and other members of the class. This is because, with younger pupils, it has been observed that the teacher's reaction to the broadcast is a significant element in the child's perception.

He finally observes that the programme must be suitable in its content and method of presentation. It has been observed that pupils will soon deride a broadcast they think below them.

#### 2.4.3 Use of Radio Broadcasts in Teaching Language.

Several ideas have been propagated as to how to best use radio broadcasts in teaching language by educational technologists with linguistic inclinations. We have, in this section, considered mainly Vernon's (1971) ideas and proceeded to summarize them in accordance with what is relevant to our main theme, with a view to using those ideas for illustrative purposes.

In Vernon's opinion, the class must listen (to the broadcasts) regularly in order to derive maximum benefit. If a class has not been accustomed to oral methods, its appreciation of broadcasts will be limited. It is suggested that the pupil's attitude towards the spoken language be prepared from the day he enters school.

The broadcast must be most carefully planned so that each episode grows linguistically from the previous one. It is argued that although it would be possible to build one's whole course around the broadcast programme, the primary aim is to improve

comprehension of the spoken language.

Vernon sees the possibility of the broadcasts being designed in such a way that two consecutive years' listening is possible but he advises designers to make sure that the programmes are new each year.

It is clear that he is in the multi-media instruction camp. He states, for example, that it is essential to obtain relevant pamphlets which are well printed and illustrated and contain extracts from the broadcasts, questions and songs or a synopsis and also vocabulary. He proposes that with some programmes, it is as well to read and elucidate the text and explain items of new vocabulary, preferably without translation, before the broadcast. Nevertheless, he sees the importance of taking care that the freshness of the material is not spoiled by over-preparation though, on the other hand, he claims it is damaging to confidence if the class does not understand reasonably well the first hearing. A second hearing, when the main lines have been elucidated, gives a feeling of confidence to a class which may have experienced difficulty in the first instance.

The oral follow-up work will probably follow a pattern already familiar to the class in using the ready material of a new chapter of their textbook. Written follow-up, it is so claimed, needs to be handled with caution. As the primary concern is, as



has already been pointed out, aural comprehension-and attitudes radically affect this-'it would be unfortunate to have weekly drudgery instead of clear informative weekly broadcasts'.

To check individual comprehension, Vernon recommends the use of a written questionnaire. Another way of doing it would be through recapitulation of the broadcast by question and answer in the language concerned. The choice, he says, depends on the available time and the extent to which the teacher wants to use the broadcast.

To conclude, he says it may be useful to pin up in the classroom a copy of the pamphlet open at the week's broadcast so that pupils' attention is drawn to it and so that reference can be made to it in other lessons.

#### 2.4.4 Teachers' Views and Attitudes.

A project was embarked upon amongst a cross-section of British (i.e. English, Scottish and Welsh) primary and secondary schools to determine the effectiveness of instructional broadcasts (both radio and television) and subsequently, to find out ways and means by which such broadcasts would be made to yield their maximum in the classroom situation. There were 12 case studies in all,

embracing all subjects in the curriculum. Hayter (1974) edited the findings of the whole undertaking. In this section, we have confined ourselves to summarizing the views and attitudes of the teachers who took part in the experiment to serve as a theoretical framework for our own research and to enable us to compare their experience to those of the teachers we have had to deal with in the field. This, we hope, will lead us to an opportunity to arrive at a more enlightened conclusion which would, perhaps, serve as a springboard to future interested parties in this area.

At the beginning of the project, most of the teachers participating were rather sceptical about this whole fuss surrounding instructional broadcasts. But at the end of it all, many of them had developed certain attitudes, a good number of them in contradiction with their earlier ones.

Most of them expressed the views emanating directly from their own experience. Some of these views were already common knowledge, having hitherto been expressed by other people with vested interests in these media. Others however, had some speck of originality, thus adding weight to the already established facts and information.

The teachers who took part in the project were plunged into the somewhat ambivalent position of

both initiators and judges of this resource; which made them become aware of their varying capacities to comprehend the broadcasts. It became clear that, this depended to a great extent, on the training they had undergone in colleges.

Some newly-qualified teachers were appreciative of the guidance they had received during their three-year period of training, but others expressed the view that they would have liked a longer and more thorough course in the use of broadcasts as a resource. Most of them, however, reported that by using broadcasts, they appreciated having access to up-to-date information, to current curricular developments and, in some cases, to methods employed by other teachers who have been commissioned to assist in the production of broadcast series. Nonetheless, a number of them did not approve of this latter point, which could reflect a critical consideration of methods of presentation. As a whole, they all felt that if broadcasts were to be integrated into their curriculum, they would give it (i.e. the curriculum) an added dimension.

Conflicting views were expressed vis-a-vis the teacher's fore-knowledge of the programmes. One teacher expressed the opinion that recall of important parts of a broadcast was better when the pupils' attention was drawn to them before hand. As

if to supplement this opinion, other teachers came up with the feeling that only when teachers were fully conversant with the contents of a series could they consider incorporating it into a scheme of work, exploiting it fully. Those upholding this sort of reasoning concluded that teachers feel much more secure when they are more aware of the range of broadcasting resources available. Yet another group reported that they were better able to observe children's reactions during a broadcast provided they had fore-knowledge of it. They said they appreciate it better if they were aware of any potential 'difficulties or pitfalls' that a programme might present.

Contrary to these views, one other group felt that pre-listening was a time barrier. Members of this group preferred more valuable forms of preparation, arguing that, with younger children especially, the spontaneity and immediacy of the impact of the programme are reduced when the teacher hears the broadcast before hand; and that the children recognize this 'with a resulting loss in the value of a completely shared experience'.

One thing the teachers completely agreed on was the use of recording radio. They appreciated it for the opportunities it gives for repetitions and for individuals and small groups to handle recordings,

particularly in the cassette form. The cassette recorder was greatly preferred for its easier handling compared to the reel-to-reel recorder. There was, in addition a common appreciation of the need for the teacher to be actively and recognizably involved with the child's learning.

In addition to the above views and opinions, there were certain specific observations that were made and accepted by all participants. The most important of these are that the broadcasts are additional resources, unique in form and up-to-date in character to go with books, pictures, etc. Also that they are capable of creating an atmosphere, stimulating imagination and provoking ideas, and that they can be a means of opening up new channels of approach and thought to 'language teaching'.

Teachers felt strongly that broadcasts have the capacity to bring the outside world into the classroom, and most effectively so, if the experiences they provide could be associated - by comparison or contrast - with the first-hand experiences of the pupils. It was also alleged that broadcasts can provide information not readily available to the teacher, and in a form that cannot be matched in the classroom. A further allegation was that the consideration and use of some broadcast series and



their accompanying literature can provide a framework for curriculum development.

It was also the feeling of the teachers in the project that some broadcast series are of direct help to teachers lacking specialist knowledge and skill in certain areas, particularly in music and mathematics. All in all, it was agreed that broadcasts are particularly valuable in small schools with limited resources and especially those which are remotely situated and also that they (i.e. broadcasts) are some of the cheapest resources available'. Every participant felt that using broadcasts is a necessary part of the school curriculum to ensure that listening...techniques are developed.

As a final point, the teachers saw some of the strength of broadcasts in their ability to dramatise situations and events which, according to them, particularly appealed directly and personally to pupils of all ages and, by that very token, heightening their involvement and participation.

Before winding up this section of the chapter, it would probably be incumbent upon us to retrace a few steps and mention a point which was considered controversial immediately it was raised. The point concerned what broadcast programmes should do. Some teachers felt that they should deal with things the

teacher cannot do. Many others pointed out the value of a new voice, a new personality, a new approach. A few reported their pleasure at witnessing someone else tackle the job in which they are constantly involved.

All that can be said here is that, with the provision of clearly specified aims and objectives of the instructional tool, perhaps most of the contradictions witnessed above and any others might be minimized if not completely taken care of.

CHAPTER THREE

METHODOLOGY

3.1 Setting.

The research was conducted in six schools from among four districts within Kenya. Of these six schools, two were within Nairobi city; two in Kwale district in the Coast Province, about 22 and 38 kilometres from Mombasa town respectively; one in Taita-Taveta district, again in the Coast Province but about 200 kilometres from Mombasa; and the sixth in Kiambu district in Central Province, about 12 kilometres from Thika town.

Three were girls' schools while the other three were boys' schools. The distribution of the girls' schools was thus, one within Nairobi, one in Kwale and the third in Kiambu while the boys' schools were distributed thus, one in Taita-Taveta, one in Kwale and the third within Nairobi.

3.2 Sample.

The six schools were, in the first place, selected from among several schools in the areas mentioned above. Two of the schools were double-stream while four were triple-stream. The double-stream classes consisted

of approximately 80 pupils each whereas the triple-stream classes had roughly 120 pupils each.

The investigator conducted his experiment among Form II pupils.

He used the already established groups (i.e. streams) partly to avoid disruption of the normal classroom arrangement and day to day running of the schools and, by so doing avoid suspicion among the pupils and thus retain anonymity; but mainly because, since the language, is not examined at C.P.E. level, there would be hardly any possibility of having been grouped according to their performance anyway. This was confirmed by all the participating teachers.

With the triple-stream classes, each stream was exposed to only one of three methods namely: Radio instruction only (i.e. without the classroom teacher's guidance) and Teacher Instruction only (i.e. the classroom teacher used the radio broadcast notes to prepare and plan his own lesson and teach without the use of the radio, just as with a normal class lesson). On the other hand, each of the two groups in the double-stream classes was exposed to one of the first two methods (i.e. Radio and Teacher, and Radio only), which were in fact the two main methods being compared.

### 3.3 Presentation.

A Swahili language radio lesson was taped from the Kenya Institute of Education recording section using a radio cassette recorder, with permission from the Institute's authorities. At the time of recording, the lesson was due on the air within three weeks' time. The rationale for doing this was to take care of the possibility of the pupils in the intended sample listening to the broadcast before the research was conducted. The researcher hoped, by such an arrangement, to have the chance of exposing all the participants to the lesson for the first time; which would make them attempt the test from the same point of departure and with a similar background.

From the people in charge of this area at the Institute, the investigator also managed to get a pamphlet containing all the lessons in every subject scheduled for broadcast throughout the year. This enabled him to extract and photocopy the particular lesson that was going to be used in the research (see Appendix A), which made it possible for the classroom teachers to get their own copies for thorough study and to make whatever preparations required of them.

Having in his possession the recorded lesson, the pamphlet and several photocopies of the lesson,



the investigator prepared a test comprising 20 objective items (see Appendix B). These were in four sections of five items each, selected from lessons already aired, according to the institute's broadcasting schedule; all except the last section, had items directly related to the experimental lesson. The aim of this pre-test was to test the students' comprehension of Kiswahili from whatever knowledge gained in class previously with their teachers' instruction by having them answer the questions in the investigator-made test.

After preparing the first test, another test was prepared. This was the main test. It had ten items which were all directly related to the lesson in question. It was, in fact, 'picked' directly from the pamphlet. This is not to say it was part and parcel of the broadcast lesson; rather it was meant for follow-up activities in the main body of the broadcast programme (see Appendix C). The reason for converting this section into a test was to retain some originality, or in other words, to use a tool that was meant for further productivity by the original planners of the lesson, who must have had in mind what sort of follow-up activities were best for the particular lesson. The aim of this test was to measure the knowledge gained by the students from a

radio programme relayed to them through the three respective instructional methods: radio and teacher's involvement, radio only, and teacher only, by answering the given test questions.

Armed with all the equipment required for his investigation, the investigator went to the schools where he was allowed to conduct his research among Form II pupils. As stated above, he used the already established streams for the groups he needed. The teachers were willing to take part in the undertaking, which was quite in place since the investigator intended to operate behind the scenes if the experiment were to fit into the normal classroom procedure. Having enlisted the teachers' cooperation, he instructed them to expose the pupils to the programme using the following instructional methods with different groups.

Group I: The teacher fully acquaints himself with the programme. For this to be possible, a photocopy of the programme is provided. He is also provided with a radio-cassette together with the cassette containing the taped broadcast. He is further instructed to prepare the lesson in such a way that the pupils are able to listen to the lesson and at the same time accommodate his explanation without of course, the pupils' concentration facing the danger

of being interrupted. He should be able to keep track of the proceedings and be satisfied that the pupils have received the proper guidance, just as in a normal lesson. The pupils should be made aware, from the very beginning, that there will be a test at the end of the lesson. After they have listened to the lesson with the teacher's full involvement and participation, the pupils are given a test.

Group II: The teacher places the radio-cassette with the taped broadcast centrally on the teacher's table. He tells the pupils that instead of his usual instruction, they are going to listen to a radio lesson after which they are going to be tested at the end on the basis of what they will have learnt from the radio lesson. No explanations whatsoever are given by the teacher in connection with the lesson. After instruction, the pupils are given the same test that the other group was given.

Group III: The teacher uses the photocopied programme to prepare his own lesson and notes. He then goes to the class to teach in the conventional Teacher Instruction method, just as he does usually, but in this case, cautioning them before hand that there will be a test at the end of the lesson based on that very instruction. The pupils are not informed

that it is a radio lesson, so that it appears to them just a normal one. At the end of the lesson, this group is also treated to the same test that the others attempted.

In the case of a double-stream class, only the first two methods are used. All the groups are given the same amount of time for instruction after which the test is given.

The investigator had prepared the tests in such a way that the question could be answered on the test-sheet (see Appendices B and C). After both the teachers and pupils had played their parts, he collected all the answer-sheets, that is, of the first test first, then the second test (note that the first and second tests were given on separate days) after instruction - and set about to mark them. He then tallied the raw scores of Test One and calculated their Means and Standard Deviation (see Appendix D). He also tallied all the raw scores of Test Two and calculated their Means and Standard Deviation (see Appendix E). He then calculated the difference between the Means of the first method (Radio and Teacher) against the second method (Radio Only) to find out which of the two was the superior method of instruction. As his main hypothesis had it that the first method was bound to be superior to the second, he afterwards compared the first

to the third (Teacher Only), to find out whether it was just as good, better, or perhaps inferior to this conventional method.

To get the difference between the Means, and be able to compare the performance of the students instructed by one method as against the other, he used the Z-test whose formula is  $\frac{D}{\sigma_D}$  (known as critical ratio - CR) where D is the difference between the sample of the means (uncorrelated) and  $\sigma_D$  is the standard Error (SE). The SE is computed by using the following formula:  $\sigma_D = \sigma (M_1 - M_2) = \sqrt{\sigma^2 M_1 + \sigma^2 M_2}$

$$\text{Or } \sigma_D = \sqrt{\frac{\sigma^2_1}{N_1} + \frac{\sigma^2_2}{N_2}}$$

$\sigma M_1$  = the SE of the mean of the first sample

$\sigma M_2$  = the SE of the mean of the second sample

$N_1$  and  $N_2$  = size of the two samples. The level of statistical significance used in this experiment was 0.05 (see Chapter Four and Appendix F).

No comparison was made between the results of the first test and those of the second. Neither was any made either between schools or between individual pupils as this did not constitute the aims of either test.



CHAPTER FOUR

ANALYSIS OF THE DATA

4.1 Tables.

Tables one to six show the Mean and Standard scores of the participants in Test Two. Each table represents a school. RT stands for the first Method, Radio Instruction with the classroom Teacher's guidance. RO represents the second Method viz. Radio Instruction only (i.e. without the classroom teacher's guidance). TO stands for Teacher Instruction only (i.e. without the use of the radio). N is the number of the students in a group.  $\bar{x}$  is the Mean while  $\sigma_{n-1}$  is the Standard Deviation.

Table 1.

Mean and Standard Scores of Pupils in School A

METHOD	N	$\bar{x}$	$\sigma_{n-1}$
RT	42	72.380	19.915
RO	40	45.600	28.174
TO	38	78.820	19.946

Table 2.

Mean and Standard Scores of Pupils in School B.

METHOD	N	$\bar{X}$	$\sigma_n - 1$
RT	34	26.147	23.642
RO	13	9.230	11.698
TO	25	14.800	18.734

Table 3.

Mean and Standard Scores of Pupils in School C.

METHOD	N	$\bar{X}$	$\sigma_n - 1$
RT	40	70.625	12.232
RO	40	38.650	23.890
TO	41	59.098	23.662

Table 4.

Mean and Standard Scores of Pupils in School D.

METHOD	N	$\bar{X}$	$\sigma_n - 1$
RT	43	25.395	23.625
RO	45	17.622	20.612
TO	46	15.891	16.509

Table 5.

Mean and Standard Scores of Pupils in School E.

METHOD	N	$\bar{X}$	$\sigma_{n-1}$
RT	38	30.392	25.153
RO	43	19.627	22.138
TO	-	-	-

Table 6.

Mean and Standard Scores of Pupils in School F.

METHOD	N	$\bar{X}$	$\sigma_{n-1}$
RT	40	52.200	23.750
RO	43	45.790	31.312
TO	-	-	-

Table 7 shows a statistical comparison between Method One (RT) and Method Two (RO).  $M_1$  stands for the Mean Scores of the groups that were exposed to RT and  $M_2$  represents the Mean Scores of the groups exposed to RO. Cases A to F represent the schools that participated. SE is the Standard Error while CR is the Critical Ratio (see calculation, in Appendix H).

Table 7.

Statistical Comparison between Method ONE (RT)  
and Method Two (RO).

CASES	$M_1 - M_2$	SE	CR
A	26.780	5.412	4.948
B	16.917	5.193	3.259
C	31.975	4.244	7.535
D	7.773	4.735	1.642
E	10.765	5.296	2.033
F	6.410	6.075	1.055

Table eight shows a statistical comparison between Method One (RT) and Method Three (TO) with the aid of difference between the Means.

As in Table seven,  $M_1$  represents the Mean Scores of the groups that were exposed to RT while  $M_3$  stands for Mean Scores of the groups exposed to TO. Again, as in Table 7, cases A to F represent the participating schools while SE is the Standard Error and CR the Critical Ratio.

Table 8.

Statistical Comparison between Method ONE (RT)  
and Method THREE(TO)

CASE	$M_1-M_3$	SE	CR
A	-4.462	4.403	-1.013
B	11.347	5.520	2.055
C	11.528	4.254	2.709
D	9.504	4.363	2.178
E	-	-	-
F	-	-	-

4.2 Analysis.

The level of significance used in this data is 0.05. This means only a difference of 1.96 and above will be considered statistically significant.

Looking at the cases we have in Table seven, Case A ( $M_1-M_2$ ), the Critical Ratio is 4.948. This is clearly above the 1.96 difference and is therefore statistically significant at our level of 0.05. This proves that the Method RT is superior to Method RO in this case; and therefore accept Hypothesis.

Case B, (Table seven) the CR 3.259 is statistically significant at 0.05; so accept Hypothesis.



Case C (Table seven) the CR 7.535 is statistically significant; therefore accept Hypothesis.

Case D (Table seven), the CR is 1.642. In this case, though RT is still somehow superior to RO, the difference is not statistically significant at the 0.05 level; so reject Hypothesis.

Case E (Table seven), the CR 2.033 is statistically significant; therefore accept Hypothesis.

Case F (Table seven), as in D although RT is slightly superior to RO, the CR of 1.055 is not statistically significant at our level of difference; so reject Hypothesis.

From the evidence we have above, in four out of six cases RT proved superior to RO. In terms of percentage, this is a clear 66.6%. Add to the fact that of the remaining two cases (a mere 33.4%) the RT method was slightly superior to RO even though the difference was not statistically significant. We can therefore conclude from our first Hypothesis stating:

1. 'The active participation of the classroom teacher in the guiding role results in more effective learning when students listen to a Swahili broadcast lesson as opposed to an alternative situation where the only medium of instruction is the radio.'

has been proved valid and therefore should be accepted.

As has already been indicated above, Table eight represents a comparison of RT as against TO ( $M_1-M_3$ ). We shall also consider this in accordance with

cases we have.

Case A.

The CR is -1.013. At our level of significance (0.05), it means that method RT is slightly inferior to Method TO, though the difference is not statistically significant. All the same, reject the Hypothesis.

Case B.

The CR is 2.055. This means the difference is statistically significant; so accept Hypothesis.

Case C.

The CR is 2.709, which means that the difference is statistically significant; therefore accept Hypothesis.

Case D.

The CR is 2.178, meaning that the difference is statistically significant; hence accept Hypothesis.

Cases E and F were not treated to the TO Method.

However, with the evidence we have assembled, in three out of the four cases, (75%) RT proved even superior to TO. In only one case (25%) did TO prove slightly superior, with the difference just falling short of a clear statistical significance. We

therefore take it upon ourselves to conclude that even our second Hypothesis which states,

2. 'The active participation of the classroom teacher in the guiding role when students listen to a Swahili radio broadcast lesson results in more effective learning than when the conventional teacher instruction/pamphlets/notes method is used'.

has been proved valid and should therefore be accepted.

CHAPTER FIVE

FIELD DISCUSSION

On contacting the schools in the sample the investigator learnt that none of them used the radio as a means of instruction. The Swahili teacher at a Nairobi Girls' School commented that though they used to make use of broadcasts some years back they decided to drop them since they were always on the air at some odd time when their time-table indicated some lesson other than Swahili. She said this was also true in the case of other subjects; that is to say, whenever the broadcasting time-table had a certain lesson on it, it was always invariable that the school time-table had a different one.

All the teachers in the sample reported that they had not been supplied with a radio by the authorities concerned, but they hastened to add that from their experience, this had not been always the case. Incidentally, the investigator had already learnt of this state of affairs from the Kenya Institute of Education. He had, however, been given to understand that provision of radios would commence in the near future and just continue as in the past.

This seemed to suggest that provision of pamphlets was out of the question. And, indeed, none

of the schools in the sample had any. Yet the information gathered at the Institute was that pamphlets were published every year and sent to various schools for the purpose of aiding both teachers' and pupils' comprehension of the programmes. In fact the investigator was provided with several samples of these pamphlets covering the years 1972 to 1981. He satisfied himself that they had enough details, at least from his point of view, and that they followed closely the normal arrangement in the syllabus, especially in the case of Kiswahili. Nevertheless, he was not sure of two things: one, whether the method of presentation in which programmes were repeated either every year or every other year, - word for word - was productive; and, two, whether the method of distribution as explained to him was perfect as he later found out it might not be after all, with the six sampled schools missing their share. In any case, these pamphlets would have been less valuable without the radios.

In view of this, it is perhaps not surprising that teachers, though ready to cooperate, seemed rather doubtful as to whether the whole venture was worthwhile. One teacher in a Nairobi boys' school commented strongly that he did not see any time in either the near or distant future when the radio would replace the teacher in the classroom. On the suggestion that it could be a useful teaching aid, he grumbled that it could be



a noisy and confusing one, if at all. Asked to elaborate, he gave an example of the lesson in the current research, saying he did not agree with some of the Swahili forms in the broadcast. He argued that linguistic forms like majike (big women or big wives and kijike (a small woman or a small wife) were ambiguous, not to say totally unacceptable, since one did not know whether they referred to height, fatness, thinness, intelligence or whatever. He said such forms suggested a likening of people to things and voiced the opinion that 'Swahili grammar is being stretched too far'. The investigator then suggested that the classroom teacher could, in such circumstances, assume full responsibility by trying to explain to the pupils such confusing forms and, in so doing, make them clear or even reject them outrightly if he thinks any attempt at remedy impossible. Replying to this, the teacher stated that it would be damaging to the students' attitude towards both the broadcast lesson and their classroom teacher for the simple reason that he might fail to convince them, or else they might in future consider broadcasting a waste of time. In any case, he went on, they would definitely ask themselves questions and they might, as a result, end up more confused than when they started.

The other teachers shared this view though not in so explicit terms. At this juncture, the

investigator asked all the participating teachers whether they had received any training on the use of this medium of instruction. They all had undergone little training in this area though they were all qualified teachers who had been trained in recognised teacher training institutions (including the University) in this country.

Another problem encountered by the investigator was the subjects' (that is Kiswahili) place in the school curriculum. He learnt that students in some schools (e.g. the Nairobi boys' school) could drop it after Form II and opt for French. This tended to prejudice the students' attitude towards the subject as witnessed by the number of students who actually dropped it. This, he gathered from the subject teacher, was the rather unfortunate case; and it affected all students in general but the mass exodus came mainly from the 'students of Asian origin'.<sup>1</sup>

The problem of students' attitude towards Kiswahili was noted in an earlier research by Gorman, supported, on this point, by other scholars in this area such as Claessen (Whiteley, ed., 1974). It appears that very little has changed since then. What can be said at this point, as reported by Gorman, is that the state of affairs described above is not confined to only Nairobi area, but rather embraces all the areas where the present research was conducted,

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<sup>1</sup>Teachers' own words.

including those neighbouring the 'Swahili speaking area', in this case Kwale. The only exception is that in the other areas, the pupils are not allowed to drop the subject till 'O' level. But in the Kwale schools for example, the subject teachers said that the students did not take the subject seriously because they claimed it was 'their language', so they did not see the need to study it. When the investigator enquired whether they all did well in the examination, the teachers replied that sometimes the results were disappointing. The teacher at the girls' school exclaimed: 'some of them do extremely poorly, you won't believe it!'

In the Taita-Taveta school, the teacher commended the investigator for having thought of tape-recording the lesson. The problem, she said, was that the Voice of Kenya (the national radio) station is not heard properly in that area, especially during day time. Transmission, she said, was so poor that people usually resorted to switching on Radio Tanzania, Dar-es-Salaam (the Tanzanian national radio) which is usually clear. She said that at night, you could switch on the Voice of Kenya through the short-wave for clear transmission. This meant that whenever the instructional broadcasts were on the air - which is always during the day - schools in that area were poorly placed to listen to them.

This teacher was, however, appreciative of the

radio cassette or tape-recorder in its ability to combat the transmission problem; something the other teachers also attested to. They hailed it as a means that could really make the programmes teaching aids, expounding that they could, with the availability of these facilities, listen to broadcasts and be able to make full preparation before using them in class. Furthermore, they felt that they would never have to bother about air lessons whose timing did not correspond with the classroom timing any more. They also argued that most students were slow in listening and, owing to that, they sometimes wanted the teacher to repeat whatever they failed to catch. But the radio did not have the capacity to do this. This meant that such students would lose a lot of valuable information if they had to receive instruction off air.

All teachers were hardly aware of the range and availability of broadcasts. They were not skilled in the use of the tool and therefore their application could not be fully relied on. Coupled with the fact that the pupils had not been trained in listening skills, not to mention all the other obstacles mentioned above, an explanation could be ventured at with regard to the low scores in the second test which was attempted after the students had listened



to the broadcast, some with the guidance of teachers who were not familiar with this method of instruction and thus, probably, lacking in confidence. The fact that compared to the results of the second test, those of the first test were significantly higher went to indicate that almost all the participating students had a sufficiently good background of the language but that, in the first test, their confidence had not yet been shaken by unfamiliar instruction, while in the second, this was the case (see Appendix E). Anyway more of this will be found in our conclusion.

The teachers castigated the method of presentation of the broadcast saying it was boring and patronising to the extent of irritation. They voiced their dissatisfaction with the way the radio teacher kept instructing them and their students to do this and that. They were also chagrined by the radio students who seemed to be omniscient and more of assistants than real live 'seekers of knowledge'. They claimed that all this had a damaging effect at their expense in that it gave the eerie feeling that the 'unseen teacher' (omnipresent in all appearance) was infinitely superior to them. They also lodged a complaint to the effect that the radio students tended to reduce the classroom students to mere passive observers as they were left with very little ground to explore and exploit.



As regards the broadcasting time, they said the lesson was too long (16½ minutes); and since it was also boring, it made some students go to sleep.

On top of it all, they alleged that the radio lesson did not seem to have any objective. According to them, there was no statement of any objective anywhere whatsoever .... neither in the pamphlet nor at the beginning of the radio lesson.

Since, as has already been stated at the beginning, all schools in the sample did not use the instructional radio at all, factors like recording machines, teachers' radio lesson notes, printed radio lesson material, selection, fore-knowledge, familiarity, discussion among members of staff, preparation for balancing the lesson with the level and ability of the students could never be considered in this section.

CHAPTER SIX

CONCLUSIONS, IMPLICATIONS AND SUGGESTIONS FOR  
FURTHER STUDY.

6.1 Findings

The research was based on two hypotheses, which, as the investigator has tried to show in Chapter Four were both accepted. These hypotheses state that:

1. The active participation of the classroom teacher in the guiding role results in more effective learning when students listen to a Swahili broadcast lesson as opposed to an alternative situation where the only medium of instruction is the radio.
2. The active participation of the classroom teacher in the guiding role results in more effective learning when students listen to a Swahili radio broadcast lesson than when the Conventional Teacher Instruction/Pamphlets/notes method is used.

The acceptance of the first hypothesis came as a result of a comparison between Method One (RT)

in which Radio Instruction was supplemented with the guidance of the classroom teacher and Method Two (RO) where instruction was by means of the radio only. This was done in six cases, each case representing a group of students in a certain school (there were six schools in all). In four out of these six cases, Method One (RT) proved to be superior in terms of the high scores of the students. This means that in 66.6% of all cases, RT was superior to RO. The investigator thus considered this margin high enough to merit acceptance of the hypothesis. It should furthermore be noted that even in the other two cases, the RT scores were higher than those for RO, but the difference could not be considered statistically significant.

The second hypothesis, on the other hand was accepted after comparing Method One (RT) with Method Three (TI). As in the above case, Radio Instruction was supplemented with the guidance of the classroom teacher in first method (RT) while the teacher was the centre of instruction aided only by his own resources in the third method (TI). This means the traditional method was employed in the latter case, without the aid of radio broadcasts. In three out of the four cases that were exposed to these two methods, that is, RT and TI, RT proved superior to TI. In terms of percentage this means a clear 75% RT as against TI. It should be pointed out that even in the fourth case

(25%) RT was still above TI but not statistically significant. It is in the light of these results that the investigator recommended this hypothesis to be accepted too.

His findings support the view, therefore, that 'broadcasts stimulate the teacher to produce work of a higher standard' The teacher should manipulate the broadcasts as instructional tools, which will enable him to raise the standard of his own teaching and achieve better results. In this way the broadcasts become ready and reliable tools (aids or stimuli) in his experienced hands, and he himself will remain the well-informed guide in the teaching-learning process.

## 6.2. Implications in Education.

The investigator would hereby like to draw one or two implications out of his experiences and findings in this study. The findings reported in the previous sections and the investigator's experience when conducting the research suggest the following two types of implications. The first type concerns the medium used in broadcasting the programmes, i.e. the radio. The second type concerns the programmes themselves and their planners.

### 6.2.1. Implications regarding the medium.

1. It has been suggested above that, if well



manipulated, the radio could be a ready and reliable tool or stimulus in the hands of the classroom teacher. This requires that the broadcasts be readily available, which implies that they have to be in a recorded form.

At present, they are not in recorded form and thus not readily available. Consequently, they cannot be fitted into the school programme. For things to work out smoothly, the school timetable has to be adjusted to suit the radio timetable. But this poses a big problem and it is often not possible for several reasons, the obvious being the need to have double science periods, scarcity of laboratories, and lack of manpower, just to mention a few. The planners must have in mind that the radio should serve the school, not the school the radio.

As a way out of the dilemma, cassette recorders could be used instead of radio. Schools should therefore be given cassette recorders so that whenever certain programmes are needed, they are available.

Other advantages of using cassette recorders are that the classroom teacher has prior knowledge of the content. He can therefore prepare himself and his class adequately. He is, in addition, better able to relate to the needs of his class. Also he is forewarned of any problems and difficulties. For



example he can anticipate the problem of linguistic ambivalence e.g. the one mentioned above, so that he decides before hand what 'majike' and 'kijike' refer to or discard them if he so chooses.

The tool (cassette recorder) has the added advantage that broadcast reception is always clear irrespective of the locality, as against radio reception which might be poor in remote rural areas. The radio has one more disadvantage of often being a difficult tool to hear and understand.

#### 6.2.2. Implications for planners.

1. In the review of literature, the familiarity of the participants with the broadcasts and a thorough training in listening skills featured prominently as pre-requisites for the achievement of a better performance when this medium of instruction is put into use. In the field, none of these were realised. The investigator would consequently like to suggest that facilities be provided so that everybody going through the school system is made aware of the existence, operation, and value of this medium.

2. From all indications, it appears there is little contact between the planners and the classroom teachers all over the country. This might point to the teachers' lack of interest which might arise out

of feeling neglected. It would perhaps be necessary to start off discussions between these two opposite poles so that the programmes are planned by both parties and brought as near class-work as possible. It should be made possible for teachers to pre-record all the programmes in the year as a way of enhancing familiarity and, at the same time, enabling normal lesson planning and preparation to be done smoothly. By implication, it means that those teachers in upcountry schools would have to travel to the centre where they would be allowed to record all their requirements. It also implies that instead of being provided with radios, perhaps the best alternative would be to provide them with radio-cassettes from the centre. This would ensure that they receive both recorded lessons and live transmissions. Such an arrangement would hopefully cater for some physical problems such as the geographical position of the school (in some schools Voice of Kenya transmissions are faint - see Chapter Five).

Alternatively, the programming could be decentralized. Discussion and distribution centres at the Provincial, or even District levels could be started and teachers could go to these centres for preparation and collection of materials instead of travelling all the way to the capital. In case this proves difficult to put into immediate practice, then

arrangements should be made for representatives of the planners to visit certain agreed upon centres either at the provincial or district levels where they could meet the teachers and discuss with them relevant issues related to the programmes as well as disseminate all the necessary information and facilities.

3. At this juncture, the investigator would like to mention the complaint lodged by the teachers in the field in connection with the method of presentation. It has already been reported in Chapter Five that all of them expressed their utter dissatisfaction, grumbling that it reduced everybody to passivity. Consequently, it is the hope of the current investigator that it would not be too much if he recommended a review of it by the planners who could try as actively as possible to involve the listening end.

4. In teachers colleges, including Kenyatta University College, student teachers are not trained in how to use broadcasts. One of the reasons why this is so may be that even at the University level, the programmes following the radio timetable do not correspond with the college timetable. For this reason, they are ignored. Programmes must therefore,

in one way or the other, be made available to students. One suggestion is that they should be incorporated in the Teaching Practice to give it weight and seriousness. A second suggestion is that the Swahili Methods teacher at Kenyatta University College in conjunction with his Kenya Institute of Education counterpart should allocate adequate time for explaining the programme and its requirements on the part of teachers, and also its value and how to use it.

5. There should be a closer contact with teachers in the planning stage. Feedback should be considered of the utmost importance, especially during the pilot project (if this is embarked upon) and after introduction of the main project.

6. There should be continuous revision on the basis of feedback.

7. All the above requires efficient backing up and administration system.

The distribution of tapes with description of content to schools should be done at least two months before the new academic year. If programmes are revised, tapes bearing the revised programmes should be collected without delay.



8. The programmes should do the following things:

- (a) They should stimulate interest in the participants. This could be done by using the inductive method where lessons are introduced by what the participants already know and then move systematically towards the unknown. Examples from the student's real life situations could also be used for the same purpose.
- (b) They should actively involve the participants either through discussion, song, debate or written assignments.
- (c) They should make full use of the special advantages of the radio. e.g. good pronunciation, including intonation and stress especially where students encounter problems like the 'l-r' sounds for a good number of Bantu speakers where these are swapped, and getting the right Swahili intonation instead of enunciating Swahili words in mother-tongue intonation. The latter might make understanding impossible. The presentation has, therefore, to be realistic and imaginative.



6.2.3. Suggestions for further study.

Again, out of the experience in the course of the research and the limitations the investigator has had to comply with, he has offered some suggestions below, which, he hopes, will benefit future enthusiasts out to explore deeper into this area. These are:

1. The study can be said to be limited in a number of ways. First of all, the sample was not that large. Secondly, the time used in this particular research—three weeks before the air date—would have been enough for participants already familiar with this instruction; but, as fate would have it, all the participants turned out to be taking the plunge for the first time. Thirdly, to be able to firmly control the sampled pupils, enough time and preparation would have been required to establish such a relationship with the headteachers and classroom teachers on one hand and the researcher on the other, so that the latter could be allowed to form his own random groupings out of the student community instead of using the already established ones.

The third limitation— which ties up with the second— could be eased if the school administrations of the participating schools were contacted in good time. Arrangements could then be made for the researcher to get in touch with the participants and

be able to organise his own groupings. By so doing, he will at the same time be securing an atmosphere for better management without necessarily inconveniencing anybody.

2. The complaint concerning 'the method of presentation' has excited the investigator's curiosity having come across it more than once in the course of this study. It was cited by teachers in the 'Hayter projects' reported in the review of related literature (Chapter Two). It was again most significantly lodged by the teachers in this very research. By virtue of this, it has occurred to the investigator that it would perhaps be worthwhile to launch an extensive research in this area alone. His hope is that, among other things, such a research might eventually determine the methods best fitted to establish the 'missing link' and thus make the radio lessons part of an active fruitful class work.

3. An independent study ought to be made to find out whether the linguistic problem mentioned in Chapter Five (that is, the 'majike', 'kijike' and related ambiguous problem words) is a genuine one, and to what extent it is genuine. Linguists should then think of the ways they are going to employ in order to solve the problem.

4. It might be of help if a broad study covering more aspects of the Swahili radio programme were to be launched. Pupils would then be tested on all those aspects. It would be easier, with the use of the tests, to determine the effectiveness of the programme in improving students' performance.

APPENDIX A

The Programme.

(i) Waambie wanafunzi wakupe zaidi ya maana moja ya maneno haya:  
mto; kaa; kufua; paa; kuvua; kutoa; nyanya; pia pasi.

(ii) Baadhi ya maneno, ijapokuwa yanakaribiana kwa matamshi huandikwa vingine na yana maana tofauti:

mchuzi	mchuuzi
kasisi	kisasi
kuvuja	kuvunja
mahali	mahari
kua	kuwa
kunuka	kunukia
kufuza	kufunza
kuvuta	kufuta

Nakili vifungu hivi ukichagua neno lifaalo.

Mfano: Watalipa (mahali, mahari) ya ndoa,

katika (mahali, mahari) pa siri.

1. (Mchuuzi, Mchuzi) wa mboga atakula wali na (mchuuzi, mchuzi) wa nyama.

2. Ijapokuwa (amelewa, amelelewa) na watu wema hataacha (kulewa, kulelewa).



3. (alikuwa, Alikuwa) mtundu kutoka (alipokuwa alipokua) mtoto mchanga.
4. (Kibovu, Kipofu) atakuwa amevaa kiatu (kibovu, kipofu) utakapoonana naye.
5. (Kiwanda, Kiwanja) cha kutengeza sabuni kimejengwa katika (kiwanda, kiwanja) cha serikali.

Kipindi cha Nane.

Ukubwa na udogo wa baadhi ya majina

Jina	Udogo	Ukubwa
ngoma	kigoma	goma
mtu	kijitu	jitu
kikapu	kijikapu	kapu
mji	kijiji	jiji
mlango	kilango	lango
nyumba	kijumba	jumba
mwiyi	kijivi	jivi
mume	kidume	dume
mke	kijike	jike
mtoto	kitoto	toto

Sema (au andika) ukubwa wa:

mtoto - (toto)	kiatu - (jiatu)	ndege - (dege)
nyumba - (jumba)	mdudu - (dudu)	
Kisu - (jisu)	mbwa - (jibwa)	
Kichwa - (jichwa)	nyoka - (joka)	



APPENDIX B

TEST 1.

NAME ----- AGE -----  
SCHOOL ----- SEX -----

SEHEMU YA KWANZA.

Andika kwa vingi vifungu hivi vya maneno.

Mfano: Kiti cha enzi.

Viti vya enzi.

1. Mtoto wa watu

\_\_\_\_\_

2. Mtu wa haki

\_\_\_\_\_

3. Uji wa mahindi

\_\_\_\_\_

4. Mti wa matunda

\_\_\_\_\_

5. Ukuta wa nyumba

\_\_\_\_\_

SEHEMU YA PILI.

Nakili vifungu hivi ukichagua neno lifaalo.

Mfano: Watalipa (mahali, mahari) ya ndoa katika  
(mahali, mahari) pa siri.

Watalipa mahari ya ndoa katika mahali pa siri.

1. (Alikua, Alikuwa) mtundu kutoka (alipokuwa, alipokua) mtoto mchanga.

---

2. (Kasisi, Kisasi) alisema ana (kasisi, kisasi) na wafuasi wake walioasi.

---

3. Paa la nyumba yetu lilianza (kuvuja, kuvunja) baada ya watoto waliokuwa wakicheza kwenye mvua (kuvuja, kuvunja) kigae kwa bahati mbaya.

---

4. Baada ya (Kuvuta, Kufuta) punzi kwa nguvu alianza (kuvuta, kufuta) michoro aliyokuwa ameichora.

---

5. Badala ya (Kunuka, Kunukia) msichana alianza (kunuka, kunukia) mafuta mazuri aliyokuwa amejipaka yalipochanganyika na jasho.

---

SEHEMU YA TATU.

Nakili maneno yaliyoandikwa kwa upande kwa ukubwa wake.

Kwa mfano: Ndege alitua mtini.

Dege lilitua mtini.

1. Kabla ya kuchinja alinoa kisu chake

---

2. Wageni watawasili mjini leo alasiri.

---

3. Umeleta kapu ya kutosha?

---

4. Watahamia lini katika nyumba yao mpya?

---

5. Kibanda hiki kimegharimu pesa nyingi.

---

SEHEMU YA NNE.

Nakili maneno yaliyoandikwa kwa upande kwa udogo wake.

Mfano: Nyumba yao ni ndogo sana.

Kijumba chao ni kidogo sana.

1. Atapandishwa ndege inayoruka angani.

---

2. Peter ameo mke mzuri.

---

3. Tununulie nanasi na papayu.

---

4. Mtilie chakula chake katika mfuko wa karatasi.

---

5. Hatupendi kula maembe mabichi.

---

APPENDIX C

Test II.

NAME ----- AGE -----  
SCHOOL ----- SEX -----  
TRIBE -----

Nakili maneno yaliyoandikwa kwa upande kwa udogo wake:

Mfano: Maduka yote ya mijini yamefungwa.

Viduka vyote vya vijijini vimefungwa.

1. Nilyachukua matunda katika kapu ndogo.  
\_\_\_\_\_
2. Watumishi walishambuliwa na mbwa mkali.  
\_\_\_\_\_
3. Seremala hodari aliutengeza mlango mpana wa nyumba  
\_\_\_\_\_
4. Wanachota maji yao kutoka katika mto ule mchafu.  
\_\_\_\_\_
5. Watalijaza jahazi lote kwa shehena ya mali.  
\_\_\_\_\_
6. Walimchinja mbuzi mdogo wakaila nyama yake.  
\_\_\_\_\_
7. Mtu huyu anaweza kuingia kila mahali bila ya kujulikana  
\_\_\_\_\_
8. Mariamu hutia pesa zake katika sanduku langu.  
\_\_\_\_\_
9. Mpishi wetu alikata kidole chake kwa kisu kikali.  
\_\_\_\_\_
10. Wazee wale hupika vyakula vyao katika vyungu vya zamani.  
\_\_\_\_\_



APPENDIX D.

RESULTS OF TEST 1 PLUS MEAN AND STANDARD SCORES

SCHOOL A

<u>N</u>	<u>Group I</u>	<u>Group II</u>	<u>Group III</u>
1	77	67	85
2	65	90	85
3	90	75	85
4	90	80	60
5	55	70	35
6	75	80	50
7	82	75	82
8	80	90	80
9	90	74	90
10	52	70	80
11	70	85	80
12	70	85	75
13	67	75	90
14	72	85	85
15	80	82	80
16	90	70	85
17	75	78	75
18	60	55	60
19	82	79	87
20	80	85	90
21	82	80	85
22	70	85	80
23	75	80	85
24	85	65	80



25	67	80	80
26	60	93	70
27	80	68	82
28	62	72	75
29	85	80	80
30	95	77	70
31	72	90	90
32	80	55	70
33	75	85	90
34	55	80	62
35	62	75	41
36	82	82	85
37	75	62	70
38	75	55	67
39	87	90	75
40	65	40	75
41	72	$\bar{X} = 76.1$	$\bar{X} = 67.275$
42	77	$\sigma_{n-1} = 11.288$	$\sigma_{n-1} = 12.876$

---

$\bar{X} = 74.880$   
 $\sigma_{n-1} = 10.585.$

SCHOOL B.

<u>N</u>	<u>Group I</u>	<u>Group II</u>	<u>Group III</u>
1	22	45	60
2	35	20	60
3	48	40	47
4	81	30	45
5	35	60	40
6	25	20	40
7	30	35	38
8	43	25	38
9	33	25	38
10	48	5	35
11	58	35	35
12	27	25	32
13	28	40	31
14	28		30
15	35	$\bar{X} = 31.153$	30
16	38	$\sigma_{n-1} = 13.716$	30
17	39	N. 13	30
18	30		30
19	25		28
20	33		28
21	30		25
22	28		19
23	25		17
24	22		13
25	70		$\bar{X} = 34.16$
26	35		$\sigma_{n-1} = 11.11$
27	45		N. 25
28	40		
29	20		
30	35		
31	5		
32	35		
33	30		
34	25		

$\bar{X} = 34.911$   
 $\sigma_{n-1} = 14.119.$

SCHOOL C.

<u>N</u>	<u>Group I</u>	<u>Group II</u>	<u>Group III</u>
1	62	85	65
2	48	60	80
3	47	67	69
4	52	50	67
5	80	60	85
6	38	80	65
7	64	85	70
8	68	75	62
9	0	77	60
10	28	70	50
11	90	54	70
12	0	52	75
13	100	67	95
14	76	57	50
15	85	30	45
16	40	85	45
17	43	16	77
18	74	60	80
19	60	50	70
20	34	75	67
21	95	90	45
22	80	85	50
23	80	60	75
24	50	90	60
25	60	60	50

26	90	60	85
27	100	80	85
28	100	80	40
29	50	90	75
30	40	85	55
31	55	65	40
32	72	70	72
33	90	40	55
34	77	55	53
35	70	50	90
36	20	65	55
37	<u>72</u>	54	85
38	$\bar{X} = 61.891$	80	77
39	$n-1 = 25.983$	75	<u>80</u>

85

$\bar{X} = 66.897$

$\bar{X} = 66.6$        $\sigma_{n-1} = 14.576.$

$\sigma_{n-1} = 16.813$

SCHOOL D.

<u>N</u>	<u>GROUP I</u>	<u>Group IIq</u>	<u>Group III</u>
1	40	68	21
2	20	63	20
3	15	62	24
4	40	59	50
5	55	58	50
6	40	58	36
7	60	58	22
8	35	57	44
9	35	57	22
10	25	54	27
11	25	54	40
12	20	54	38
13	35	54	60
14	30	53	12
15	30	53	35
16	50	53	15
17	70	52	20
18	20	50	22
19	80	50	47
20	75	50	27
21	15	48	0
22	30	48	10
23	35	48	20
24	45	46	25



26	47	45
27	65	35
28	70	70
29	40	70
30	70	35
31	55	67
32	60	80
33	25	45
34	25	50
35	70	55
36	40	70
37	60	66
38	30	55
39		67
40	$\bar{X} = 54.868$	45
41	$\sigma_{n-1} = 16.510$	57
42		35
43		40

---

$$\bar{X} = 53.744$$

$$\sigma_{n-1} = 13.950$$

SCHOOL E.

<u>N</u>	<u>Group I</u>	<u>Group II</u>
1	78	60
2	62	48
3	55	60
4	38	75
5	95	35
6	58	37
7	78	80
8	58	78
9	50	25
10	58	58
11	45	55
12	55	65
13	70	45
14	68	45
15	37	40
16	65	58
17	50	50
18	68	95
19	35	55
20	63	75
21	48	48
22	59	80
23	68	80
24	65	38
25	85	55

26	47	45
27	65	35
28	70	70
29	40	70
30	70	35
31	55	67
32	60	80
33	25	45
34	37	50
35	70	55
36	40	70
37	60	66
38	<u>30</u>	55
39	$\bar{X} = 54.868$	67
40	$\sigma_{n-1} = 16.510$	45
41		57
42		35
43		<u>40</u>

$$\bar{X} = 53.744$$

$$\sigma_{n-1} = 13.950$$

SCHOOL : F.

<u>N</u>	<u>Group I</u>	<u>Group II</u>
1	78	60
2	62	48
3	55	60
4	38	75
5	95	35
6	58	37
7	78	80
8	58	78
9	50	25
10	58	58
11	45	55
12	55	65
13	70	45
14	68	45
15	37	40
16	65	58
17	50	50
18	68	95
19	35	55
20	63	75
21	48	48
22	59	80
23	68	80
24	65	38
25	85	55

26	62	45
27	54	63
28	45	45
29	60	48
30	65	50
31	58	65
32	68	45
33	68	48
34	88	60
35	78	50
36	95	43
37	50	58
38	58	55
39	92	40
40	83	45
41	70	68
42	53	43
43	-	35

44

---

$$\bar{X} = 63.047$$

$$\sigma_{n-1} = 14.76$$

---

$$\bar{X} = 54.681$$

$$\sigma_{n-1} = 11.691$$



APPENDIX E

RESULTS OF TEST 11 PLUS THEIR MEAN AND STANDARD SCORES

TERMS:

- MD = Difference between the means of samples.
- RT = Radio and Teacher.
- RO = Radio Only.
- TO = Teacher Only.
- SE = Standard Error
- $M_1$  = Standard Error of the Mean of the first sample.
- $M_2$  = SE of the Mean of the second sample.
- D = SE of the difference between the two sample means.
- CR = Critical Ratio.

SCHOOLS: A, B, C, D, E, F.

SCHOOL A:- Samples:

	<u>I</u>	<u>II</u>	<u>III</u>
No.	RT	RO	TO
1	65	70	60
2	75	25	85
3	85	10	90
4	80	75	85
5	50	69	95
6	65	75	60
7	95	0	85

<u>NO.</u>	<u>RT</u>	<u>RO</u>	<u>TO</u>
8	85	80	65
9	95	45	0
10	30	0	40
11	95	45	90
12	75	55	90
13	90	60	75
14	65	0	60
15	75	50	75
16	20	32	65
17	55	60	85
18	60	10	85
19	85	80	85
20	90	45	75
21	80	10	85
22	95	85	40
23	85	70	85
24	90	65	75
25	35	85	100
26	20	66	45
27	80	20	85
28	60	83	100
29	65	20	80
30	85	36	100
31	65	85	90
32	75	0	90
33	75	30	85

<u>NO.</u>	<u>RT</u>	<u>RO</u>	<u>TO</u>
34	95	6	70
35	60	49	85
36	80	35	95
37	90	38	90
38	95	20	75
39	80	50	-
40	65	25	-
41	50	-	-
42	80	-	-

---

$$\bar{x}=72.380 \quad \bar{x}=45.6 \quad \bar{x}=76.842$$

$$\sigma_{n-1} = 19.915 \quad \sigma_{n-1} = 28.174 \quad \sigma_{n-1} = 19.946$$

SCHOOL B.

<u>NO.</u>	<u>RT</u>	<u>RO</u>	<u>TO</u>
1	15	10	50
2	25	40	60
3	45	0	20
4	90	20	0
5	60	10	0
6	40	0	30
7	30	15	60
8	0	0	0
9	5	15	10
10	25	0	10
11	35	10	30
12	5	0	0
13	15	0	0
14	5	0	10
15	0		10
16	25		10
17	50		10
18	10		0
19	4		10
20	0		20
21	40		30
22	10		0
23	10		10
24	10		0

<u>NO.</u>	<u>RT</u>	<u>RO</u>	<u>TO</u>
25	70		0
26	35		
27	65		
28	55		
29	0		
30	40		
31	0		
32	15		
33	45		
34	10		

---

$\bar{X}=26.147$      $\bar{X}=9.230$      $\bar{X}=14.8$

$\sigma_{n-1}=23.642$      $\sigma_{n-1}=11.698$      $\sigma_{n-1}=18.734$



SCHOOL : C.

<u>NO.</u>	<u>RT</u>	<u>RO</u>	<u>TO</u>
1	80	70	90
2	90	80	14
3	65	40	49
4	52	50	42
5	85	30	56
6	65	50	40
7	77	40	67
8	90	0	40
9	80	65	66
10	55	60	100
11	45	78	44
12	70	31	42
13	80	25	78
14	75	10	64
15	70	20	65
16	55	55	42
17	55	10	50
18	75	60	38
19	75	50	70
20	65	65	90
21	65	85	60
22	81	10	88
23	80	33	89
24	55	10	78

<u>NO.</u>	<u>RT</u>	<u>RO</u>	<u>TO</u>
25	90	30	26
26	62	60	72
27	75	23	30
28	85	80	64
29	77	49	28
30	65	20	68
31	55	3	25
32	70	26	50
33	85	30	100
34	80	33	100
35	80	50	82
36	60	13	80
37	68	55	62
38	66	0	72
39	45	16	40
40	77	49	50
41			12

---

$$\bar{X}=70.625 \quad \bar{X}=38.65 \quad \bar{X}=59.0975$$

$$\sigma_{n-1}=12.232 \quad \sigma_{n-1}=23.890 \quad \sigma_{n-1}=23.662$$

SCHOOL D.

<u>NO.</u>	<u>RT</u>	<u>RO</u>	<u>TO</u>
1	60	20	12
2	0	50	45
3	0	0	22
4	20	10	58
5	30	27	20
6	60	85	35
7	75	5	0
8	35	57	20
9	12	35	0
10	10	25	0
11	5	37	45
12	0	7	20
13	12	32	0
14	10	10	35
15	10	0	30
16	45	30	7
17	80	4	0
18	0	22	0
19	62	27	45
20	12	15	12
21	32	30	0
22	17	0	10
23	0	15	20
24	10	0	0

<u>NO.</u>	<u>RT</u>	<u>RO</u>	<u>TO</u>
25	30	20	10
26	80	15	30
27	10	2	0
28	55	55	5
29	12	0	30
30	5	17	0
31	22	10	20
32	50	22	20
33	42	5	7
34	20	0	30
35	2	75	52
36	0	0	7
37	30	0	45
38	55	2	0
39	20	0	0
40	17	10	10
41	0	0	0
42	25	0	7
43	20	0	12
44		0	0
45		17	10
46			0

---

$$\bar{X}=25.395 \quad \bar{Y}=17.622 \quad \bar{Z}=15.891$$

$$\sigma_{n-1}=23.625 \quad \sigma_{n-1}=20.612 \quad \sigma_{n-1}=16.509.$$

SCHOOL E.

<u>NO.</u>	<u>RT</u>	<u>RO</u>
1	50	20
2	3	0
3	10	20
4	0	23
5	35	50
6	25	0
7	50	0
8	30	60
9	40	40
10	60	20
11	70	10
12	20	50
13	50	0
14	60	50
15	45	35
16	45	75
17	70	0
18	72	0
19	33	0
20	0	45
21	0	5
22	10	15
23	20	15
24	50	5
25	58	20



<u>NO.</u>	<u>RT</u>	<u>RO</u>
26	7	43
27	19	0
28	70	55
29	55	10
30	15	0
31	60	20
32	20	80
33	0	10
34	0	2
35	5	0
36	0	15
37	0	3
38	5	3
39		15
40		20
41		0
42		0
43		10

---

4

$$\bar{X}=30.392 \quad \bar{Y}=19.627$$

$$\sigma_{n-1}=25.153 \quad \sigma_{n-1}=22.138.$$

SCHOOL F.

<u>NO.</u>	<u>RT</u>	<u>RO</u>
1	70	68
2	40	5
3	58	94
4	58	94
5	85	58
6	68	42
7	48	90
8	50	90
9	70	0
10	55	6
11	65	74
12	64	62
13	50	55
14	38	0
15	38	0
16	80	48
17	42	58
18	80	80
19	18	23
20	60	0
21	48	22
22	38	80
23	65	74
24	65	43

NO.	RT	<u>RO</u>
25	90	90
26	70	70
27	10	5
28	48	38
29	40	70
30	42	45
31	54	70
32	5	63
33	25	0
34	90	80
35	0	24
36	0	33
37	80	39
38	34	28
39	75	45
40	72	0
41		35
42		0
43		68

---

$$\bar{X}=52.2$$

$$\bar{X}=45.790$$

$$\sigma_{n-1}=23.75$$

$$\sigma_{n-1}=31.312$$

APPENDIX F

STATISTICAL COMPUTATION OF THE RESULTS OF TEST II.

Means = 1, 2, 3,

Mean 1 - Radio and Teacher.

Mean 2 - Radio Only.

Mean 3 - Teacher Only.

Case A.

Difference between  $M_1$  and  $M_2$  is

$$(72.380 - 45.600) \\ = 26.780.$$

The SE of the difference between the means, that is,

$$SD = \sqrt{\frac{(19.915)^2}{42} + \frac{(28.174)^2}{40}}$$

$$= \sqrt{29.287}$$

$$= 5.412$$

$$CR = \frac{26.780}{5.412}$$

$$= 4.948.$$

Case A.

$$M_1 - M_3 = 72.380 - 76.842 \\ = -4.462$$

$$SD = \sqrt{\frac{(19.915)^2}{42} + \frac{(19.946)^2}{40}}$$

$$= \sqrt{19.389}$$

$$= 4.403.$$



$$\begin{aligned} \text{C.R.} &= -4.462 \div 4.403 \\ &= -1.013. \end{aligned}$$

Case B.

$$\begin{aligned} 1. \quad M_1 - M_2 &= 26.147 - 9.230 \\ &= 16.917 \end{aligned}$$

$$\begin{aligned} \sqrt{D} &= \sqrt{\frac{(23.642)^2}{34} + \frac{(11.698)^2}{13}} \\ &= \sqrt{26.966} \end{aligned}$$

$$\begin{aligned} \text{C.R.} &= 16.917 \div 5.193 \\ &= 3.259. \end{aligned}$$

---

$$\begin{aligned} 2. \quad M_1 - M_3 &= 26.147 - 14.800 \\ &= 11.347 \end{aligned}$$

$$\begin{aligned} \sqrt{D} &= \sqrt{\frac{(23.642)^2}{34} + \frac{(18.734)^2}{25}} \\ &= \sqrt{30.478} \end{aligned}$$

$$\begin{aligned} \text{C.R.} &= 11.347 \div 5.520 \\ &= 2.055 \end{aligned}$$

---

Case C.

$$\begin{aligned} 1. \quad M_1 - M_2 &= 70.625 - 38.650 \\ &= 31.975 \end{aligned}$$

$$\begin{aligned} \sqrt{D} &= \sqrt{\frac{(12.232)^2}{40} + \frac{(23.890)^2}{40}} \\ &= \sqrt{18.009} \end{aligned}$$

$$= 4.244.$$



$$\begin{aligned} \text{C.R.} &= 31.975 \div 4.244 \\ &= 7.535. \end{aligned}$$

---

$$2. \quad M_1 - M_3 = 70.6250 - 59.0975$$

$$= 11.5275$$

$$\begin{aligned} \sqrt{D} &= \sqrt{\frac{(12.232)^2}{40} + \frac{(23.662)^2}{39}} \\ &= \sqrt{18.097} \end{aligned}$$

$$= 4.254$$

$$\begin{aligned} \text{C.R.} &= 11.528 \div 4.254 \\ &= 2.709 \end{aligned}$$

---

Case D.

$$1. \quad M_1 - M_2 = 25.395 - 17.622$$

$$= 7.773$$

$$\begin{aligned} \sqrt{D} &= \sqrt{\frac{(23.625)^2}{43} + \frac{(20.612)^2}{45}} \end{aligned}$$

$$= \sqrt{22.421}$$

$$= 4.735$$

$$\begin{aligned} \text{C.R.} &= 7.773 \div 4.735 \\ &= 1.642 \end{aligned}$$

---

$$2. \quad M_1 - M_3 = 25.395 - 15.891$$

$$= 9.504$$

$$\begin{aligned} \sqrt{D} &= \sqrt{\frac{(23.625)^2}{43} + \frac{(16.692)^2}{46}} \end{aligned}$$

$$= \sqrt{19.037}$$

$$= 4.363$$

$$\text{C.R.} = 9.504 \div 4.363$$

$$= 2.178$$

Case E.

$$M_1 - M_2 = 30.392 - 19627$$

$$= 10.765$$

$$\text{UD} = \sqrt{\frac{(25.153)^2}{38} + \frac{(22.138)^2}{43}}$$

$$= \sqrt{28.047}$$

$$= 5.296$$

$$\text{CR} = 10.765 \div 5.296$$

$$= 2.033$$

---

Case F.

$$M_1 - M_2 = 52.200 - 45.790$$

$$= 6.410$$

$$\text{UD} = \sqrt{\frac{(23.750)^2}{40} + \frac{(31.12)^2}{43}}$$

$$= \sqrt{36.903}$$

$$= 6.0748$$

$$\text{CR} = 6.410 \div 6.075$$

$$= 1.055$$

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