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THE USE OF AUDIO VISUAL

AIDS IN THE TEACHING

OF READING

by

LESLEY ANN REED. B.Ed (Hons)

Submitted for the  
Degree of B.Phil.  
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**No part of the material offered  
has previously been submitted for a degree  
or other qualification of this or any other  
university. The work is an independent  
contribution containing no material which  
has been published.**

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**ABSTRACT**

This study is concerned with a consideration of certain Audio Visual aids and their practical application in school in the teaching of reading. Emphasis is placed on the Primary Sector and experimentation is carried out amongst children aged 4+ to 7+ years.

Following a discussion of relevant literature and psychology related to the use of Audio Visual aids, the study is divided into two separate and yet related sections: -

- a) audio visual aids and the child
- b) audio visual aids and the teacher.

In the first instance a series of experiments is carried out amongst young children using Language Master and Tape Recorder to assess their reading attainment as compared with that of children receiving traditional teacher instruction. Results are analysed and suggestions made for future research.

In the second part of the study consideration is made of the role of the teacher in the use of audio visual aids. Following an introduction outlining "accepted" theories about the use of audio visual aids and the role of the teacher, the study concerns itself with the analysis of teachers' opinions as received in the completion of a thirteen part questionnaire. Teachers are asked to express an opinion on the use of certain audio visual aids in the teaching of reading and their replies are analysed according to six variables of sex, age, age range taught, experience, training course and qualifications. Teachers are asked for their own comments which are included along with conclusions drawn from the results of the study.

A conclusion is made on the findings of the study and suggestions made for future research along the lines of a comparative media study.

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**"Accept the new media  
challenge because there is  
nothing for you and your  
pupils to lose and much to  
be gained". (Trowbridge, 1973)**

**CHAPTER 1.**

**Introduction: The purpose of  
the study and why the  
research was felt necessary.**

In recent years there has been a considerable development in the application of technology to education and more specifically to reading. The sixties in particular saw a number of things happening which brought about the modern learning situation. Non print reference material first became respectable and so today many libraries include filmed and taped material and other media in their stocks. Also an increasing number of schools began to develop ways of working in which the use of audio visual \* equipment became important. e.g. situations developed in which the use of self instructional techniques assumed importance in such activities as group and individual work and mixed ability teaching. "There was in addition a growing realization by teachers that the multiplication of machines in schools was not a threat to the profession, for there is no machine substitute for human relationships. Moreover, machines have the potential for making teachers more effective than ever before". (Trowbridge, 1974 p.2.) Consider for a moment broadcast material for schools. It represents the results of much more preparation and work than is possible for any serving teacher, or group of teachers to devote to a lesson. In addition, in a situation of rapid turnover of staff, broadcast material can help to provide a few familiar situations, and a link between one teacher and the next.

Children are surrounded as they grow by automatic, mechanical and electronic devices. They are more confident of using equipment than any previous generation has been. Children are readily involved with the products of modern technology because technology has always been part of their lives. They are eager to make use of relevant, modern equipment

\* For the purpose of this study audio visual is used to mean an aid which is intrinsically audio visual. e.g. Television; - an aid which is audio and to which visual material can be related directly to sound output. e.g. Tape recorder; - an aid which displays visual material and to which sound material can be related. e.g. Overhead projector.



to help them with their learning at school, and their confidence enables them to become competent quickly and easily.

Reading is perhaps the most basic of the so called three 'R's'. Until a child has acquired a sound knowledge of reading he will have difficulty with all else he attempts. As for the position of reading with regard to audio visual aids this is perhaps best summed up by Fry (1961, p.43) who says, "Since reading is a perennial subject which consumes a great deal of instructional time it is inevitable that teaching machines and the subject matter of reading are being and will be put together". Audio visual aids can play an important part in the acquisition of basic reading skills. Some machines display reading readiness pictures under transparent keys. The student selects the correct matching picture or symbol. Reading comprehension is a natural 'task' for machines e.g. a tape recorder might be used to ask the student to answer questions based on reading a prescribed passage. The improvement of vocabulary is another area in which audio visual aids can help, whilst contextual clues can be taught by having the student supply the missing word in a sentence. Phonics can be taught to very young children by having the pupil match letter sounds to pictures - in this sphere the Synchrofax machine can be invaluable. The list is endless and it may be suggested that if audio visual aids were more readily available and used the strategies of teaching reading would be extended and not diminished. In essence this is one of the writer's main considerations. "How useful can audio visual aids be in the teaching of reading?" "Can they help the child for whom conventional approaches appear to have failed?". As previously stated one now teaches the child of the technological age, it would seem sensible to use his natural 'environment' to teach him, provided it gives equal or better results than methods previously used. Teachers need not feel threatened: their role is not diminished. Indeed they have an important role to play. To what

extent a selected sample chose to play their role will be the writer's second consideration, and this is particularly important in the knowledge that as Calvin reveals, (1962, p.46.) "when teachers are unfavourable student performance on programmed material is inferior".

This then forms the background of the ensuing research. How useful are audio visual aids in the teaching of reading, and how readily accepted are they by teachers for this purpose?

**CHAPTER 2.**

**The Review of Pertinent Literature.**

## Introduction.

A review of pertinent literature in this field is limited by several factors. First, much of the literature available is American and to this extent the results may be culture bound. Second, the number of experiments is small. Third, the experimental conditions and the purposes, lengths and natures of the materials used may vary considerably. These last two factors ensure that in such a review it is not possible to draw firm conclusions well supported by experimental evidence. There appear to be so many unspecified variables in the "usual" classroom situation that it is seldom possible to compare a pure machine/programme treatment with a pure non-machine/programme treatment. "Good experimental design demands that the amount of time spent, the difficulty of the material or some independent property of the instructional property of the instructional process be equated between the two techniques. Where one technique consists of conventional classroom teaching and reading assignments, this is difficult to achieve". (Green, 1962. p. 1 ff.)

Therefore in such comparative investigations there has to be a compromise in evaluating experimental tests of relative teacher versus machine effectiveness. The results from such investigations are specific and apply to the particular situation in which they were carried out; i.e. the effectiveness of a particular aid and its programme designed to teach a particular sample compared with a particular classroom group. The careful matching of groups and repetition of experiments have proved worthwhile in showing that in many instances audio visual aids and programmed material are at least as effective as other classroom procedures. However, the most frequent findings are of no significant differences between experimental and control groups. The results of many comparative investigations can be of little value because one cannot generalize from them. The particular aid and material

used, the quality of classroom instruction and the reliability and validity of evaluative instruments are among variables affecting the utility of results.

Research in this country has tended to take the form of

- a) programme and machine development and appraisal.
- b) comparisons between classroom method and programmed teaching.

A number of investigations have been directed to comparing the relative achievement of machine and teacher taught pupils. However, with some notable exceptions instructional media research prior to 1950 was characterized by a pre-occupation with what Lumsdaine (1963) called "evaluative comparisons". In other words learning from some unspecified medium was compared with learning from some unspecified presentation by a teacher or other medium. For all its faults, however, this instructional media research made a number of contributions. As Allen points out, "First, evaluative and unscientific though the research was it focused the attention of educators and the public on instructional media as legitimate and viable channels for the transmission of educational content and confirmed their overall effectiveness. Second, it supplied a base of suppositions and hypotheses regarding the unique attributes of instructional media which can be studied under controlled experimental conditions. Third, by trying many forms of presentation and organisation it revealed the richness and diversity of the utilization of media. Fourth, a body of measurement, audience/learner analysis and content analysis techniques evolved out of communication research. Fifth, a beginning was made towards the understanding of the persuasive and motivational aspects of communications". (Allen, 1971. p. 15 ff.)

Unless machine based instruction were at least comparable to "conventional teaching" there would have been strong reasons to resist its introduction. The speculation indicated, however, that learning from machines was perhaps not inferior to classroom teaching and moreover often

took much less time to achieve. Fears were expressed that machines might promote rote learning and that retention would not be sufficiently great. However, the "substantial evidence" of transfer and ability to apply the knowledge acquired, and of retention equal to or better than teacher taught groups was, Leith claimed in 1963, "sufficient to resolve these doubts in most cases". (Leith, 1963. pp 187 - 200) Over the past few decades researches have been carried out to try to determine which of several methods is the best way of teaching reading. The writer will outline and examine some of these researches and evaluate whether Leith's claim has proved to be valid or whether, as previously stated, the most frequent findings are of no significant differences between experimental and control groups.

The ten to twelve years following the second world war formed a water shed for instructional media research. Old values of research were being discarded and new approaches and problems investigated. Most studies were of a military nature but their importance should not be under estimated. They constitute virtually the only attempts to approach problems in instructional media with a systematic research effort.

When programmed learning appeared on the educational scene some fifteen to twenty years ago the "evaluative" research cycle was repeated and promoted by educationalists and by commercial interests alike. However, programmed instruction had the additional support of educational psychologists who saw it as a means of studying the learning process. A base of solid research was being established and many insights relating to the design, sequencing and structuring of media emerged. Perhaps the most important offshoot of this research, however, was the impetus given to the study of the individualisation of instruction. Whereas in the past instructional media had been considered useful in one way mass communication or for group instruction, attention had shifted to the use of media in individual teaching situations.

There was a consistent attempt by a number of researchers and theorists to discover, "the unique attributes of instructional media and their relationships to the performance of particular psychological functions with different kinds of learners". (Allen 1971. p 15 ff.)

There was a second related development. This was the research on the "structure and sequencing of instruction with particular emphasis on the hierarchical characteristics of the content, the use of advance organisers, the degree of control exercised over the presentation of content and other factors relating to learner actions that lead to increased learning". (Allen 1971. p 15 ff.)

In 1967 Leedham said, "In considering primary skills the skill of reading ranks first. Considerable experimentation has gone on in this field and is still underway". (Leedham 1967. pp 103 - 4 ) In 1965 he had himself published a report outlining some of the experience gained with methods of prompting reading skills by the use of programmes and machines. In the situation he outlines the children received instruction pre-recorded on tape which matched programmes presented in picture form linked to words and phrases. It was demonstrated that well organized presentation of work in this manner produced reading gains greater than parallel non programmed circumstances. However, Leedham was quick to point out that "too much work such as this could become quite mechanistic and the initial gains could be lost unless the child was introduced to new material quite frequently. Also the amount of preparation involved offset some of the advantages". (Leedham 1967. pp 103 - 4 ).

In considering the use of audio visual aids in the learning situation the question of boredom and the allied novelty effect of the media used often came under discussion. As psychological factors they will be considered in a subsequent chapter, but it is of interest here, since the point has been raised by Leedham, to consider elements of

previous research already done in this field.

### Psychological Implications of Previous Research.

Hartley (1964) stated, "How much of the apparent success of teaching machine learning is due to the novelty effect is an important question, but one which at the moment it is impossible to answer".

(Hartley, 1964. Vol 15 pp 880ff.) It is indeed an important question for two main reasons:

- a) to the teacher in the conventional classroom situation the possibility of such an effect may not encourage a favourable attitude to machine instruction. Indeed Calvin (1962) Silberman (1962) and Fry (1963) all reported that the attitudes of teachers towards programmed instruction were major variables.
- b) to the researcher such a question counsels caution in the interpretation of encouraging results especially from short term experiments. It is perhaps an impossible question to answer since not only have so few long term experiments been carried out, but even those that have may be considered short term in comparison with the child's overall experience of the "normal" teaching/learning situation.

Three main types of novelty effect can occur:

- a) the "Hawthorne" type of effect.
- b) the machine effect.
- c) the initial effect of any new kind of teaching.

Of the three the first is perhaps the most difficult to assess as children with knowledge that they are taking part in an experiment may not behave as children without such knowledge.

Several writers e.g. Skinner (1958), Lumsdaine (1959) and Faltz (1961) have made comment on the second kind of novelty effect, that of the machine compared with conventional teaching methods. Indeed such comment even prompted new terminology such as "hardware effect" in educational literature of the time. The writer knows of only one study



to have investigated the motivational effect of machine design that of Silvermann and Alter (1961) and in their conclusion they said the experiment "provided no support for concluding that machines have motivational properties". (Silvermann and Alter (1961) pp 501 - 3) It must, however, be pointed out that their experiment had several limitations: the experiment was too short to demonstrate whether the machine might have long term motivational properties and also in the design of the experiment, two different programmes were studied in each of the two sessions. Perhaps the new programme could have contributed to the novelty effect.

"New and different teaching methods generally tend to be more effective than customary techniques though this is often limited to initial stages of application". (Fry, (1963) pp 83 ff.) To assess possible effects of this third type of novelty effect, researchers have made comparison between early and later machine based programmed instruction. Their concern was to show how novelty effect might influence early results. Porter in 1959 using a spelling programme over a period of 22 weeks contrasted results from the first part of the experiment with results from the second half. Papham (1962) using a mathematical programme contrasted results of a so called low novelty group with those of a high novelty group, the low novelty group having used a programme on algebra for one term three times a week and then a geometry programme in the same way; the high novelty group having experienced only the latter. Both investigators found no significant differences and concluded that novelty does not effect results. However, the experiments had limitations. In addition to studying end results, a measure of learning per session would have provided argument in favour or against a decline in motivation; also, in Papham's case there is again the problem of the introduction of a second programme which may have provided amongst the low novelty group some unmeasured "novelty effect".

Porter and Papham's conclusions are in contrast to other writers. Indeed, often without empirical investigation as to whether novelty does affect results, investigators assume that motivation does in fact decline and even make suggestions for preventing it. Eckstrand et al (1962), Carr (1959) and Barlow (1961) indicate that continuous reinforcement could well lose its reinforcing properties over a period of time. Different schedules of reinforcement and varying the amount and type are advocated (Becker 1963). Skinner in 1954 said, "if natural reinforcement inherent in the subject matter is not enough other reinforcers must be used". (Skinner, (1954), pp 99-113)

The suggestion that student motivation does actually decrease is admitted in the appearance of the term "pall level". The concept was developed by Rigney and Fry (1961) and defined as "the point at which the student loses interest in the subject and thus stops learning", (Rigney and Fry 1961, Supp 3) visible for example by an increase in errors.

What of the boredom effect? Studies of the so called boredom effect using programme instruction have been made by Mager (1961) and Mager and Clark (1963) who suggested that, "programmes are boring because their sequences are generated by programmers rather than students". (Mager and Clark 1963, pp 71 - 76.) Deese (1961) suggested that we need to know more about the "pre exposure" attitudes of students to the subject matter for it is likely that these attitudes will play some part in determining the students' attitude to learning. Indeed this might be highly pertinent to the question of teaching reading as is Skinner's remark (1958) that, "programming and machine instruction help to overcome emotional blockages", (Skinner, 1958, pp. 137 - 58.) - emotional stability being a pre-requisite of reading readiness.

It is also important to note that classrooms contain captive audiences and a communication on such an audience may be quite different

from its impact on a voluntary one (MacDonald 1961). If a child finds conventional instruction boring he may opt out and escape undetected. Using audio visual aids and allied programmed material does not provide this opportunity so easily.

If material used for audio visual aids is boring does this affect results? Again an unanswerable question because of the shortage of studies performed on it. The term "pall effect" suggests that boredom does affect results and that this can be measured, but the criteria for measuring "pall effect" are weak. However, should observation be made that audio visual material is becoming boring changes can easily be made, e.g. in difficulty of items, schedules of reinforcement and length of use etc.

#### Sex Differences.

Among the literature on sex differences affecting results in the use of audio visual aids in the teaching of reading, there is again little evidence but much speculation. Experiments conducted using programmes produced by Fry (1963), Larkin (1964) and Cresswell (1964) tended to produce results of girls making fewer errors and being more conscientious than boys working with textbook formats. The writer found support for speculation about the superiority of girls in early reading in the work of J. D. McNeil (1963) who lays emphasis on the need to standardize the conditions under which reading material is presented to girls and boys, and to ensuring that each have equal opportunities to respond. He compares the learning of boys and girls under the controlled conditions of programmed instruction with the learning of these same children under direct instruction by female teachers. The possibility is explored that teachers treat boys and girls differently and that this difference in treatment can be associated with differences in early learning achievement. The specific hypothesis is, "whereas boys excel in beginning reading under the neutral conditions of programmed instruction these same

boys will not maintain their superiority when placed under the direction of female teachers". (McNeil, 1963 pp 113 - 119). Further it is hypothesised that a) "boys will be perceived by their classmates as receiving more negative comments from teachers and as having fewer opportunities to respond in their reading groups than girls". (ibid, 1963. pp 113 - 119.) b) "reading progress will be related to teachers comments and to opportunities to respond". (ibid, 1963, pp 113 - 119) The study was conducted in two parts.

i) an auto instruction programme in reading was presented to kindergarten children followed by a criterion test of word recognition (programme taught words).

ii) There was a follow up study of these same children who were subsequently enrolled as First Graders under the direction of seven female teachers. Data regarding the progress of the children under teacher direction were collected by administering a similar criterion test of word recognition (teacher taught words) after four months instruction. Evidence of differential treatment to progress in reading was gathered by means of a questionnaire to teachers and a taped interview individually administered to the children.

Before the experiment began 132 children (72 boys and 60 girls) were given a pre-test of reading readiness which measured knowledge of letters and words to be taught by the auto instructional programme and the ability to recognize likeness in letters. The performance of boys and girls was not different on this test. All took part in the first part of the experiment and from this McNeil points out four relevant features.

a) boys and girls made individual responses and received individual confirmation.

b) pupils worked in cubicles so that interaction was not encouraged.

c) boys and girls were presented with identical frames

at a common pace and received the same taped comments of encouragement.

d) boys and girls were given equal opportunities to respond; the same number of responses was demanded daily from all learners.

Following the first part of the experiment the first post test was administered and contrary to the usual results from studies of beginning reading, boys earned significantly higher scores.

( $t = 3.65$   $p < 0.01$ .) At this stage of the experiment there were possibly two explanations for the unusual results. First that under usual classroom conditions boys received inequities in treatment not afforded by the machines. Second that the boys were more effectively stimulated in their desire to learn to read by the gadgetry of the machine. However, when the children were questioned individually about the machine instruction there was no difference in attitude between boys and girls.

In the second part of the experiment 49 boys and 44 girls took part. The study in no way affected the normal classroom procedures of the teachers concerned and the latter were unaware of the nature of the experiment, having merely been told that inasmuch as some of their pupils had taken part in a study of programmed learning, a follow up of the reading performance of the children was desirable.

The word recognition test given after teacher instruction was similar in format to the first test and administered in the same way. The correlation of scores earned on the two tests was 0.512, a value which is not high.

Following machine instruction boys showed a superiority to girls on a word recognition test measuring familiarity with words taught. After teacher instruction these same boys were inferior to girls on a similar test covering teacher taught words.

On examining changes in rank order on these tests it was seen

that 67% of the boys dropped in rank compared with 27% of the girls ( $\chi^2 = 15.6$   $p < 0.01$ ). It seemed likely that variables in the classroom situation might be present that militated against maximum performance by the boys. Teachers were asked to indicate on a five point check sheet each child's readiness and motivation for reading. The results from these showed that boys received more negative admonitions than girls ( $\chi^2 = 13.2$   $p < 0.01$ ), with respect to opportunity to read. ( $\chi^2 = 5.7$   $p < 0.05$ ). In motivation or readiness for reading boys were assessed more negatively than girls ( $\chi^2 = 6.74$   $p < 0.01$ ). The drop in rank order correlated 0.313  $p < 0.01$  with the number of negative comments while the drop in rank order correlated with deprivation of opportunity to read 0.238  $p < 0.05$ . McNeil felt that his hypothesis was supported and suggests that, "a study of the features of auto instruction may be useful in developing teaching procedures more appropriate for boys than those now commonly used". (Ibid, 1963, pp 113 - 119 ).

#### Age of Subjects: Experiments with Younger Children.

McNeil's experiment is important for another reason, as it is one of few conducted among young children. In 1963, Schramm had reviewed some 36 studies comparing programmed instruction and conventional teaching showing that the majority involved college students and only four referred to secondary school children. Thus although attractive claims are made for machine learning, little evaluative work has been done in the school age range, and where serious attention has been given to machine use in early reading, attention has tended to fixate on Visual Perception. Leith and Jones (1965) described how the inability of children aged 4 - 9 years to distinguish the letters d p and b was much reduced by a highly cued programme. The remarkable feature of the experiment was that, "two hours of this practice at the outside gave a degree of learning which two or three months of schooling was inadequate to achieve". (Leith and Jones, 1965, p.1.) Since the delayed post

test was given after a term this was an encouraging report, the programme's success was probably due to the fact that unlike many programmes of its kind it was adequately sequenced.

The evidence is finely balanced, however, as to benefits of elaborate pre reading training in individual letters. Meuhl found that, "children who received pre training in matching the same words that appeared in a later vocabulary list learned to read the words significantly better than children who received similar pre training with different words or with geometric forms". (Meuhl 1960, pp. 215 - 221) The conclusion from this study and from one by Staats, Staats, and Schutz are roughly consistent, and suggest that visual discrimination pre training with relevant letters as parts of the total word stimulus was more effective than with letters presented singly. Other useful studies are available, e.g. King, (1964) and there seems little doubt that children's visual perception of graphic symbols can be improved by the use of audio visual aids and allied programmes. However, are these experiments a case of "training to test"?

McNeil and Keilar (1963) studied the value of oral response in beginning reading. They hypothesised that, "beginners who are taught word recognition by a method which required oral responses to stimulus words would learn to recall, identify and comprehend more printed words and sentences than those children who might respond appropriately to the stimulus word without saying the word aloud". (McNeil and Keilar 1963, 32, part 2.) Children used in the study had an average C/A of 5 years and before beginning the experiment each child was given an intelligence test as well as a reading readiness test which measured knowledge of letters, knowledge of words in the programme and the child's ability to recognise likeness in letter configurations. An outline of the experiment can be found elsewhere, it is the results that are worthy of comment here. They showed that both

oral and non-oral forms of the programme were effective in teaching, but the oral group were superior. The interaction effects were not large enough to be significantly different in showing that oral responding was especially important for children of lower intelligence. However, it was suggested that "oral responding might have motivational properties for children of below 100 I.Q.". (ibid, 1963 32, part 2) The conclusion drawn is that oral responding is necessary for beginning reading and without vocalization the performance would be worse. Possibly speculation, although it is common knowledge that children do first learn to read with vocalization and perhaps in this field audio visual aids have a large role to play.

#### The Language Master.

In 1967 in conjunction with the Programmed Unit Learning System at Loughborough, Leedham began experimentation with the Language Master System. His published results lend further weight to the argument for using audio visual media in the teaching of reading. He devised five programmes parallel to five matching graded reading books. The idea was that by auto-instruction the child assimilated words, pictures and phrases by seeing and hearing the related symbol, word and sentence on the Language Master. The child then progressed to reading the graded books. Leedham's results showed that in a relatively short space of time reading ages had been improved by audio visual stimuli.

#### Audio Visual aids and the "Backward Child".

Keen and Anderson were critical of Leedham's research for relying heavily on phonic method. They said, "the lack of phonic order in English spelling makes this method inadequate as a basis for teaching reading". (Keen and Anderson 1967, pp 29 - 32.) They therefore compiled programmes where phrase units were used for the basis of comprehension. Using a "modified well-known reading scheme" the child was introduced to five phrases in each programme. A class of 39



children with ages ranging from 6.4 years to 7.0 years were considered for the research and the number of children used for the experiment depended entirely on the distribution of backward readers. The Holborn reading scale was used to determine the reading age of the whole class. To ascertain which children fell under the category of backward they followed the guidelines of the Min. of Ed. publication Reading Ability. Backward readers were defined as "those with reading ages more than 20% below their C/A". (Keen and Anderson, 1967, pp. 29 - 32.)

Of the 39 children tested 11 had reading ages equal to 100% of their C/A or above. 10 had reading ages of between 90% and 100% and 18 fell between 80% and 90%. Of these the 12 nearest the 80% line were chosen for the research. Slight's non-verbal intelligence test was administered to the selected children. The I.Q. of the children was then calculated. The I.Q. range was very wide and it was difficult to select matching pairs. Two groups were formed, an experimental and a control group. The experimental group were to continue their reading with the audio tutor. The control group would continue reading by traditional methods under the supervision of their class teacher. The audio group had two ten minute sessions daily, one morning, one afternoon, while the control group continued their reading according to the usual time allocated to them by the classroom routine. At six weekly intervals tests were carried out with both groups on the recognition of the new words learned. The recall of the audio group was greatly superior to that of the control group, and the results clearly showed that children in the audio group were benefiting considerably from the special tuition they had received. Keen and Anderson say, "the concentrated period of study, more than a child might receive in teacher tuition in a week, and the stimulus and incentive of an interesting reading programme were probably responsible for this". (ibid, 1967 pp. 29 - 32.) At the end of the twelve week period there was a distinct increase in the reading

ages of the audio group over the control group.

As a secondary influence the class teacher noted a significant improvement in the audio group's oral and written fluency. Their work appeared to have given them confidence to tackle problems which would have deterred them previously. Keen and Anderson suggest that the scheme might be extended to normal readers, "to allow the teacher more time to deal with backward readers". (ibid, 1967, pp. 29 - 32.)

The experiment indicates the supposed superiority of audio visual instruction over "usual classroom" teaching, but unfortunately the results are again suspect because of undefined variables. The researchers report that the audio group had the equivalent of twenty minutes a day devoted to reading development, but can the assumption be made that the control group had the same daily practice when they continued their reading according to the usual time allotted to them by the classroom routine? The writer would suggest the answer is no. The researchers do not give a specified time for the control group and thus the experimental conditions must be questioned.

McNeil and Keilar's mention of children of low intelligence and the report of Keen and Anderson's experiment lead conveniently to another area in which experimentation in the use of audio visual aids in the teaching of reading has been carried out, that is among slow learning children.

Beard in 1967 was experimenting with slow learning children. His initial results after two months use of a reading programme with 23 children aged 8.5 to 10.3 showed an average increase of 0.7 years on the Burt reading tests. He recorded a maximum increase of 2.1 years and a minimum of 0 years. Beard acknowledges that his experiments were not conducted under ideal conditions but emphasizes that "a programmed approach to reading not only increases the reading ability of a student but achieves it in an interesting and enjoyable manner". (Beard 1967, pp.72-73)

Read and Hayman's report of experiments in 1962, also recorded observations of "programmed learning" being an interesting and enjoyable manner of learning, but did not show the same indication of overwhelming success among slow learning children. They had set out using a programme of English grammar to answer four questions:

"a) Does this grammar programme as a learning instrument work equally well with pupils who have low academic achievement as it does with those who have average and high achievement?

b) How does learning compare between students following the programme and those involved in traditional learning experiences?

c) How long does it take for students of varying abilities to work through the programme?

d) Which parts are especially difficult?"

(Read and Hayman, 1962, pp. 476 - 484.)

As a result of the experiment it was discovered that the programmed course did produce substantial learning in all ability groups. However, it was discovered more effective with students of high achievement. Bright students in the experimental group scored higher on both standardized measures used than did their counterparts in the control group. On the other hand the low achievers who did not use the programme scored higher than those who did. With average students there was no significant difference.

#### Opposition to Audio Visual aids.

However, even in the light of some success in the use of audio visual instruction in the teaching of reading there are still its opponents. Rose (1965) says, "the problems involved in self learning have not yet been solved. Students frequently lost interest by the end of three weeks. They go through a programme apparently successfully, but learn little and do badly on the test. Teachers are wondering whether the programmes stimulate the right mental processes needed for learning.

The big question is whether this disappointment is due to the programme not matching up to the theory or the theory being wrong". (Rose, 1965, T. E S.) Unfortunately Rose does not substantiate his argument with evidence of empirical study but rather continues in sweeping generalizations with, "much of the assertiveness of early exponents of the method (programmed learning) is disappearing. The claim that programmed instruction provides so excellently in schools is not proving to be true". (ibid, 1965, T E S.) He quotes Thelsen as saying, "there are formidable problems that will have to be solved before an appropriate teaching method to allow pupils to proceed at their own pace can be solved. Programmes presently in use are certainly not doing so at all adequately". (Rose, 1965, T. E S.) However, Rose's generalizations would seem irrelevant if any weight is held by Skinner's remarks that, "it is not possible of course to evaluate either machines or programmes in general since only specific instances can be tested and available examples by no means represent all the possibilities". (Skinner 1965, pp. 17 - 18.)

#### Support for Audio Visual aids.

According to Tansley and Gulliford there should be four parts to a sound reading scheme:

- "a) reading readiness.
- b) acquisition of sight vocabulary of meaningful words.
- c) development of independent reading aided by the use of phonic analysis.
- d) development of speedy relaxed silent reading for content and ideas". (Tansley and Gulliford, 1960, p.1 ff.)

With regard to objectives listed b and c, an interesting experiment was carried out by Wright in 1966. The techniques used were in three parts.

- a) using a Tutorpack machine and tape recorder the children were given a basic sight vocabulary of words met in the first

books of the reading scheme.

b) using a Language Master this sight vocabulary was extended.

c) the Language Master was also used to give phonic training to those who were ready to benefit from it.

Wright reports that, "immediate post tests have shown that children were able to read the new words presented to them. There has also been a good deal of carry through to subsequent books". (Wright, 1966 pp. 74 - 80.) Each child's needs are met by individually designed programmes as the child aids himself to combat his difficulties and "the gain is not simply in the acquisition of the new skill but in the contribution which that acquisition can make to raising his opinion of his own capacity as a learner". (ibid, 1966, pp. 74 - 80.) Wright reports that once children learn to manipulate the machines they can complete programmes quickly and with a remarkable degree of concentration. He goes on, "on balance we feel that material is taught more speedily by programme than by exposition to the class or group by the teacher, whose efforts are sometimes marred by fatigue and frustrated by repetition. However, children who achieved a poor score after a lesson by the teacher, did no better when put on a programme. Post testing showed no significant difference in the level of achievement between those who had worked a programme and those who had been teacher taught. If anything the latter group did slightly better". (ibid, 1966, pp. 74 - 80.) Unfortunately Wright does not publish his results and in spite of his opinions still recommends the use of media for teaching reading whilst adding the detail that, "when the novelty has worn off it will be necessary to sustain interest by the inherent quality of the programme and by the enthusiasm and supervision of the teacher who can be dispensed with only in the short period". (ibid, 1966, pp. 74 - 80.)

If nothing else Wright's experiment reiterates the writer's

original statement that in many instances the reports of experiments show no significant differences between experimental and control groups when considering the question of the use of audio visual aids in the teaching of reading.

### Conclusion.

In conclusion though unsupported by empirical research the remarks of Davis 1952, are interesting. He says, "Audio visual aids have many values in reading instruction. Among the uses emphasized by reading specialists are the development of skills such as comprehension, vocabulary and the rate of reading and the development of appreciations and attitudes". (Davis, 1952, pp. 417 - 418.) Audio visual aids offer the teacher a means of providing common experience as a basis for reading. The devices may bring to pupils a great variety of vicarious experiences both of emotional and informational types. The audio visual tools may be used to present factual information dramatically and attractively thereby arousing the interest of the learner and facilitating the learning process. Pre reading training in visual perception and discrimination may be facilitated by various filmstrips and slides. Auditory discrimination may be prompted by the use of records. An experiential background of concepts and vocabulary can be expanded by the judicious selection from a wide variety of available films, filmstrips, slides, records and pictures. A wide variety of equipment can be used for developing sight vocabulary. Comprehension may be aided by the use of tapes, films and slides which emphasize word, phrase sentence and paragraph reading. Word study, auditory training, beginning phonics can all be promoted by audio visual aids. Background concepts for primary vocabulary can be supported by audio visual aids. The Tape Recorder finds ready use in the study of oral reading for diagnostic, remedial and developmental purposes.

While recognizing the value of such aids it must be remembered

as Adams says, "these aids, which are thus correctly named, are not methods but supplements to good teaching". (Adams, 1943, p.258.) However, some reading programmes are almost completely mechanised. There is no available evidence that any aid has ever taught an individual to read more critically or discriminatively. The more use of a variety of audio visual aids is no guarantee of improved reading achievement even though some subjects appear to have been induced to read more rapidly. To date most enquiries give weight to the claims that audio visual aids and programmed instruction may be as effective as more conventional methods of teaching even though often there is no significant difference between experimental and control groups. It must be remembered that often experiments have failed to equate the material taught, eliminate differences between teachers and take account of informal learning. Leith says, "even on the assumption that these conditions were not adequately achieved it seems likely that substantial learning can be achieved by machine and that savings can often be made on time taken to learn". (Leith, 1963, pp. 187 - 200.) However, the writer accepts the views of Lumsdaine and Glaser who say, "the process of learning and teaching can be made an explicit subject matter for scientific study, on the basis of which a technology of instruction can be developed. For the successful development of such a technology concerted attention should be given both to attempts at applied development and to careful, analytic research. The reciprocal interaction between laboratory research and practical tryout in the classroom seems bound to be fruitful". (Lumsdaine and Glaser, 1960. pp. 563 - 572.)

The use of audio visual aids in the teaching of reading has given rise to much speculation and considerable generalization, but there is still a great need for further empirical research before any justifiable conclusions as to its effectiveness can safely be made.

**CHAPTER 3.****Psychology and Audio Visual Aids.**



### Psychology and Audio Visual Aids.

Reading is part of the learning process and hence of interest to psychologists. Teaching machines have for various reasons attracted particular psychological attention and have for some years been a topic of discussion and experimentation; thus reading, teaching machines and psychology are intrinsically bound together.

Machines are in use in some schools to aid the acquisition of reading along with other skills and information and their use has created in the words of Mialaret "a new educational situation which gives rise to new types of behaviour on the part of teachers as well as pupils".

(Mialaret 1966 lff)

The act of teaching has short and long term consequences and audio visual techniques are simply one aspect of it. Indirect and direct effects in the teaching situation are created by using audio visual aids, and it is often difficult to separate them. In some instances it is the direct acquisitions which are most important. e.g. the learning of a group of words as part of a pre-reading programme, and the checks are easy to make. In other cases, however, audio visual techniques play the role of a sort of catalyst perhaps developing an attitude which will be used later. e.g. self reliance in the learning situation. Indeed this is often cited along with other elements, such as the individualisation of teaching and active participation in learning, as an advantage of audio visual aids and their allied programmes.

Fry says, "In the early days of programming and teaching machines a number of writers, perhaps misled by the experimental evidence available, speculated rather over-enthusiastically on the degree to which programmed learning and teaching machines might resolve the differences in learning rate among students and make possible an equalisation of learning for everyone". (Fry, 1963 p.83) It was often implied that all students could be brought to the same level of learning through the use of audio

visual aids though there would be a time differential between them. As further experimentation took place it was obvious that Utopia was not to be found and that audio visual aids were no more effective than the classroom teacher in establishing uniformity in such things as rate of learning, quality of learning and retention.

In the use of audio visual aids one comes into contact with basic concepts of psychology as applied to the learner and the learning situation. The writer in considering the use of audio visual aids is going to attempt to consider psychology in three broad areas.

- a) in terms of the environment.
- b) in terms of the aid and audio visual message.
- c) in terms of the individual.

Of these three perhaps c) is by far the most important and will be afforded most discussion.

#### a) The Environment.

It can be argued that the external surroundings in which teaching occurs may have a significant influence upon learning. However, the experimental evidence available does not conclusively favour either the closed booth or the open classroom. Skinner and his followers prefer to isolate the student from outside distraction as fully as possible. Others such as Roe (1960) found no significant difference in learning when booths or open classrooms were used and compared.

In considering the learning environment it is inevitable that the question of supervision should arise. There is not enough evidence for a final decision, but it seems likely that a teacher with a favourable or even neutral attitude towards audio visual aids can increase learning efficiency, even when he is not highly skilled in the subject matter being studied. First, the teacher can see that machines are properly used and can maintain a studious atmosphere. Second, he can praise, assist, explain etc. and keep the student working without discouragement.

Third, he can fulfil the need for regular study hours which is commonplace in most conceptions of good study habits and is equally applicable to the use of audio visual aids. The student is quick to reflect the teacher's attitude particularly in matters relating to learning and instruction.

Mialaret (1966) says "One of the first characteristics of the audio visual situation is the disequilibrium and deformation of the structure of the audio visual elements of the environment and the existence of the phenomenon of focusing". (Mialaret, 1966 p.1ff) What exactly does he mean by that? The proper reception of a recording or set of slides requires special environmental conditions. The intensity of any sound other than that coming from the aid must be reduced to the lowest possible level; the same is true in the case of the intensity of light. In both cases there is present a phenomenon of focusing which is different in nature from that of voluntary attention in the normal situation. In the latter case the attention originates with the individual and is directed towards the object. In the audio visual situation the attention aroused is a response to the nature of the "message source". Mialaret adds, "the force of this (the commanding nature of the message source) will be proportional to the difference between the stimulus intensity of the message and that of the rest of the room and attention is likely to be correspondingly intense". (Mialaret, 1966 p. 1ff)

#### b) Aids and the Audio Visual Message.

So much for the environment, what of the object of perception - the audio visual message. Sounds reproduced by sound equipment are never exactly the same as sounds of the human voice, because whatever the technical quality of the recording equipment distortion is inevitable. Particularly in auditory messages one must always consider the source of the sound, for good teaching will ensure that sound originates from a

position which gives maximum reception.

The sound quality of audio visual messages may be similar to that of "natural" messages but the former are always less perfect than the latter. Audio visual messages, while remaining natural to a certain degree, may be distorted in comparison with natural messages because of changes that may be made in them. e.g. a change in the time scale by speeding up or slowing down. The content of the message is another important consideration. Mialaret says, "Any message has a content which has been selected by its producer or else depends directly upon the reality that it represents. This is what might be called its density of information. Every message has a power of psychological induction thus the density might be considered in relation to the number of perceptions, emotions, ideas etc. which are produced in the person receiving the message". (ibid 1966 p. 1ff.) So much for theory, but how can it be demonstrated in a practical situation? Let one suppose that the audio visual message contains an objective piece of information X and that the psychological phenomena produced may be called  $x_1, x_2, x_3$  if related to X and  $y_1, y_2, y_3$  if not directly related to the content intended by the producer of the message. There are four possibilities:

1. X produces a single psychological process  $x$
2. X produces several psychological phenomena related to it  $x_1, x_2, x_3$ .
3. X produces perceptions, emotions, ideas which do not seem to have a direct connection with it  $y_1, y_2, y_3$ .
4. X produces in each individual different processes.

Let one consider further the first option. It may be good to reach uniformity in the interpretation of a message but there is a danger that it may be a result of passivity of reception and lack of imagination. To say that a message produces a single response means either that the message is so clear and well constructed that it produces a single interpretation whatever the individual conditions may be, or the uniformity of

the reaction may mean that the individual is only capable of establishing a single relationship with a single message perhaps due to bad teaching among other causes. The use of such audio visual message (an extreme case) may lead to short term results but can prevent the development of individual differentiation.

Really, the second option (2 on the previous page) is far more appealing for activity of this nature, is creative and active.

c) The Individual.

a) Intelligence.

The early belief that audio visual aids might resolve differences in intelligence may seem ludicrous in this present day yet it rests upon rather convincing evidence. In 1934 Little produced results of an experiment which seemed to indicate that the poorer college student was aided more by the use of teaching machines than was the better student. A study by Porter in 1959, revealed that in the teaching of spelling there was no significant relationship between intelligence scores and the achievement of the group taught with machines, though there was a significant positive relationship between these two factors when a conventional method of classroom teaching was used. This tended to suggest that traditional classroom techniques were most effective with brighter students and least effective with inferior students as measured by an I.Q. test. The students taught by machine did not demonstrate any such differential. The assumption was presumably made that the machine acted as an equaliser of the intelligence factor in learning.

These studies along with some others led to the initial belief that audio visual aids might well eradicate differences in learning capacity among individual students. However, later experiments carefully constructed and more highly controlled have gradually dissolved this belief. Silberman (1961) found that, "there was a positive and significant relationship between measured intelligence and amount of

learning". (ibid 1961 p. 166 - 172) Shay (1961) in his experiment found that intelligence was positively related to his post test scores at the 0.001 level of significance. Is there, therefore, good reason to assume that the only thing to do is to impugn the validity of the earlier experiments? A dilemma, for which perhaps a suggestion of solution is found in an experiment by Novland, Lumadaine and Sheffield (1949) who discovered an interesting relationship between the intelligence level of the subjects and the "activity feedback" procedure that was incorporated into their experiment. Bright students received little help from the feedback, slow students considerable help. This finding would indicate that learning differences would level off perhaps temporarily when teaching machines alone were used since slow students would learn comparatively more while bright students would not be helped much by the teaching process.

b) Perception.

The audio visual message should be constructed so that it is possible for the child to develop his perceptual activity step by step. There is an essential difference between the perception of reality and the preception from an audio visual aid. Piéron says "Perception is essentially an anticipation. Its usefulness is that it makes us anticipate the properties of the object which has entered our field of perception. Sometimes a very rough sensation is enough to enable us to perceive qualities in the object which are still not apparent provided that reference to familiar aspects is possible. A sensation becomes due to something which exists around us and causes us to deduce its properties". (Piéron in Mialaret 1966, p. 1ff.) The too frequent presentation of audio visual messages may result in developing an intense psychological activity which makes it possible to reconstruct reality on the basis of insufficient messages. Experiments have shown that animals raised in complete darkness lose all or part of their visual

sensitivity and that children accustomed to hearing only bass notes become deaf to treble notes.\* The teacher must therefore, be careful to develop the forms of sensitivity which are absent in the audio visual situation so that perception on the whole will not become gradually reduced due to the too frequent use of aids.

A person can read more slowly if he wants to understand better but often not in the audio visual situation; since the messages are transmitted at a given rate and the listener must adapt himself to the given speed. Words must first be recognized and thus a stage is introduced between perception and comprehension. Something analogous happens in the case of the child who does not recognize words he actually knows when pronounced by someone else or heard via a machine; immediate comprehension does not follow on perception and the general sense of the message is distorted. Hence the younger the child the slower must be the sound message - the important point being not the speed of a succession of syllables but the general rhythm of the sentence. Individual speech is made distinctive by the quality of the voice; speed and rhythm. Little research has been done on this subject and it would perhaps be interesting to know how a child identifies a voice heard on a radio or a tape.

#### c) Motivation and Rewards.

The immediacy of feedback is regarded as very important by psychologists and audio visual aids are capable of providing considerable psychological boost. By their use the learner is constantly being rewarded which is motivating and he is able to correct a mistake as soon as he makes it. Thus he will not persist in making and thereby strengthening erroneous responses. Fry makes the point somewhat stronger when he says, "Some psychologists say that teachers do not pay

\*R.Crunter; - D.R. Meyer, R.C. Miles and P. Ratoosh (Munn N. L. Fundamentals of Human Adjustment - Harrop 1961)

enough attention to this important principle e.g. in doing a reading comprehension exercise the student should know immediately after each answer whether or not he is correct before he proceeds to the next item, and not be given some vague lump score the next day". (Fry, 1963 p. 83ff.) However, it is inconceivable that a class teacher should be able to monitor sufficiently closely the behaviour of each of his pupils to correct every step taken in this way.

Motivational studies have tended to distinguish two features or concepts under the general heading of motivation, both of them apparently important in learning, and one of them more important in the use of audio visual aids in self instructional situations. The first is level of aspiration, which is associated with certain factors of the instructional goal per se and might be classified under the heading attitude to subject matter. The second is need for achievement, which would appear to be quite distinct from the idea of any specific goals, and implies rather a connection between the learning task characteristics and the desire to succeed within a given and limited area or a sense of avoidance due to a feeling of failure. This need for achievement involves a desire to do well, to work fast and correctly, and to excel in competition. The relationship between level of aspiration and achievement score appears to be highly complex but some possible factors associated with it were suggested by Atkinson (1957) who argues that motivation included three key concepts -

- motive
- expectancy
- incentive

(Atkinson, 1957. p.p. 359 - 72)

The implication of Atkinson's work is his assumption, based on experimental findings, that there is an inverse difficulty and avoidance value where incentive is concerned. The harder the task the more valuable is



success. This is of direct relevance to audio visual aids in the instructional process and the question of error, rate and boredom. Gray (1964), in an investigation of motivation with retarded readers using programmed materials, found that students from the economic middle class as a general rule maintained a high level of achievement in all tasks irrespective of rewards, whilst students from the working class families apparently worked best where there were tangible rewards.

Of course no real discussion of feedback can be made without reference to the valuable work of Skinner. To him reinforcement is a basic factor in learning which he recognises as being of two different kinds. They are different because each involves a separate kind of behaviour. Respondent behaviour is elicited by specific stimuli. Given the stimulus the response occurs automatically. Skinner maintains, however, that most behaviour is of a different sort. This kind he refers to as operant behaviour. Furthermore Skinner maintains that if an operant response occurs and is followed by reinforcement, its probability of occurring again increases. Although Skinner is largely concerned with positive reinforcers he also recognises the existence of negative reinforcers. Negative reinforcers are adverse stimuli that the individual seeks to avoid. Whereas reinforcement results from the occurrence of a positive reinforcer it results from the termination of a negative reinforcer.

Skinner has shown much interest in the application of learning principles to practical situations, his most notable and pertinent to this study being in the field of programmed learning. Here he readily demonstrates the importance of reinforcement and reward - a machine can be programmed to reward a correct response immediately and thus the learning is reinforced. If a pupil has to wait for a teacher, however, the effect of the learning may be diminished as reward may be some time in coming.

Discussion of Skinner's work could proceed almost indefinitely.

However, suffice it to say that there is no doubt, however favourably or otherwise his contributions may be considered, that he has made considerable contribution to both the pure and applied psychology of learning.

d) Novelty Effect.

New or different teaching methods generally tend to be more effective than customary techniques though this is often limited to the initial stages of application. Ultimately the new technique may be decidedly inferior to the old as measured by student learning. This novelty effect is obviously present in the use of teaching machines and the problem of separating novelty effect from genuine interest generated by audio visual aids is a complex one. Skinner and Holland (1958) pointed out that students seemed to enjoy teaching machines and they believed this liking was a product of the immediate knowledge of results which machines provide. Again, however, it is possible that some of this liking stems from the novelty of the technique. Further discussion of this particular aspect is made in the Chapter reviewing Pertinent Literature.

e) Pall Level.

A most significant conception is the idea of a "pall level", a point at which the student loses interest in the subject and stops learning. It embodies a view that it is not always sheer physical fatigue which inhibits continued learning, but an inter-relation between student and aid. e.g. if steps in a programme are too small and the concepts too simple the student will lose interest and stop working; or at the other extreme if the steps are too large and too much frustration is engendered, then the student will reach a "pall level" and stop working. Consideration of empirical research on this point has already been made in the preceding chapter. It is only mentioned here by way of emphasis of its importance as a psychological consideration.

f) Learner Readiness and Progress.

This is often indicated as one of the advantages of machine instruction. Readiness to receive information is naturally a prerequisite to its efficient absorption, but such readiness must frequently be lacking in the conventional teaching situation, for it is unlikely that the teacher will be able to assess how long the pupil requires to process one item of information before receiving the next. As a consequence of this the pupil must often sacrifice either the thoroughness with which he processes information or the amount of information he takes in. Accidental lapses of attention e.g. in day-dreaming will be less of a handicap where the self pacing technique is used, for the pupil will be able to take up his learning from precisely where he left it. As Cronbach says (1962) machine instruction "takes the principle of readiness more seriously than does any other teaching procedure. Ideally the pupil moves to a new idea only when he has individually demonstrated his intellectual readiness for it". (Cronbach, 1962 p. 163 - 179)

Lessons taught by a machine can be adopted to the idiosyncracies of the learner with a rigour and promptness that might well be beyond the capacity of even an individual human tutor. Learning can be programmed to take place in a predetermined order and provide a variety of different learning sequences, each pre-arranged to suit the requirements indicated by the responses of different learners.

g) Response Demand.

This feature of the teaching technique as found in audio visual aids can be seen to have three advantages. First, the effect that the instruction is intended to produce is a change in the learner's capacity for responding, so what better way to achieve this than by giving him practice in responding. Second, since he is at every stage asked to respond in terms of information received, the learner is forced to attend to each piece of information. Third, in subjects in which the parts are interdependent e.g. reading, this continual testing at each stage

steps to ensure that the learner will not proceed without a mastery of basic essentials to a point at which their lack would lead to repeated failure.

h) Interpersonal Factors.

In several areas audio visual aids have a role to play. It is supposed by some educationalists that some pupils may never be capable of happy interaction with the usual teacher in the usual classroom situation. Also in the use of audio visual aids there would be less victimisation of the slow worker since it would no longer be necessary for him to keep pace with the rest of the class. The individuality of audio visual instruction reduces competitiveness. Where all pupils are taught by the same teacher there is a tendency that pupil's progress can be compared, and that their degree of progress is regarded as important for it is relevant to the teacher's convenience. Also progress is publicly known. These conditions are conducive to competition and this is frequently used by the teacher as an incentive. Competition can be put to good use and those who believe that the competitive element in classroom learning contributes substantially to student motivation sometimes express the fear that the absence of this condition in the use of certain audio visual aids is a handicap to the technique. Actually there is no need to accept this view for the pupil is always pitted against the machine, and the effort to do one's best calls out the student's best effort, and indeed may be a better motivator than a classroom which does not demand the extreme limits of the pupil's capacity. Moreover, competition does have two undesirable effects. First, it tends to oust genuine interest in the matter to be learned. Second, weak learners may give up striving in a field in which they have already failed to "measure up" and often they develop towards learning attitudes of hostility which protect them from the discomfort of working but not achieving success. Where audio visual aids are used pupils will be able

to follow different courses. The class teacher will not have the problem of regulating the rate of learning and finally the instructional process will be a private matter between each pupil and his aid so that the weak pupil will have less need to adopt a "failure" role and there will be less point in his doing so.

1) Personality.

For some considerable time now there has been consideration in the use of audio visual aids and in the conventional teaching situation of differences in personality characteristics among students. A dominating confident person will attack learning quite differently from a submissive or unsure person. The relation between personality and the effect of errors on learning is another point to be considered; an experience that will discourage one student may only act as a challenge to another.

2) Biologic Factors.

As with personality it is well known that biological factors such as age, sex, health etc. influence the learning process. The question whether they have greater influence on conventional learning than on the use of audio visual aids is, however, worthy of discussion. Common sense tells one that there are bound to be limits to the degree to which biological factors can be disregarded whatever the teaching situation. Experimental evidence seems to indicate that if it is possible to teach a few exceptional children to read much earlier than usual, it is useless to provide reading instruction for most children until they have matured sufficiently to accept it. Newer techniques may alter this pattern to some degree, but it is doubtful that the fundamental maturation pattern in man can be altered, or its limitations ignored.

Sex differences do affect learning patterns and this fact is of some significance in the use of audio visual aids (viz McNeil).

Fatigue is a problem also to be considered; the length of a lesson must be such that it avoids excessive fatigue and yet permits maximum learning efficiency. Perhaps this argues in favour of the use of teaching machines for short spaced time periods each within the capacity of the student.

k) Previous Learning.

The nature of the student's background may well determine the success of any attempt to learn whether in the conventional manner or in the use of audio visual aids. Previous knowledge influences learning even if the previous knowledge is only vaguely related to the new knowledge being acquired.

**CHAPTER 4.**

**Audio Visual aids, reading and the Child.**

**A Series of Empirical Investigations.**

**a) Language Master**

**b) Tape Recorder**

**Conclusions.**

## Language Master Experiments.

### Introduction.

The Language Master system was devised some twenty years ago and is an important accessory to some primary school classes. Material is readily available, for it is of a commercially produced nature, and is simple enough in use for the reception infant. Material can be easily produced by class teachers and in comparison with more sophisticated hardware cost is relatively cheap. It is, therefore, not surprising that it should be chosen as a machine for particular consideration in the course of this study to ascertain its effect in teaching an initial sight vocabulary and in building up a child's phonic ability with the specific aim of improving his reading age as measured on a standard word recognition test. In the first two experiments the hypothesis tested is, "Is the Language Master more effective than the teacher in establishing word recognition"? In the third experiment the hypothesis is, "Can the use of Language Master in conjunction with certain phonic blends raise a child's reading age (as measured on a word recognition test) within a limited space of time"?

### Experiment, using Language Master in Word Recognition with Reception Class Children.

Hypothesis. "Is the Language Master System more effective than the teacher in establishing an initial sight vocabulary".

### Subjects.

A selection was made for an initial study of thirty two children beginning school for the first time in January 1976. Some children were already five, others would be five before the end of April 1976, and one child would be five in July 1976, having been admitted to school early on the advice of the area psychologist as he had a severely retarded elder sister. Selection for the experiment was made in the hope that the children would not have been subject to too many



previous influences and variables and their reading achievement could therefore be more easily compared. Some had older brothers and sisters in school but it was established that only 4 of the 32 children had already met Ladybird readers and in only one case did this appear to be important.

#### Procedure.

The children were divided into 2 groups of 16 children, each group containing two of the above mentioned 4 children and as far as possible an equal number of male/female, younger/older children. One group was to be experimental using the Language Master system alternating with teacher flash card instruction. The other group was a control group receiving daily instruction from the same teacher with identical flash cards to the language master cards. The experiment was arranged so that the control group would be exposed to the same study time for each word as the children using the Language Master, the teacher providing the voice stimulus which the Language Master provided. The children using the Language Master were instructed in how to use the machine and then left to work alone, having been encouraged to watch the words as they passed through the machine. The children in the control group were given the same instruction by the teacher at the beginning of each session. Although present throughout the rest of the session, the teacher gave no repeated instruction to look at the flash cards. Thus children in both groups had the same opportunity of attending to or disregarding the word that was presented to them.

After each fourth session the children were tested individually by the teacher using flash cards. The children were encouraged to make a response to each word and every child was exposed to each word for an equal time.

#### Results.

After the first such test it was decided to exclude one child

from the study. He had obvious pre school experience of the words used, and having responded correctly to all words it was decided to place him on a reading book and exclude him from any further comparison.

On the first test it was observed that without exception the children who had been exposed to the Language Master were more confident in attempting the word recognition. Children in the control group were working in a group of less than sixteen for the first time and were somewhat hesitant in making response and seemed slightly more anxious in the situation. The children in the experimental group had already worked in groups of two for the Language Master instruction.

Omitting the excluded child the range of recognition was from 0 - 9 words. Only two children in the experimental groups failed to recognise any words. In the control groups the number was four.

By the end of the second week only one child in the control group and none in the experimental group was failing to recognise any words. All children in both control and experimental groups increased their score but there was an expected failure to recall odd words apparently known the week before. This applied to all groups equally. The experimental group still worked with greater confidence and showed a mean recognition of 4.4 as compared with the control mean 3.7. The range was now 0 to 9 words for the control group and 1 - 12 words for the experimental.

During the third week of the experiment all children received standard flash card instruction and no test was administered, the experimental conditions being reintroduced in the fourth week. By the end of this fourth week there were no children in any of the groups failing to score on the recall test. A hard core of words was now being retained by most children in all groups although "forgetting" was still noticeable. Only one child failed to increase her score. It was now more noticeable which words were being consistently confused by

a number of children. e.g. Peter and here; in and is; and this applied to both groups. The words most frequently recalled were character names, single letters "a" and "I" and object names "ball" etc. The range of words in the control group was now 1 - 12 as compared with 2 - 14 in the experimental group. Relative means are recorded in Appendix A table 1.

By the end of the fifth week all children seemed entirely happy with their learning situation. Children attempted words much more readily. Results continued to improve with a range of 3 - 16 being recorded for control and experimental groups alike. However, the mean scores of the latter continued to be higher. The mean scores of all groups may have been affected by considerable absenteeism.

The children had all had a week's holiday before returning to the final week of the six week experiment. The results at the end of the week showed a great improvement for all children, with four children from the experimental group and two children from the control group now having complete word recognition of the 16 words in the experiment. The range for the control group was 3 to 16; the experimental group 5 to 16.

As a secondary study, in the light of McNeil's work into the plight of boys learning to read it was decided to compare the relative mean scores of boys and girls within both the control and experimental groups. The results appear in Appendix A table 3, and would seem to refute McNeil's findings that boys learned better with audio visual media, and certainly suffered if taught by female teachers. In the experimental group the girls were consistently higher than the boys whilst in the control group there was considerable fluctuation. The girls of the experimental group recorded consistently higher scores than the girls of the control group but in the case of the boys there was again considerable fluctuation. Note must be made that the scores of weeks 4 and 5 may have been affected by absenteeism although this was not confined to any

particular group and was relevant to all scores during these weeks.

Although a superficial comparison of straight mean scores within the groups would tend to lend weight to the hypothesis that children would learn to read quicker using the Language Master system it is of course necessary to submit the scores to statistical analysis before any valid conclusions can be drawn. After the first week of the experiment a t test for independent samples was administered to find out whether the groups were matched. The results showed that the control and experimental group were not significantly different (Appendix A Table 4) When compared by a t test at the end of the experiment a similar result was obtained (Appendix A Table 5) supporting the null hypothesis that there was no difference in achievement due to training. Using a Wilcoxon T test (Appendix A Table 6) and comparing the progress of groups within themselves at two weekly intervals the improvement both with experimental and control groups was significant.

Perhaps the learning of 16 words is too small a number for an experiment to be significant. Other experimentation later may clarify this point.

Second word recognition experiment using Language Master - Sept. 1976.

Hypothesis. Is the Language Master system more effective than the teacher in establishing an initial sight vocabulary.

Subjects.

Twenty-nine children were registered for school entrance on 29. 9.76. It was hoped that these twenty-nine would form the sample for further experimentation in word recognition and its advancement by the use of the Language Master system. However, as two of these children were to be on holiday for the first two weeks of the proposed study it was decided to omit them from the experiment and draw matched control and experimental groups from the remaining twenty-seven.

A close study was made of the children's chronological ages.

On entry to school, twenty-two had already had their 5th birthday and of the remaining five four would be 5 years old before the end of September and one would be five the following January having been admitted to school early on medical grounds. (for detailed analysis see Table a). The sample contained a set of twins, a boy and a girl, the former being allocated to the experimental group and the latter to the control group. By accident, with the already mentioned exception, the children's birthdays were evenly spread between May and September, one being in May, six being in June, seven in July, eight in August, four in September and one in January, and although the number of boys and girls differed, there being sixteen boys and eleven girls, it proved relatively easy to match them according to sex and age into two matched groups. The Language Master group contained eight boys and five girls and the Control group eight boys and six girls. The distribution with regard to birthday and sex is detailed below.

Table a.

Month	Experimental	Control
May		Boy
June	Boy, Boy, Girl	Boy, Boy, Girl
July	Boy, Boy (twin) Girl, Girl	Boy, Girl, Girl (twin)
August	Boy, Boy, Girl, Boy	Boy, Boy, Girl, Girl
September	Boy, Girl	Boy, Boy
January		Girl

Prior to the children starting school the parents had been asked to reveal any previous reading experience of their child so that this might be considered in matching. Then upon entry the children were tested and with the exception of one child who recognized Peter and Jane at a first glance but failed to recognize them again, the response to the words presented was negative.

## Materials

It was decided that the children would be required to learn twenty-two words, sixteen were the words as found in the first book of the Ladybird scheme, the other six were plurals or capital forms of these words which appeared in the text of the first reading book but not in the vocabulary test which accompanies it. The words used in the experiment are detailed below.

### Table b.

Peter	Jane	I	shop	shops	and	like	likes	a
A	toy	toys	dog	tree	ball	the	The	in
is	here	Here	has					

Total: 22.

### Procedure

As already indicated the children were divided into two groups, a control group of fourteen (8 boys and 6 girls) and an experimental group of thirteen (8 boys and 5 girls). The experimental group used the Language Master system alternating with teacher flash card instruction, whilst the control group received daily instruction from the same teacher with identical flash cards to the Language Master cards. The experiment was arranged so that the control group would be exposed to the same study time for each word as the children using the Language Master, the teacher providing the voice stimulus which the Language Master provided. The children using the Language Master system were instructed in how to use the machine and then left to work independently, having been encouraged to watch the words as they passed through the machine. The children in the control group were given the same instruction by the teacher at the beginning of each session, and although present for the rest of the time the teacher made no repeated instruction to the children. Thus as far as possible the children in both groups had the same opportunity of responding to or disregarding each word as it was presented to them.

The experimenter decided to run the experiment for four weeks as this would correspond with the time at which the children would break up for the half-term holiday. It was also decided that the children would be tested on three occasions, at the end of the first, second and fourth weeks. They would be tested individually by the teacher using flash cards. Each child was encouraged to respond to each word, and was shown each word for an equal length of time.

### Results.

At the time of the first test it was noticeable that all children had a maturity that was not found amongst children used in the first experiment nine months ago. There appeared to be no difference in the confidence with which they attempted word recognition, whether they had been working with the Language Master and teacher, or purely with the teacher. This was particularly noticeable as the tester was working with the children for the first time and was not the teacher from whom they had received instruction.

In both groups, from the point of view of the children learning to read, the results were encouraging. In the control group when the first check was administered, scores ranged from one to fifteen with a mean of 5.2 whilst in the experimental group scores ranged from one to fourteen with a mean of 6.5. A t test was administered and produced a result of  $t : 0.787$  (not significant at any level) Appendix A Table 7.

By the end of the second week all children in the experimental group and all but two (the highest and lowest) in the control group had increased their scores. The range for the latter was now one to fifteen with a mean of 8.9 and for the former a range of three to nineteen with a mean of 10.9. A t test was administered with the result of  $t : 1.354$  (significant at the 0.20 level) Appendix A Table 8. The significance was not high but with the number involved in the sample and

the number of words to be learned one wonders whether a higher significance could be expected.

A two week period elapsed before the children were tested for the last time. By then three children from the control group and five from the experimental had a knowledge of all the words and had been allocated reading books. All children had shown an increase in their word recognition ability, the control group now recording a mean of 12.5 words and the experimental 15.1 words. The final scores were tabulated and a  $t$  test administered. The value of  $t$  was  $t : 0.974$  (not significant at any level) (Appendix A Table 9). Despite the tendency of  $t$ , perhaps it was fair to say that as an aid the Language Master had performed its true purpose. It was felt it had aided children in faster initial word recognition but with an ultimate score possible for all children and not an on-going improvement it was inevitable, indeed desirable, that the two groups should eventually become parallel and the difference between them be insignificant.

If the progress of each group between week one and week four was compared separately within each group, the progress of the control group was significant at the 0.01 level ( $t : 3.318$ ) (Appendix A Table 10), that of the experimental group was significant at the 0.001 level ( $t : 3.836$ ) (Appendix A Table 11)

Two final analyses were attempted, first by taking the first week's results and balancing the children in each group using  $N : 12$ , and second using matched pairs. In the first analysis with balanced groups a result was rendered of  $t : 0$  (Appendix A Table 12) for the first week and  $t$  scores of 0.618 and 0.253 (Appendix A Table 13 and Appendix A Table 14), for weeks two and four respectively. Neither of these results was significant.

In the last analysis a Wilcoxon matched pairs signed-ranks test gave a similar indication since neither a value of 10.5 ( $N : 6$ ) (Appendix A



Table 15) on the first week nor a value of 43 (N : 11) (Appendix A Table 16) on the last week gave a basis for rejecting a null hypothesis. Reading Experiment using Language Master and phonic digraphs; Sample of 7 year old children.

### Hypothesis

The experiment was conducted to discover whether in a limited space of time it was possible to raise a child's reading age (as measured by a standardised test) by practice with words on the Language Master.

### Materials

From a study of several reading schemes \*1 and reading tests \*2 it was apparent that the logical acquisition of certain phonic blends was what was tested by the standard reading test, and what thus constituted a measure of reading ability. These blends were isolated viz: short vowel sounds, initial consonant sounds, consonantal blends br, sl-, cr-, -ft, -ll, -st, etc., vowel and consonant digraphs: th, oo, er, ay, ch, etc; the long vowel sound caused by the addition of the letter 'e' e.g. line; shr, spl, gn, kn, etc.

Once the sounds were isolated, a list of words from reading schemes used by the children was drawn up. These words contained common sound blends. Care was taken that no word was given that was actually found in the reading tests administered unless it had been encountered in the reading scheme at a reading level below that of the lowest child in the experiment. The only words that fell in this category were eggs, flowers and biscuits.

### Subjects

Schonell and Burt reading tests were administered to thirty children average chronological age 7 years 4 months and their scores were recorded. From a consideration of both scores for each child the children were divided into two groups;

- \*1. Ladybird, Kathy/Mark, Happy Trio, Happy Venture, Beacon, Wide Range, Flamingo, Dolphin.
- \*2. Schonell, Burt, Neale etc.

Table can experimental group.

No. 15 C.A. 7 yrs. 4 m. R.A. Schonell 7 yrs. 1 m. - 10 yrs. 2 m.  
 (mean 8 yrs. 1m.)  
 Burt 6 yrs. 8m. - 9 yrs. 6 m.  
 (mean 7 yrs. 7m.)

and a control group.

No. 15 C.A. 7 yrs. 4 m. R.A. Schonell 6 yrs. 8 m. - 10 yrs. 1 m.  
 (mean 8 yrs. 0m.)  
 Burt 6 yrs. 4 m. - 9 yrs. 10m.  
 (mean 7 yrs. 8m.)

(See Appendix A Table 17)

Each group contained a cross section of children with regard to chronological age and reading age, so that the groups were comparable as far as possible. A t test was administered and it was discovered that in both Schonell and Burt there was no significant difference between the groups. (Appendix A Tables 18/19)

Procedure

It was decided that for the time of the experiment the experimental group should continue with their normal classroom activities reading to the teacher an average of three to four times per week. They would also receive daily self instruction of the words on the Language Master. As the children were already used to using the system no particular instruction with regard to the words was given and the children passed them through the machine and responded to them in the usual way. There was no teacher tuition.

The control group continued to read to the teacher as usual three to four times per week. Care was taken that their reading to the teacher paralleled exactly that which the experimental group made. If a child in either group completed a reading book of their reading scheme during the course of the experiment they continued with the next book as was normal classroom practice.

Results

At the end of five weeks the experiment was concluded and all the children were retested on both the Schonell and Burt tests. (See Appendix A Table 17).

Table d.experimental group.

No. 13 C.A. 7 yrs. 5m. R.A. Schonell 7 yrs. 5m. - 11 yrs. 4 m.  
(mean 8 yrs. 8m.)

No. 15 Burt 7 yrs. 0m. - 10 yrs. 11m.  
(mean 8 yrs. 5m.)

control group.

No. 14 C.A. 7 yrs. 5m. R.A. Schonell 6 yrs. 11m. - 10 yrs. 8 m.  
(mean 8 yrs. 1m.)

No. 14 Burt 6 yrs. 7m. - 10 yrs. 2 m.  
(mean 7 yrs. 11m.)

It was interesting from a study of the means to compare the progress of the two groups during the course of the experiment.

Table e.experimental group.

	1st R.A.	2nd R.A.	Gain after 5 weeks
Schonell:	8yrs. 1m.	8yrs. 8m.	0yrs. 7m.
Burt:	7yrs. 7m.	8yrs. 5m.	0yrs. 10m.

control group.

Schonell:	8yrs. 0m.	8yrs. 1m.	0yrs. 1m.
Burt:	7yrs. 8m.	7yrs. 11m.	0yrs. 3m.

The greatest increase in the experimental group was an increase of 1yr. 2m. on the Schonell test and 1yr. 5m. on the Burt test. In the control group maximum rises were 0yr. 7m. and 0yr. 8m. in the respective tests. Of children in the experimental group all showed an increase in reading age when the pre and post test scores were compared. Infact a Wilcoxon T test showed their performance significant at the 0.01

level in each test. (Appendix A Table 20). However, in the control group, whilst most children increased their reading age on the Schonell test and the result appeared significant at the 0.01 level, on the Burt test three children showed a 3 months' deficit. A Wilcoxon T test showed that their improvement as a group was not significant at any level (Appendix A Table 21).

At the end of the experiment a t test was again used to compare scores. On the Schonell test the results were significant at the 0.20 level (in two tailed test  $t = 1.410$ ) (Appendix A Table 22), but a t test applied to the Burt scores revealed a score of  $t = 1.22$  (Appendix A Table 23) not significant at any level.

Whilst it is to be expected that children of this age and at this stage will make advances, it does appear that those using the Language Master showed a tendency to increase their score by comparison with their peers. One might suggest that their rapid improvement in learning was due to the novelty effect of the machine except that the use of the Language Master was no novel experience for the children concerned. The "Hawthorn" type of effect, though possibly the most difficult to assess, can probably be ruled out because the Language Master was a normal feature of the children's classroom and thus the children would hardly be aware that they were taking part in an experiment. As for the possibility of a novelty effect related to the machine itself the experiment would echo Silvermanns and Alter's finding in 1961<sup>4</sup>, "there is no support for concluding that machines have motivational properties", since the children had used the machine on many previous occasions.

Of course a research worker must exercise caution in the interpretation of encouraging results especially from short term experi-

\* Silvermann R.E. and Alter M. (1961) Response mode pacing and motivational effects in teaching machines. Tech. Report NAVTRADEVGEN 507-3 U.S. Naval Training Device Centre New York.

ments and it would be interesting to re-test the children following a six week holiday period. In this instance it was not possible as the children were by then attending other schools.

However, because the level of significance in the t test at the end of the experiment was so low it was decided to compare pre and post experiment scores of the control group with itself and likewise the experimental group. Here there was found to be considerable difference in the results. In the control group the comparison of the scores with regard to Schonell rendered a t result of  $t = 0.495$  which is not significant (Appendix A Table 24). A similar result was found on the Burt scores where the same interpretation was given for a t result of  $t = 0.372$  (Appendix A Table 25). However, the experimental group returned significant differences in both tests. On the Schonell scores a t result of  $t = 1.602$  was significant at the 0.10 level (Appendix A Table 26), and on the Burt scores a t result of  $t = 1.94$  was significant at the 0.05 level (Appendix A Table 27). It would appear from this that the Language Master could aid the acquisition of a significant gain in reading age over a short period of time.

MARCH - JULY 1977      An Experiment in the Use of Reading while

Listening with Children aged 6 - 7 yrs. using Cassette Tape Recorder.

Introduction.

Listening while reading, the method by which a teacher reads from a text and a child follows word by word using his own book, has been an accepted method of teaching reading for well over 100 years. It has not always been a popular medium, and even at the time when it appeared invaluable in preparing children to satisfy the inspectorate, it was criticised in that, "it reduced reading to a mere mechanical accomplishment". (Neville and Pugh 1974) There was a natural growth away from it in the early 20th century as emphasis grew on silent reading and the

development of comprehension, but slowly interest in it as an aid to reading has grown again. The surge in the use of audio visual aids in the last 20 years has meant considerable marketing of materials recorded to aid the acquisition of listening skills and as a sequitor reading skills e.g. Tansley has marketed "Listening to Sounds" and his "Phonic Programme" for use with both cassette recorder and synchrofax machine, and the Ladybird publishers have produced material related to their reading scheme for use with the Language Master system. The B.B.C. produce tapes and texts for listening and reading at two different levels aimed at children in Primary and Middle schools. Unlike conventional reading schemes the vocabulary is not restricted it being argued that, "a restricted vocabulary can make a book so dull as to convey to children the clear message that reading itself is not deeply worthwhile". (B.B.C. 1972, page 7)

Thus there has been a commercial revival of the listening and reading method, but does this make the criticism levelled at it as a method of teaching reading in Victorian England any less valid? Comment and evaluation on the method as afforded by the B.B.C. tapes abounds. Indeed after each series teachers and pupils are asked to comment on the broadcasts and generally their opinion is favourable. However, empirical evidence as to the suitability of the material and the efficiency of the method is a "little thin on the ground". viz. Chomsky (1974) Neville and Pugh (1974) Sticht et al (1974). These writers suggest that slowing rate is of help to some people for reading while listening, Neville and Pugh (1974) add that, "there are also grounds for thinking that listening while reading may be an aid to fluency for readers at a certain level of attainment or stage of development". (ibid 1974) The stage they refer to is the aural stage from Goodman's model of three stages of reading development. (Goodman 1968) Neville and Pugh state that, "at the aural stage the child may benefit from having aural input provided by

a tape, since this gives him experience of fluent reading by reducing the amount of mediation which he must provide". (ibid 1974)

This statement posed the first question which the present research attempted to find an answer to:

1. Does listening and reading help to improve reading fluency?

Two further questions were posed:

2. Does listening and reading aid accuracy in reading?
3. Does listening and reading aid the development of comprehension?

### The Study.

#### a) Subjects.

At the end of March 1977, twenty-two children aged 6 - 7 years were tested for reading ability using the Burt Word Recognition test. Their scores and reading ages were tabulated and these results together with chronological age, sex and a subjective assessment of reading fluency and comprehension enabled them to be divided into two parallel groups. The groups were compared using a standard t test and there were no statistically significant differences between them, the t score being  $t = 0.007$ . (Appendix A Table 28). One group was arbitrarily designated the experimental group and the other group acted as a control. The roles were reversed in a second experiment. All children had a reading age below their chronological age.

By the time the first experiment got underway the number had been reduced to eighteen. One child had left the school and one was away on holiday. They were thus dropped from the study along with the two children comparable to them in terms of the criteria on which they had been matched.

#### a) Materials.

The experimenter chose to use material from the Neale Diagnostic Reading Test, as this would enable scores to be collected, tabulated and compared in a standardised form. An arbitrary decision

was made to use forms A and B, the former for the first experiment and the latter for the second.

The first four passages of forms A and B were recorded at a speed of 104 words per minute and read with no marked regional accent.

c) Procedure.

Each child was given a passage to read in turn until he reached his ceiling according to the guide-lines laid down in the Neale Diagnostic Test manual. The control child had to read the passage for himself unaided while the experimental child read the passage with the tape recording. The tape was only played once and then the experimental child attempted to read the passage to the tester who recorded scores for errors and time in accordance with the manual. Upon completion of reading the child was asked appropriate comprehension questions as laid down up to the passage in which he reached his 'ceiling'. A score was thus recorded for each child for accuracy, rate and comprehension.

The control child was absent for the length of time that this whole procedure took and was studying the passage unaided. It was recognised that the period of study for the control child rested upon the length of time taken by his experimental partner. This of course varied from pair to pair but was felt to be fair within each pair. Since fluency had been taken into account in matching the children it was felt that it was fairer to allow the control child time according to the speed of his partner rather than allocating a set time, especially as roles were reversed when the experiment was run for the second time.

Results.

Table f.

<u>Study</u>	<u>Group</u>	<u>Pre Test</u>			<u>Mid Test</u>			<u>Post Test</u>		
		X	N	SD	X	N	SD	X	N	SD
1	Exp.	26.5	9	11.74	31.8	9	12.67			
	Con.	26.1	9	10.94	28.8	8	10.14			
2	Exp.				28.8	8	10.14	33.2	9	10.16
	Con.				31.8	9	12.67	33.4	9	11.83



Means and standard deviations for the Burt Tests using raw scores for all groups in both experiments are given in the table on the previous page.

Comparisons between Experimental and Control Groups.

A t test in respect of scores achieved on the Burt Word Recognition Test administered at the end of the first experiment showed no significant difference between the groups at the end of the first experiment. (Appendix A Table 29). A similar result was achieved by comparing Burt scores at the end of the second experiment. (Appendix A Table 30). However, results in respect of achievement on the three aspects of accuracy, rate and comprehension using the Neale material rendered slightly different results when comparisons were made between the two groups. It must be remembered that the roles of the groups were reversed after the first run of the experiment. (Appendix A Tables 31 - 36).

Comparison of Means using t test.

Table g.

<u>Experiment.</u>	<u>Accuracy.</u>	<u>Rate.</u>	<u>Comprehension.</u>
1	0.475	0.946	1.4
2	1.346	0.675	2.24*

\* significant at 0.05 level.

The second trial of the experiment appeared to be far more successful than the first, even though the conditions for both were identical. Perhaps the second group of children felt more comfortable in the experimental situation, for although not having experienced it themselves before, they did not seem to approach it with the same reserve as their peers in the first group. Some of them even commented that they had the 'easy job' the second time around, in having the difficult task of reading done for them, while their partner had to manage on their own as they had in the first experiment. Accuracy was more marked in the

experimental group in the second experiment and their significant comprehension score ( $t = 2.24$ , sig. at 0.05 level) may mean that they were listening more attentively and letting the tape help them with the 'mechanics' of the job as had been hoped at the outset of the experiment for both groups working in the experimental situation.

#### Comparisons within the Groups

The best comparison for each child was that made with himself in the experimental and control situation. The scores collected from the Burt test in the pre and post experimental tests (post test = after both experiments) for each child were compared with himself and a  $t$  score was recorded of  $t = 1.6$  not itself significant but interesting as an indication that perhaps the experiment had provided some practice in such skills as word recognition and identification that the children could readily employ outside the direct experimental situation. (Appendix A Table 37).

Using the Neale Diagnostic Material the results of  $t$  tests for accuracy and comprehension comparing the children with themselves rendered significant scores at the 0.10 level. (Appendix A Tables 38/39). With regard to rate there was no significant difference. (Appendix A Table 40). It must be remembered that the children heard the tapes read at a normal speed of 104 words per minute and although not producing a significant score in their own reproduction it was nevertheless felt that the children had enjoyed the experience of reading fluently along with the tape and had been helped considerably in their comprehension of the passage.

MAY - JULY 1978: A Second Experiment in Listening while Reading with Children aged 6 - 7 years using Tape Cassette Recorder.

#### The Study

#### Subjects.

At the end of May 1978 eighteen children aged 6 - 7 years were

tested for reading ability using the Burt Word Recognition test. Their scores and reading ages were tabulated and these results together with chronological age, sex and a subjective assessment of reading fluency and comprehension enabled them to be divided into two comparable groups. The groups were compared using a standard t test and there were no statistically significant differences between them, the t score being  $t = 0.479$  (Appendix A Table 41). One group was arbitrarily designated the experimental group and the other acted as a control. The roles were reversed in a second experiment.

Unlike the experiment held in 1977 all children taking part this time had a registered reading age equal to or in excess of their chronological age.

#### Materials.

The experimenter chose to use the same materials as before as this would again enable scores to be collected, tabulated and compared in a standardized form. A decision was taken to use forms A and B of the Neale Diagnostic Material, the former for the first experiment and the latter for the second.

The first four passages of each form were again recorded at a speed of 104 words per minute and read with no marked regional accent.

#### Procedure.

Each child would be given a passage to read in turn until he reached his ceiling according to the guide-lines laid down in the Neale Diagnostic Test manual. The control child would have to read the passage for himself unaided, while the experimental child read the passage with the tape recording. The tape was only played once and then the experimental child attempted to read the passage to the tester, who recorded scores for errors and time in accordance with the manual. Upon completion of reading the child was asked appropriate comprehension questions as laid down up to the passage in which he reached his ceiling.

A score was thus recorded for each child for accuracy, rate and comprehension.

The control child was absent for the length of time that this whole procedure took and was studying the passage unaided. It was recognized that the period of study for the control child rested upon the length of time taken by his experimental partner. This of course varied from pair to pair but was felt to be fair within each pair. Since fluency had been taken into account in matching the children it was felt that it was fairer to allow the control child time according to the speed of his partner rather than allocating a set time, especially as roles would be reversed when the experiment was run for the second time.

### Results.

Table h.

Study	Group	Pre test			Mid test			Post test		
		X	N	SD	X	N	SD	X	N	SD
1	Exp	39.2	9	8.05	42.1	9	8.06			
	Con	37.3	9	7.70	42.8	9	10.15			
2	Exp				42.8	9	10.15	45.7	9	9.07
	Con				42.1	9	8.06	44.8	9	9.99

Means and SD for the Burt tests using raw scores for all groups in both experiments are given in the table above.

### Comparisons between Experimental and Control Groups.

A t test in respect of scores achieved on the Burt Word Recognition test administered at the beginning and end of the first experiment showed no significant difference between the groups at the outset and end of the first experiment (Appendix A Table 42) A similar result was achieved comparing results at the end of the first experiment with results at the end of the second experiment. (Appendix A Table 43) Results in respect of achievement on the three aspects of accuracy, rate and comprehension using the Neale material rendered

unsignificant results as well when comparisons were made between the two groups. It must be remembered that the roles of the groups were reversed after the first run of the experiment. (Appendix A Tables 44 - 49)

Comparison of means using t test.

Table 1.

<u>Experiment</u>	<u>Accuracy</u>	<u>Rate</u>	<u>Comprehension</u>
1	0.406	1.016	0.195
2	1.604	0.837	1.405

Again the second trial of the experiment appeared more successful than the first although in both experiments the experimental group did not achieve the impetus afforded to the experimental group in the experiment a year earlier using children of poorer ability. Perhaps the present children were generally less inclined to be aided by the tape and struggled to read for themselves instead of allowing the tape to do the job for them. Concentration on accuracy for example may have impeded rate and led to less "taking in" of the passage in terms of comprehension. The children tried hard to read the passage but did not retain its message.

Comparisons within the Groups.

The best comparison for each child was that made with himself in the experimental and control situation. Using the Neale Diagnostic material the results of t tests for accuracy, rate and comprehension were 1.049, 0.216 and 1.060 respectively (Appendix A Tables 50 - 52) None of these results were statistically significant. It would appear that though the children enjoyed the experience of Listening while Reading they did not benefit from it.

However, the scores collected from the Burt test in the pre and post experimental test (post experimental being after both parts of the experiment) for each child were also compared with himself and a t score was recorded that was significant at the 0.001 level  $t : 4.879$

(Appendix A Table 53) This was a high level of significance and though not apparent from results within the experiment it can perhaps be considered that in the overall children had perhaps been aided by the use of the tape in such skills as word recognition and identification that they could readily employ outside the direct experimental situation.

#### Final Comment 1977 and 1978.

Final comment must be made on differences achieved in the two separate experiments of 1977 and 1978. In terms of the use of audio visual aids the results are interesting bearing in mind that the groups were in the first experiment children of below average reading ability, and in the second experiment children of above average reading ability. Both may have derived success from the use of aids but it was manifest in different ways; for the children of the first experiment it was an improvement within the structure of the experiment. e.g. a significant score with regard to comprehension, whilst for children of the second experiment it was manifest in a significant improvement in their scores as measured on a standardized reading test after the completion of the experiment. It is difficult to say which group achieved most except perhaps to make a subjective observation that the first group achieved a success that would have been doubtful without the use of the aid. Both groups enjoyed the use of the aid and that in itself perhaps justifies its inclusion in a reading programme.

#### Conclusion Chapter 4.

Five experiments have been carried out on two audio visual aids over a period of almost three years and many comments and conclusions have already been made about the success of the use of the aids in the teaching of reading in the situations outlined. However, in a general conclusion there are some points the writer would reiterate. Much more experimentation is necessary and indeed desirable before any firm conclusions are drawn; these experiments have scratched the surface; they

have raised some interesting questions but any conclusions drawn from them only apply within the experimental condition in which the subjects worked. These subjects were drawn from a variety of backgrounds and abilities; what is important is that at their own level all seemed to have achieved some success, whether significant or not, in the use of aids. Enjoyment itself can be a strong motivator, and if all else were in dispute it is true to say that children using aids enjoyed their learning.

The writer would not advocate that audio visual aids be used as the ultimate method of teaching a child to read. Indeed she would question whether there ever can or will be one ultimate method, guaranteed to be successful with each individual child. However, now that aids are considered respectable, and now that material is so readily available for use with them, the writer would suggest that the results of the various experiments would lend support to their use. Audio visual aids are here to stay and they clearly have a role to play in the modern classroom environment.

**CHAPTER 5.**

**Audio Visual Aids and the Teacher.  
An Investigation of the Teacher's use  
of audio visual aids in the teaching  
of reading.**



### Introduction.

In this modern age audio visual aids can help teachers to improve their efficiency. This is particularly true in the case of overcrowded classrooms where teaching is on the pattern of the integrated day. However, few teachers exhibit use of audio visual aids and many seem reluctant even to consider them. Do teachers still fear that technological developments will make them redundant or minimize the importance of their contribution? Surely not, for audio visual materials are by definition aids to, and not substitutes for, the successful teacher. Audio visual aids are not a threat to the teaching profession, they are merely part of the vast number of mechanical and electronic devices that surround the modern child. As Trowbridge says "Children accept involvement with the products of modern technology because this has always been part of their lives. They are keen to use relevant modern equipment to help them in their learning at school". (Trowbridge, 1974, page 2) Guba perhaps sums up best the teacher's position when he says, "Unless we wish to scrap completely the notion that the teacher is, in his classroom, an autonomous professional who can be trusted to make judgements about the needs and capabilities of his class, we must allow him to decide at what times and in what ways to utilize the entire armament of devices and materials he has at his disposal. It is the administrator's responsibility to make the equipment available so that it can be used well; it is the teacher's responsibility to decide what use to make of it". (Guba, 1965, page 25) The teacher is no longer the only resource of the modern classroom. He is a learning manager with a variety of media at his disposal to help achieve the particular instructional objectives he has formulated. Rather than fighting against the acceptance of such media as television, tape recorder, radio, Language Master and Synchrofax the modern teacher should be aware that under certain circumstances they can at least be as effective as he

himself can be.

It has for some time been known that certain benefits stemmed from the use of media. In 1950 Harbourne, Dale and Finn summarized the research in audio visual methods compiling the following list of advantages.

- a) They supply a concrete base for conceptual thinking and hence reduce meaningless word responses of students.
- b) They have a high degree of interest for students.
- c) They make for permanent learning.
- d) They offer a reality of experience which stimulates self activity on the part of the pupils.
- e) They develop a continuity of thought - this is especially true of motion pictures.
- f) They contribute to the growth of meaning and hence to vocabulary development.
- g) They provide experience not necessarily obtained through other materials and contribute to the efficiency, depth and variety of learning. (Dale, 1954, page 1ff)

Looking at this list it is hardly surprising that teachers originally felt threatened by the encroachment of media. They would appear to be challenged to justify their existence. Fortunately for the teaching profession the threat never materialized and there is no longer any question of teachers being made redundant by the use of audio visual aids. Audio visual aids are not to be regarded as teacher surrogates but as auxiliary aids to instruction.

Today the question is not whether audio visual aids will replace the classroom teacher but rather in what areas their effectiveness lies, e.g. if it is in the motivation provided by the machines has research shown us that such interest can be sustained over a long period of time?

The purpose of this chapter therefore is to consider the attitude of teachers to the use of audio visual aids in the teaching of reading; in particular how do they consider aids and how do they use them? Are we providing enough training on the use of aids in the teaching of reading? Do we need in-service courses directed towards these two important elements of the modern school, i.e. reading and audio visual aids?

### The Questionnaire.

The questionnaire, which consisted of thirteen questions, was split into two main parts. The first section dealt with biographical details about the teacher's course of training, qualifications, sex, age, age range taught and teaching experience. This was necessary in order to plot teachers' attitudes/opinions against the biographical details to see if they appeared to affect attitudes in any way.

The second part, beginning at question 7, was a series of questions relating to the use of various audio visual aids in the teaching of reading. Some nine possible aids were listed, all of them being available in this country. In these questions teachers were asked to indicate responses either by ticking an appropriate Yes or No box or by circling a number 1 to 5 from a five point scale. Each attitude scale incorporated a five point summation type of response where the high value scores indicated positive attitude and the low value scores negative attitude. Question 9 was slightly different, teachers being asked to indicate how many hours per week they might use any of the listed aids in the teaching of reading.

At the end of the questionnaire teachers were asked to add any pertinent comments about the use of audio visual aids in the teaching of reading.

Consideration was made as to whether to include a question on what aids were used for if not for reading, but this was dismissed as it was felt that if any respondent felt a need they would disclose this in their own comments.

Sample: Size and selection: Procedures followed and the arrangement and conduct of the investigation.

It was decided for the purposes of the first study to make a random selection of two teachers per school from a wide selection of Primary schools within two main areas. The first area was a Local

Education Authority of a city and county, the second was a Local Education Authority from a conurbation. Letters and questionnaires were dispatched to twelve schools, six within each designated area (2 junior, 2 infant or first, 2 infant/junior) with instruction for Heads upon receipt to make random distribution to two members of their staff. Thus some 24 questionnaires were dispatched in the first sample.

Of the 17 respondents, 14 were female and 3 were male; all the male were junior teachers and of the female 9 were junior teachers, 4 were infant teachers and 1 taught in a First School.

All questionnaires were dispatched and returned by post without any personal contact between the recipient and the researcher. 71% of the questionnaires were returned.

For the second study two methods of distribution were again selected. One was the distribution of questionnaires by students on teaching practice to schools within a large metropolitan area, the other was under the auspices of the United Kingdom Reading Association. The latter was infinitely superior although the writer recognises that it was distribution to an already "interested" audience. Of 50 questionnaires dispatched in this manner 33 were returned (66%) and 32 used in the final analysis, one having been returned uncompleted. Of 50 distributed through students only 10 were returned. (20%) This was a somewhat disappointing result but it must be acknowledged that distribution took place during the summer term, not perhaps the most favourable time of the year for such an enterprise. All questionnaires were dispatched without any personal contact between the recipient and the researcher, although upon return of the questionnaires from the United Kingdom Reading Association, two respondents included their name and address and asked to be informed of the general findings of the research. The writer will in fact provide them with a synopsis of the results and will also dispatch one to the United Kingdom Reading Assoc.

The writer acknowledges that the word attitude is perhaps somewhat misleading in the title of the questionnaire and should rather be taken to mean 'opinion'.

#### Measurement Techniques and Treatment of Data and Scores.

The information from questions 1 to 6 was collected so that the attitudes of teachers towards the use of audio visual aids in the teaching of reading could be assessed in six different ways: These were Attitudes according to present teaching group  
training age group  
sex  
age  
teaching experience  
qualifications

From the questionnaire the responses for each question were collected and recorded on a master chart or matrix.

In questions where sections had been deliberately or mistakenly left blank the parts affected were not included for the purpose of analysis, but recorded as a no response. The rest of the recipients responses were considered where appropriate. Thus a recipient might indicate which aids they possessed, and their attitude to them might be considered in the appropriate analysis, but they may then be recorded as making a no response to any other questions.

Comments made at the end of the questionnaire have been included as a separate section together with a brief introduction as they "speak for themselves" more than adequately.

#### Results and Analysis - a Discussion.

As the questionnaire had in no way been altered after the initial distribution of 24 copies and receipt of 17, it was decided to consider these results combined with the 42 questionnaires received from the second distribution of 100. To consider them separately would have

meant dealing with one particularly small sample, whereas combined, 59 made the sample viable. The composition of the sample was in accordance with the following tables, and the analysis will be considered one question at a time in respect of these variables.

<u>Sex.</u>	Male	Female
1st. Sample	3	14
2nd. Sample	12	30
Total	15	44

<u>Age.</u>	25 and under	26 - 34	35 - 44	45 and over
1st. Sample	4	3	7	3
2nd. Sample	3	9	11	19
Total	7	12	18	22

Teaching Experience.

	Prob.	1 - 4	5 - 10	11 - 14	15 - 20	21 - 24	25 and over
1st. Sample	0	6	3	1	4	0	3
2nd. Sample	0	3	17	8	6	1	7
Total	0	9	20	9	10	1	10

Training Course.

	None	Nurs.	N/I	Inf.	I/J	Jun.	J/S	Sec.
1st. Sample	2	0	0	3	4	5	3	0
2nd. Sample	1	0	0	5	12	12	6	6
Total	3	0	0	8	16	17	9	6

Age Range Taught.

	Inf.	I/J	Jun.	Sec.	All Age.
1st. Sample	5	0	12	0	0
2nd. Sample	10	8	14	8	2
Total	15	8	26	8	2

Qualifications.

	Cert.	Cert/Dip.	Deg/P.G.C.E.	Deg.	H.Deg.	Other
1st. Sample	11	1	3	2	0	0
2nd. Sample	25	3	9	1	3	1
Total	36	4	12	3	3	1

Question 7.

Analysis of the distribution of aids by "sex" showed no marked differences in the sample with regard to the provision of common aids \*1 or indeed less common aids \*2. Men were perhaps a little more fortunate in the provision of less common aids considering their number.

With regard to analysis by "age" distribution was again even except among the group aged 25 years and under where there was an obvious dearth of all but the common aids.

Examination of the distribution of aids with reference to "age range taught" revealed there was a definite lack of provision amongst the Infant and Infant/Junior groups of less common aids. Junior and Secondary teachers were relatively better endowed with provision of synchrofax, language master, O.H.P. and C.C.T.V.

Distribution according to "experience and qualifications" revealed no glaring inadequacies in any group whilst distribution according to "training course" generally mirrored distribution according to "age range taught". However, Infant and Infant/Junior groups this time came out a little better than before with regard to less common aids.

All the above comments are of course subject to the proviso of sample size.

\*1. Common aids: T.V., Radio, Tape Recorder, Record Player and O.H.P.

\*2. Less common aids: C.C.T.V., Synchrofax, Language Master and Talking Typewriter.



Question 7. Are any of the following aids available in your school for use in the teaching of reading?

Aids	Sex		Age				Age Range Taught				All Age.											
	M	F	Under 25	26-34	35-44	Over 45	Inf.	I/J	Jun.	Sec.	Sec.	All Age.										
Television	14	1	39	5	7	0	12	0	15	3	19	3	14	1	7	1	24	2	7	1	1	1
C.C.T.V.	3	12	3	41	0	7	2	10	3	15	1	21	0	15	1	7	1	25	4	4	0	2
Radio	15	0	39	5	7	0	12	0	18	0	17	5	14	1	6	2	24	2	8	0	2	0
Synchrofax	5	10	9	35	1	6	4	8	5	13	4	18	1	14	0	8	7	19	5	3	1	1
Language Master	2	13	13	31	1	6	5	7	3	15	6	16	2	13	1	7	7	19	4	4	1	1
Tape Recorder	15	0	41	3	7	0	11	1	18	0	20	20	14	1	7	1	25	1	8	0	2	0
Talking Typewriter	1	14	0	44	0	7	0	12	1	17	0	22	0	15	0	8	0	26	1	7	0	2
Record Player	15	0	37	7	7	0	11	1	16	2	18	4	14	1	6	2	22	4	8	0	2	0
O.H.P.	7	8	20	24	3	4	6	6	8	10	10	12	4	11	6	2	10	16	6	2	1	1

Aids	Experience				Training Course				J/S															
	1-4	5-10	11-14	15-20	21-24	Over 25	None	Inf.	I/J	Jun.	Sec.													
Television	9	0	18	2	9	0	7	3	0	7	1	14	2	16	1	8	1	5	1	5	1			
C.C.T.V.	0	9	3	15	1	8	1	9	0	1	1	8	0	3	0	8	2	14	0	17	2	7	2	4
Radio	9	0	15	3	9	0	10	0	0	1	8	1	3	0	6	2	13	3	17	0	9	0	6	0
Synchrofax	1	8	4	11	3	6	3	7	0	1	3	5	3	0	1	7	1	15	4	13	4	5	1	5
Language Master	2	7	5	13	3	6	1	9	0	1	4	6	1	2	2	6	4	12	4	13	4	5	0	6
Tape Recorder	9	0	18	2	9	0	10	0	0	1	10	0	3	0	7	1	15	1	16	1	9	0	6	0
Talking Typewriter	0	9	0	20	0	9	1	9	0	1	0	10	0	3	0	8	0	16	0	17	0	9	1	5
Record Player	9	0	17	3	8	1	9	1	0	1	9	1	3	0	7	1	13	3	14	3	9	0	6	0
O.H.P.	5	4	7	13	5	5	4	5	0	1	6	4	0	3	3	5	9	7	6	11	5	4	4	2

Question 7. Are any of the following aids available in your school for use in the teaching of reading?

Aids	Qualifications											
	Cert		Cert 7DIP		Deg & PGCE		Deg only		Higher Degree		Other	
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
Television	33	3	1	11	1	3	0	2	1	1	0	0
C.C.T.V.	0	36	1	3	4	8	0	3	1	2	0	1
Radio	32	4	4	0	11	1	3	0	3	0	1	0
Synchrofax	4	32	2	2	3	9	3	0	2	1	0	1
Language Master	8	28	2	2	2	10	1	2	2	1	0	1
Tape Recorder	33	3	4	0	12	0	3	0	3	0	1	0
Talking Typewriter	0	36	0	4	0	12	0	3	1	2	0	1
Record Player	31	5	4	0	11	1	3	0	2	1	1	0
O.H.P.	13	23	2	2	8	4	0	3	3	0	1	0

Question 8.

There were differences of opinion in positive attitude towards aids, men favouring tape recorder, O.H.P. and T.V. and women favouring tape recorder, T.V. and language master. However there was a strong consensus of opinion among the sexes about the "uselessness" of radio and record player. Men always appeared more willing to express an opinion and thus rendered less responses in category 3 or in the category of "no response".

The group expressing most general interest in the aids were those aged 45 years and over and least general interest came from the group aged 26 - 34 years. The group aged 25 years and under showed most interest in aids for which there was commercially produced material available i.e. tape recorder and T.V. but this bias was not so marked in other groups. Perhaps their inexperience led them to rely more heavily on such material.

With regard to "age range taught" reference to the less common aids is perhaps most interesting, remembering that Junior and Secondary teachers were better endowed. In the case of the latter there was indication that provision of an aid did not necessarily trigger a positive attitude towards its "usefulness". The picture was reversed in the case of Junior teachers where provision appeared to spark a positive attitude. Of course the question posed was in respect of how useful aids might be considered in the teaching of reading and perhaps this is itself a skill which is more readily the province of Junior rather than Secondary teachers.

With regard to the common aids whilst T.V. and tape recorder were generally considered "useful" by all age ranges, radio and record player were considered "useless".

A consideration of attitude according to "training course" largely reflected the points made in the analysis according to sex since

the Infant and Infant/Junior groups were largely composed of women. In both these groups and especially the latter there was a reluctance to express a strong opinion. Otherwise the Junior, Junior/Secondary and Secondary groups generally held a positive attitude to the aids whilst the group with no training course were decidedly split in their attitudes.

Considering attitude according to "qualification", it was the largest group of certificate teachers who were most reluctant to express a strong opinion on all but the very popular aids, tape recorder and T.V., or the very unpopular ones, radio and record player. Other groups had various preferences but fewer responses per size of sample in the "no response" category or in category 3.

Question 8. How useful do you feel the following machines would be in the teaching of reading?

Aids	Sex		Age					
	Male	Female	Under 25	26 - 34	35 - 44	Over 45		
Television	5 4 3 2 1 NR	5 4 3 2 1 NR	5 4 3 2 1 NR	5 4 3 2 1 NR	5 4 3 2 1 NR	5 4 3 2 1 NR		
C.C.T.V.	5 3 5 1 1 0	7 17 15 3 1 1	2 4 1 0 0 0 5 7 0 0 0 6 4 6 1 1 0 4 7 6 3 1 1	0 2 0 2 0 3 1 2 5 1 2 1 1 2 4 6 3 2 2 3 6 4 4 3				
Radio	1 4 2 4 4 0	5 6 12 16 3 2	0 1 3 3 0 0 1 1 2 7 1 0 2 4 2 8 2 0 3 4 7 2 4 2					
Synchrofax	3 4 2 3 1 2	6 9 12 3 4 10	1 2 1 0 0 3 1 1 5 1 2 2 2 4 5 3 1 3 5 6 3 2 2 4					
Language Master	4 2 2 2 2 3	10 9 9 3 3 10	3 1 0 0 0 3 3 4 3 0 1 1 4 2 3 2 3 4 4 4 5 3 1 5					
Tape Recorder	8 3 1 1 1 1	18 14 9 0 0 3	2 3 2 0 0 0 5 6 1 0 0 0 11 3 3 0 0 1 8 5 4 1 1 3					
Talking Typewriter	4 1 3 1 1 5	2 3 8 6 4 2	0 1 2 0 0 4 1 1 2 1 1 6 3 0 3 2 3 7 2 2 4 4 1 9					
Record Player	1 5 1 3 5 0	4 6 7 16 8 3	0 1 2 4 0 0 0 1 1 4 5 1 1 6 2 5 3 1 4 3 3 6 5 1					
O.H.P.	3 6 1 3 2 0	7 10 12 9 1 5	1 2 1 2 0 1 1 3 4 4 0 0 3 4 5 3 2 1 5 7 3 3 1 3					
Aids	Age Range Taught		Junior		Secondary		All Age	
	Infant	Inf/Jun	Junior	Secondary	All Age			
Television	5 4 3 2 1 NR	5 4 3 2 1 NR	5 4 3 2 1 NR	5 4 3 2 1 NR	5 4 3 2 1 NR			
C.C.T.V.	3 5 5 1 1 0	2 3 2 1 0 0 5 9 10 1 1 0 2 2 2 1 0 1 0 1 0 0 0						
Radio	1 0 2 3 5 4	0 2 3 3 0 0 1 5 8 5 4 3 1 2 1 2 0 2 1 0 1 0 0 0						
Synchrofax	2 4 2 6 1 0	1 1 3 2 1 0 2 3 7 9 4 1 1 1 2 3 0 1 0 1 0 0 1 0						
Language Master	1 2 6 1 1 4	0 1 2 1 2 2 7 7 3 2 2 5 1 1 3 2 0 1 0 2 0 0 0 0						
Tape Recorder	4 1 3 0 2 5	0 2 2 1 1 2 8 6 3 3 1 5 1 1 3 1 1 1 1 1 0 0 0 0						
Talking Typewriter	6 5 4 0 0 0	2 5 0 0 0 1 11 6 5 1 1 2 5 1 1 0 0 1 2 0 0 0 0						
Record Player	1 2 2 1 2 7	0 1 1 2 1 3 2 0 7 3 2 12 2 0 1 1 0 4 1 1 0 0 0 0						
O.H.P.	1 4 3 5 2 0	2 1 1 2 1 1 2 2 3 10 8 1 0 3 0 2 2 1 0 1 1 0 0 0						
O.H.P.	0 5 6 2 1 1	2 2 1 3 0 0 5 7 5 5 1 3 2 2 1 1 1 1 1 0 0 1 0 0						

Question 8. How useful do you feel the following machines would be in the teaching of reading?

Aids	Experience					
	1-4 yrs.	5-10 yrs.	11-14 yrs.	15-20 yrs.	21-24 yrs.	Over 25 yrs.
Television	5 4 3 2 1 NR	5 4 3 2 1 NR	5 4 3 2 1 NR	5 4 3 2 1 NR	5 4 3 2 1 NR	5 4 3 2 1 NR
C.C.T.V.	2 0 1 0 0 0	1 6 11 1 1 0	3 4 1 1 0 0	4 1 4 0 1 0	0 0 0 1 0 0	2 3 3 1 0 1
Radio	0 2 0 4 0 3	1 3 6 3 4 3	1 1 2 0 3 2	1 1 3 4 1 0	0 0 0 1 0 0	1 2 4 1 1 1
Synchrofax	1 2 3 3 0 0	0 2 6 9 2 1	3 0 1 5 0 0	1 2 3 2 2 0	0 0 0 0 1 0	1 4 1 1 2 1
Language Master	1 2 1 0 1 4	2 1 8 3 2 4	2 4 1 1 0 1	1 4 2 1 1 1	1 0 0 0 0 0	2 2 2 1 1 2
Tape Recorder	3 1 0 0 1 4	5 4 4 3 1 3	2 2 2 0 1 2	2 3 2 0 2 1	1 0 0 0 0 0	1 1 3 2 0 3
Talking Typewriter	4 3 2 0 0 0	9 7 4 0 0 0	4 3 1 0 0 1	5 3 2 0 0 0	0 0 0 0 0 1	4 1 1 1 1 2
Record Player	0 0 2 0 1 6	1 2 2 3 1 11	2 0 2 2 0 3	2 0 4 1 2 1	0 0 0 0 0 1	1 2 1 1 1 4
O.H.P.	0 2 2 5 0 0	1 4 2 6 6 1	2 0 0 5 1 1	1 3 2 2 2 0	0 0 0 0 1 0	1 2 2 1 3 1
	1 3 1 3 0 1	1 3 9 5 1 1	1 2 2 1 1 2	3 3 1 2 1 0	0 1 0 0 0 0	4 4 0 1 0 1

Aids	Qualifications					
	Cert.	Cert/Dip	Deg. & PGCE	Degree	Higher Degree	Other
Television	5 4 3 2 1 NR	5 4 3 2 1 NR	5 4 3 2 1 NR	5 4 3 2 1 NR	5 4 3 2 1 NR	5 4 3 2 1 NR
C.C.T.V.	6 14 12 3 1 0	0 1 2 0 0 1	2 3 6 1 0 0	2 0 0 0 1 0	2 1 0 0 0 0	0 1 0 0 0 0
Radio	2 6 7 8 7 6	0 1 1 1 0 1	0 2 4 3 2 1	0 0 2 1 0 0	2 0 1 0 0 0	0 0 0 0 0 1
Synchrofax	3 5 12 12 4 0	0 1 1 0 1 1	3 1 0 6 2 0	0 2 0 1 0 0	0 1 1 1 0 0	0 0 0 0 0 1
Language Master	4 11 9 1 1 10	1 0 2 0 0 1	2 0 2 4 3 1	1 1 0 0 1 0	1 1 1 0 0 0	0 0 0 1 0 0
Tape Recorder	7 10 6 1 1 11	0 0 2 0 0 2	3 1 1 4 3 0	2 0 0 0 1 0	2 0 1 0 0 0	0 0 1 0 0 0
Talking Typewriter	12 13 8 0 1 2	1 0 1 0 0 2	7 4 0 1 0 0	2 0 1 0 0 0	3 0 0 0 0 0	1 0 0 0 0 0
Record Player	3 2 8 5 0 18	1 0 1 0 0 2	1 1 0 2 4 4	0 0 1 0 1 1	1 1 1 0 0 0	0 0 0 0 0 1
O.H.P.	4 6 6 13 5 2	0 1 0 0 2 1	0 3 1 3 5 0	1 0 0 1 1 0	0 1 1 1 0 0	0 0 0 1 0 0
	4 12 7 8 1 4	1 1 0 1 0 1	2 2 5 2 1 0	1 0 0 1 1 0	2 1 0 0 0 0	0 0 1 0 0 0

Question 8. How useful do you feel the following machines would be in the teaching of reading?

Aids	Training Course					
	None	Infant	Inf/Jun	Junior	Jun/Sec	Secondary
	5 4 3 2 1 NR	5 4 3 2 1 NR	5 4 3 2 1 NR	5 4 3 2 1 NR	5 4 3 2 1 NR	5 4 3 2 1 NR
Television	2 0 0 0 1 0	1 4 2 1 0 0	1 5 6 2 1 1	5 8 4 0 0 0	1 2 6 0 0 0	2 1 2 1 0 0
C.C.T.V.	0 0 2 1 0 0	0 1 2 1 2 2	0 2 4 5 3 2	2 4 4 3 3 1	1 1 2 3 0 2	1 1 1 0 1 2
Radio	0 2 0 0 1 0	0 3 3 2 0 0	0 1 4 7 3 1	4 1 4 6 1 1	2 1 2 3 1 0	0 2 1 2 1 0
Synchrofax	1 1 0 0 1 0	1 0 5 1 0 1	2 2 4 0 3 5	4 7 1 1 1 3	1 2 2 3 0 1	0 1 2 1 0 2
Language Master	2 0 0 0 1 0	2 1 2 0 1 2	4 3 4 2 0 3	4 5 2 0 1 5	2 1 1 3 1 1	0 1 2 0 1 2
Tape Recorder	2 0 1 0 0 0	5 2 1 0 0 0	3 8 3 0 0 2	8 4 2 0 1 2	4 2 2 1 0 0	4 1 1 0 0 0
Talking Typewriter	0 0 1 0 1 1	1 1 0 2 0 4	0 2 3 2 1 8	2 0 6 2 1 6	0 1 0 1 2 5	3 0 1 0 0 2
Record Player	1 0 0 1 1 0	1 2 2 1 2 0	0 2 3 5 5 1	3 0 2 8 2 2	0 3 1 3 2 0	0 4 0 1 1 0
O.H.P.	1 0 0 1 1 0	0 4 2 2 0 0	2 4 4 3 1 2	4 3 4 4 0 2	2 2 3 1 0 1	1 3 0 1 1 0

Question 9.

Generally women used aids more than men, but equally neither used them to any considerable degree. This was true even amongst aids which had received positive acclaim in question 8. Tape recorder was available, positively acclaimed and readily used by male and female alike, but other than this men fell behind women, who showed a majority use of T.V., synchrofax, language master and O.H.P. amongst those to whom they were available.

With regard to "age" the group claiming most "usefulness" for the various aids was the group who generally used more aids than any other i.e. the group aged 45 years and over. On the group aged 25 years and under comment is very difficult as by and large they had only the common aids available to them.

When one turns to "age range taught" it is pertinent that with any age group provision of an aid and a positive attitude to it did not always lead to use. The less well equipped Infant, and the less enthusiastic Infant/Junior teachers used them about as much as did their enthusiastic and better endowed contemporaries. At least their responses revealed less discrepancy between claimed "usefulness" and actual use.

There was definite increase in use of aids with increase in experience. At the other end of the scale there was evidence that teachers with least experience used aids for which they saw a value i.e. T.V. and tape recorder. However, this group was not particularly fortunate in its provision of less common aids.

Turning to attitude according to "training course" it was again evident that attitude to an aid did not always give indication of use. There were instances of aids being highly rated, available and yet unused and also of aids which had registered a high negative response being used. This was particularly noticeable in the case of the record player.



Because of the vast discrepancy in size of groups little comment can be made on use with regard to "qualification" except that across the board it re-emphasised the fact that attitude to an aid, availability of it, and use did not always match, except perhaps in the case of tape recorder, popular, and easily the most used of any of the aids.

Question 9. How many hours a week do you use the following aids in the teaching of reading?

Aids	Sex															
	Male			Female												
	0-4	1-2	3-4+ NR	No Aid	0-4	1-2	3-4+ NR	No Aid								
Television	8	0	5	1	0	0	1	16	5	14	1	1	0	2	5	
C. C. T. V.	3	0	0	0	0	0	0	12	3	0	0	0	0	0	41	
Radio	8	0	5	0	0	1	1	0	27	1	7	1	0	0	3	5
Synchrofax	3	0	1	0	0	1	1	9	2	0	5	0	0	1	1	35
Language Master	1	0	0	0	0	1	0	13	5	0	5	1	0	2	0	31
Tape Recorder	6	0	4	1	0	3	1	0	10	1	17	3	2	4	3	4
Talking Typewriter	1	0	0	0	0	0	0	14	0	0	0	0	0	0	0	44
Record Player	11	0	3	0	0	0	1	0	29	0	4	1	0	0	3	7
O.H.P.	5	0	1	1	0	0	0	8	8	0	7	1	1	0	3	24

Aids	Age																															
	25 and under			26-34 yrs.			35-44 yrs.			Over 45 yrs.																						
	0-4	1-2	3-4+ NR	No Aid	0-4	1-2	3-4+ NR	No Aid	0-4	1-2	3-4+ NR	No Aid																				
Television	2	2	3	0	0	0	0	0	8	1	1	1	0	0	1	0	6	2	7	0	0	0	3	8	0	8	1	1	0	1	3	
C. C. T. V.	0	0	0	0	0	0	0	0	7	2	0	0	0	0	0	0	10	3	0	0	0	0	0	15	1	0	0	0	0	0	21	
Radio	6	0	1	0	0	0	0	0	10	1	0	0	0	1	0	12	0	5	0	0	0	1	0	7	0	6	1	0	1	2	5	
Synchrofax	1	0	0	0	0	0	0	0	6	0	0	4	0	0	0	8	4	0	1	0	0	0	13	0	0	1	0	0	2	17		
Language Master	0	0	1	0	0	0	0	6	2	0	2	1	0	0	0	7	2	0	0	0	0	1	0	15	1	0	2	0	0	2	16	
Tape Recorder	4	1	2	0	0	0	0	0	2	0	3	2	1	1	2	1	3	0	10	1	0	2	1	1	7	0	6	1	1	4	1	2
Talking Typewriter	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	12	1	0	0	0	0	0	0	17	0	0	0	0	0	0	0	22
Record Player	7	0	0	0	0	0	0	0	10	0	0	0	0	1	1	12	0	3	0	0	0	1	2	11	0	4	1	0	0	2	4	
O.H.P.	3	0	0	0	0	0	0	4	3	0	2	0	0	0	1	6	3	0	5	0	0	0	10	4	0	1	2	1	0	2	12	

Question 9. How many hours a week do you use the following aids in the teaching of reading?

Aids	Age Range Taught												All Age											
	Infant			Inf / Jun			Junior			Secondary			All Age											
	0	1	2	0	1	2	0	1	2	0	1	2	0	1	2	3	4+	NR	No Aid					
Television	4	2	6	0	2	1	14	3	7	0	0	0	3	0	4	0	0	0	0	0	0	0	0	0
C. C. T. V.	0	0	0	1	0	0	1	0	0	0	0	0	3	0	0	0	0	0	5	1	0	0	0	0
Radio	10	0	4	0	1	0	18	1	4	0	0	0	3	0	2	1	0	0	2	0	0	0	0	0
Synchrofax	1	0	0	0	0	0	3	0	4	0	0	0	1	0	2	0	0	0	1	3	0	0	0	0
Language Master	1	0	1	0	0	0	5	0	2	0	0	0	0	0	2	0	0	0	1	0	5	0	0	0
Tape Recorder	4	0	6	2	0	1	10	1	11	1	0	1	0	0	3	1	1	2	1	0	0	0	0	0
Talking Typewriter	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	7	0	0	0	0
Record Player	11	0	2	5	0	1	19	0	2	0	0	0	4	0	2	0	0	0	2	0	1	0	0	0
O.H.P.	1	0	3	2	0	3	7	0	1	0	0	0	3	0	1	1	0	0	1	2	0	0	0	0

Aids	Experience												Over 25											
	1 - 4 yrs.			5 - 10			11 - 14			15 - 20			21 - 24			Over 25								
	0	1	2	0	1	2	0	1	2	0	1	2	0	1	2	0	1	2	3	4	NR	No Aid		
Television	2	4	3	0	0	0	10	0	5	6	0	3	1	1	5	0	0	0	3	1	0	0	0	0
C. C. T. V.	0	0	0	0	0	0	4	0	0	16	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Radio	7	1	1	0	0	0	12	0	4	0	0	2	2	7	0	1	0	0	0	0	0	4	0	2
Synchrofax	1	0	0	0	0	0	2	0	3	0	0	2	13	1	0	1	0	0	0	0	0	1	0	0
Language Master	0	0	0	0	0	0	4	0	1	0	0	0	14	0	2	0	0	0	0	0	0	1	1	0
Tape Recorder	3	1	3	1	0	0	5	0	7	2	0	4	1	3	0	4	1	0	1	0	0	0	0	0
Talking Typewriter	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0
Record Player	8	0	1	0	0	0	4	0	2	1	0	0	3	6	0	2	0	0	0	0	1	5	0	1
O.H.P.	4	0	1	0	0	0	3	0	3	0	0	1	13	2	0	2	0	0	0	0	0	1	2	0



Question 10.

Guidance at College or University on the use of aids in the teaching of reading was generally denied by both sexes. The general indication amongst both sexes was that College/University courses fail to provide adequate guidance.

With regard to "age" a similar indication was received with a slight increase with age in the number of people claiming "no course" at all, provided they had not trained as mature students.

With regard to "age range taught" and "experience" the pattern was re-emphasised, for of the overall number of 59, 35 claimed "no course" at all. However, when one came to a consideration of "training courses" there were noticeable differences between the training groups about the amount of advice received during the initial training on the use of aids in the teaching of reading. The members with "no training course" unanimously agreed that they had had "no course" on any of the aids. The Infant/Junior group also came out as receiving little or no training course as did the secondary group. The other groups had members who had received courses on specific aids and one member of the Junior/Secondary group claimed a course on all the aids.

Turning to College/University training with regard to "qualifications" it is interesting that the members with degree only claimed "no course" on the use of aids. The writer repeats interesting and yet not surprising since in their course they would be concerned only with their immediate area of study. However, it is unfortunate that we still have practising teachers who may have received no professional training on the use of audio visual aids in the teaching of such a basic subject as reading. It is not to be said that by comparison Certificate teachers were outstanding as the claim to "no course" was still alarming, being 19 in total. However, there was some slight evidence of courses on various aids being provided.

Question 10. Did you have any advice on the use of the following aids in the teaching of reading during your College/University course?

Aids	Sex		Age					Age Range Taught					All age																							
	Male		Female		Under 25	26 - 34	35 - 44	Over 45	Infant		I/J		Junior		Sec.																					
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N																				
Television	3	12	0	11	31	2	2	5	0	5	7	0	3	14	1	4	10	1	2	6	0	5	21	0	2	5	1	1	1	0						
C. C. T. V.	3	12	0	4	38	2	1	6	0	3	9	0	1	16	1	2	19	1	1	13	1	0	8	0	4	22	0	1	6	1	1	0				
Radio	4	11	0	10	32	2	2	5	0	4	8	0	3	14	1	5	16	1	3	11	1	3	5	0	4	22	0	3	4	1	1	0				
Synchrofax	2	13	0	4	38	2	1	6	0	1	11	0	2	15	1	2	19	1	2	12	1	1	7	0	0	26	0	2	5	1	1	0				
Language Master	3	12	0	6	36	2	2	5	0	3	9	0	1	16	1	3	18	1	1	13	1	2	6	0	3	23	0	2	5	1	1	0				
Tape Recorder	5	10	0	11	31	2	3	4	0	4	8	0	4	13	1	5	16	1	3	11	1	3	5	0	6	20	0	3	4	1	1	0				
Talking Typewriter	1	14	0	0	42	2	0	7	0	0	12	0	1	16	1	0	21	1	0	14	1	0	8	0	0	26	0	1	6	1	0	2	0			
Record Player	2	13	0	6	36	2	1	6	0	3	9	0	2	15	1	2	19	1	2	12	1	1	7	0	2	24	0	3	4	1	0	2	0			
O.H.P.	3	12	0	12	30	2	3	4	0	5	7	0	4	13	1	3	18	1	5	9	1	3	5	0	5	21	0	2	5	1	0	2	0			
Aids	1 - 4yrs		5 - 10		11 - 14		15 - 20		21 - 24		Over 25		None		Infant		I/J		Junior		J/S		Sec													
Television	4	5	0	7	13	0	1	8	0	0	9	1	0	1	0	2	7	1	0	3	0	3	5	0	5	10	1	2	15	0	4	4	1	0	6	0
C. C. T. V.	1	8	0	5	15	0	0	9	0	0	9	1	0	1	0	1	8	1	0	3	0	1	7	0	2	13	1	2	15	0	2	6	1	0	6	0
Radio	3	6	0	5	15	0	3	6	0	0	9	1	0	1	0	3	6	1	0	3	0	3	5	0	3	12	1	4	13	0	4	4	1	0	6	0
Synchrofax	0	9	0	4	16	0	1	8	0	0	9	1	0	1	0	1	8	1	0	3	0	2	6	0	1	14	1	0	17	0	3	5	1	0	6	0
Language Master	1	8	0	5	15	0	1	8	0	0	9	1	0	1	0	2	7	1	0	3	0	2	6	0	3	12	1	1	16	0	3	5	1	0	6	0
Tape Recorder	3	6	0	7	13	0	3	6	0	0	9	1	0	1	0	3	6	1	0	3	0	4	4	0	5	10	1	2	15	0	4	4	1	1	5	0
Talking Typewriter	0	9	0	1	19	0	0	9	0	0	9	1	0	1	0	0	9	1	0	3	0	0	8	0	0	15	1	0	17	0	1	7	1	0	6	0
Record Player	2	7	0	3	17	0	2	7	0	0	9	1	0	1	0	1	8	1	0	3	0	3	5	0	0	15	1	2	15	0	3	5	1	0	6	0
O.H.P.	4	5	0	7	13	0	2	7	0	0	9	1	0	1	0	2	7	1	0	3	0	4	4	0	4	11	1	3	14	0	3	5	1	1	5	0

Question 10. Did you have any advice on the use of the following aids in the teaching of reading during your College/University Course:

Aids	Qualifications																	
	Cert.		Cert/Dip		Deg. & PGCE		Degree		Higher Degree		Other							
	Y	N NR	Y	N NR	Y	N NR	Y	N NR	Y	N NR	Y	N NR						
Television	9	27	0	0	3	1	4	7	1	0	3	0	1	2	0	0	1	0
C. C. T. V.	5	31	0	0	3	1	1	10	1	0	3	0	1	2	0	0	1	0
Radio	9	27	0	0	3	1	4	7	1	0	3	0	1	2	0	0	1	0
Synchrofax	2	34	0	0	3	1	3	8	1	0	3	0	1	2	0	0	1	0
Language Master	4	32	0	0	3	1	4	7	1	0	3	0	1	2	0	0	1	0
Tape Recorder	9	27	0	0	3	1	6	5	1	0	3	0	1	2	0	0	1	0
Talking Typewriter	0	36	0	0	3	1	1	10	1	0	3	0	0	3	0	0	1	0
Record Player	6	30	0	0	3	1	2	9	1	0	3	0	0	3	0	0	1	0
O.H.P.	11	25	0	0	3	1	4	7	1	0	3	0	0	3	0	0	1	0

Question 11.

Attendance at In-service courses for both sexes showed a negative trend. One wonders in the light of both sexes support for the provision of such courses whether more resources need to be applied in this field, particularly as we live in a technological age and the College/University courses appear to be so lacking in their provision.

Turning to "age" attendance at In-service courses was not particularly strong but was most lacking among the group aged 25 years and under. Most attendance was registered amongst the group 45 years and over.

With regard to "age range taught" there was little strong indication except amongst the Infant and Secondary teachers who were particularly negative in their attendance. A pity amongst the latter group as they were better endowed with aids.

"Experience" appeared to increase attendance at In-service courses. Thus the group attending most courses were those with over 25 years' experience. Perhaps these were the teachers who felt in most need of refresher courses. Another group, those with 5 - 10 years' experience also stood out for their attendance at In-service courses. Perhaps their motive was promotion? Least attendance was amongst the group with 1 - 4 years' experience; perhaps they were still assimilating their college courses or felt they had enough to do surviving the rigour of the classroom.

With regard to "training course" attendance at In-service courses varied from group to group, although the overall picture was negative. However, attendance or non-attendance more closely reflected attitude to aids than had been apparent in any other analysis.

When it came to an analysis according to "qualifications" results were equal across the board. However, special note must be made of the degree only group. Two of its members showed most evidence of attendance



at courses perhaps fulfilling the inadequacy of their training courses. It was unfortunate that the third member of the sample was not of like mind, he being totally negative in his attitude, having received no initial training course nor having ever attended an in-service training course on any of the aids.

Question 11. Have you ever attended an in-service training course on the use of any of the following aids in the teaching of reading?

Aids	Sex		Age					Over 45			Age Range Taught			Sec.		All Age																	
	Male		Under 25		26 - 34		35 - 44		Over 45		Infant		I/J		Junior		Sec.		All Age														
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N													
Television	4	11	0	7	35	2	0	7	0	2	10	0	3	14	1	6	15	1	4	4	0	2	24	0	1	6	1	2	0	0			
C. C. T. V.	3	12	0	3	39	2	0	7	0	2	10	0	1	16	1	3	18	1	1	13	1	1	7	0	2	24	0	1	6	1	1	1	0
Radio	4	11	0	5	37	2	0	7	0	1	11	0	2	15	1	6	15	1	1	13	1	3	5	0	2	24	0	1	6	1	2	0	0
Synchrofax	4	11	0	9	32	3	1	6	0	3	9	0	3	14	1	6	14	2	1	13	1	0	7	1	11	15	0	0	7	1	1	1	0
Language Master	5	10	0	14	27	3	1	6	0	7	5	0	4	13	1	7	13	2	2	12	1	2	5	1	11	15	0	2	5	1	2	0	0
Tape Recorder	4	11	0	15	26	3	1	6	0	7	5	0	5	12	1	6	14	2	3	11	1	4	3	1	9	17	0	1	6	1	2	0	0
Talking Typewriter	1	14	0	1	40	3	0	7	0	0	12	0	0	17	1	2	18	2	1	13	1	0	7	1	0	26	0	0	7	1	1	1	0
Record Player	3	12	0	2	40	2	1	6	0	1	11	0	1	16	1	2	19	1	0	14	1	2	6	0	2	24	0	0	7	1	1	1	0
O.H.P.	4	11	0	15	27	2	2	5	0	5	7	0	5	12	1	7	14	1	3	11	1	5	3	0	9	17	0	1	6	1	1	1	0

Aids	Experience						Training Course						J/S		Sec.																					
	1 - 4yrs		5 - 10		11 - 14		15 - 20		21 - 24		Over 25		None		Infant		I/J		Junior		J/S		Sec.													
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N												
Television	0	8	1	4	13	0	0	9	0	2	8	0	0	1	0	5	4	1	1	2	0	1	6	1	3	12	1	2	15	0	3	6	0	1	5	0
C. C. T. V.	0	8	1	3	14	1	0	9	0	0	10	0	0	1	0	3	6	1	1	2	0	0	7	1	1	14	1	2	15	0	2	7	0	0	6	0
Radio	0	8	1	3	14	0	0	9	0	1	9	0	0	1	0	5	4	1	1	2	0	0	7	1	2	13	1	3	14	0	2	7	0	1	5	0
Synchrofax	0	8	1	8	9	0	0	9	0	1	9	0	1	0	0	3	5	2	2	1	0	3	4	1	2	12	2	3	14	0	3	6	0	0	6	0
Language Master	1	7	1	11	6	0	2	7	0	1	9	0	0	1	0	4	4	2	1	2	0	2	5	1	4	10	2	6	11	0	4	5	0	2	4	0
Tape Recorder	0	8	1	11	6	0	2	7	0	2	8	0	0	1	0	4	4	2	2	1	0	2	5	1	7	7	2	4	13	0	2	7	0	2	4	0
Talking Typewriter	0	8	1	1	16	0	0	9	0	0	10	0	0	1	0	1	7	2	0	3	0	1	6	1	0	14	2	0	17	0	1	8	0	0	6	0
Record Player	0	8	1	2	15	0	0	9	0	0	10	0	0	1	0	3	6	1	1	2	0	0	7	1	1	14	1	2	15	0	1	8	0	0	6	0
O.H.P.	1	7	1	8	9	0	2	7	0	2	8	0	1	0	0	5	4	1	2	1	0	2	5	1	8	7	1	2	15	0	3	6	0	2	4	0

Question 11. Have you ever attended an in-service training course on the use of any of the following aids in the teaching of reading?

Aids	Qualifications														
	Cert.		Cert/Dip		Deg. & PGCE		Degree		Higher Degree		Other				
	Y	N NR	Y	N NR	Y	N NR	Y	N NR	Y	N NR	Y	N NR			
Television	6	29	1	1	2	1	2	10	0	1	2	0	0	1	0
C. C. T. V.	2	33	1	1	2	1	1	11	0	1	2	0	1	2	0
Radio	4	31	1	1	2	1	1	11	0	1	2	0	1	2	0
Synchrofax	6	29	1	0	3	1	3	8	1	2	1	0	1	2	0
Language Master	10	25	1	1	2	1	5	6	1	1	2	0	1	2	0
Tape Recorder	10	25	1	1	2	1	4	7	1	2	1	0	1	2	0
Talking Typewriter	1	34	1	0	3	1	0	11	1	0	3	0	1	2	0
Record Player	2	33	1	0	3	1	1	11	0	1	2	0	1	2	0
O.H.P.	10	25	1	1	2	1	5	7	0	2	1	0	1	2	0

Question 12.

Allowing for differences in emphasis between the sexes for courses on particular aids (men supporting T.V., tape recorder, O.H.P. and C.C.T.V., and women tape recorder, O.H.P. and Language Master) there was generally consensus of opinion over the provision of In-service courses, and they were by both sexes considered 'useful'.

The same general positive response was revealed in an analysis according to "age", although a slight edge was shown in interest among the group aged 45 years and over. It is perhaps that they most felt the need, if they had trained some 25 years earlier, to be afforded an opportunity of updating their knowledge and skills.

Turning to "age range taught", on the question of attitude towards the provision of In-service courses, there were distinct preferences expressed by the various groups. These were as follows:

Infant: Language Master, tape recorder and O.H.P.

Infant/Junior: T.V., tape recorder and O.H.P.

Junior: T.V., Language master and tape recorder.

Secondary: T.V., tape recorder and O.H.P.

All Age: All aids except record player.

Apart from this it was noticeable that the Secondary group had considerable replies in the category of "no response". Was this again an expression of a negative attitude towards the aids, or the fact that reading was not so readily a part of their everyday teaching?

Analysis according to "experience" again revealed a generally positive attitude towards the provision of In-service courses with bias for particular aids being found among various groups.

1 - 4 years: Tape recorder, synchrofax and O.H.P.

5 -10 years: Tape recorder, O.H.P. and language master.

11-14 years: Tape recorder, T.V. and O.H.P.

15-20 years: Language master, synchrofax, tape recorder, O.H.P.

21-24 years: All aids except C.C.T.V., O.H.P. and record player.

Over 25 years: O.H.P., T.V. and tape recorder.

The groups least interested in the provision of In-service courses with regard to analysis according to "training age" were the very groups who had been generally negative in their attendance. With these exceptions attitude to the provision of courses was generally positive with individual courses for various groups being popular or unpopular. The latter reflection may equally be made from an analysis according to "qualification".

Question 12: As part of an in-service training scheme how useful would it be to provide a course on the use of the following aids in the teaching of reading?

Aids	Sex		Age				
	Male	Female	Under 25	26 - 34	35 - 44	Over 45	
Television	5 4 3 2 1 NR	5 4 3 2 1 NR	5 4 3 2 1 NR	5 4 3 2 1 NR	5 4 3 2 1 NR	5 4 3 2 1 NR	
C.C.T.V.	8 2 3 0 1 1	13 11 13 5 0 2	1 2 2 2 0 0	3 5 3 1 0 0	7 1 7 0 1 2	10 5 4 2 0 1	
Radio	6 3 1 1 2 2	8 3 13 12 4 4	1 1 2 1 2 0	1 1 5 3 2 0	5 2 4 4 1 2	7 2 3 5 1 4	
Synchrofax	4 3 3 1 2 2	8 11 10 11 1 3	1 3 1 2 0 0	1 3 4 2 1 1	4 1 4 5 1 3	6 7 4 3 1 1	
Language Master	6 3 2 1 1 2	11 10 11 0 3 9	2 3 0 0 0 2	2 3 3 0 2 2	6 3 5 0 1 3	7 4 5 1 1 4	
Tape Recorder	5 3 3 2 0 2	12 15 9 1 2 5	2 2 1 0 0 2	3 4 3 0 1 1	5 5 4 2 0 2	7 7 4 1 1 2	
Talking Typewriter	7 2 2 2 0 2	18 16 7 0 1 2	2 2 4 0 0 0	5 5 2 0 0 0	9 3 2 1 1 2	9 8 1 2 0 2	
Record Player	5 2 2 1 1 4	7 9 13 5 2 8	0 3 2 0 0 2	1 3 3 1 1 3	5 2 4 3 1 3	6 3 6 2 1 4	
O.H.P.	3 2 3 4 2 1	9 12 5 12 4 2	0 3 3 1 0 0	1 3 0 5 3 0	5 2 2 5 2 2	6 6 3 5 1 1	
	6 4 1 0 3 1	17 13 7 3 2 2	2 2 2 1 0 0	4 4 2 0 2 0	7 4 3 0 2 2	10 7 1 2 1 1	

Aids	Age Range Taught			All Age		
	Infant	Inf/Jun	Junior	Secondary	All Age	All Age
Television	5 4 3 2 1 NR	5 4 3 2 1 NR	5 4 3 2 1 NR	5 4 3 2 1 NR	5 4 3 2 1 NR	5 4 3 2 1 NR
C.C.T.V.	2 1 7 3 1 1	3 3 2 0 0 0	8 9 7 2 0 0	6 0 0 0 0 2	2 0 0 0 0 0	2 0 0 0 0 0
Radio	2 0 5 5 2 1	0 1 3 3 0 1	6 4 5 5 4 2	4 1 1 0 0 2	2 0 0 0 0 0	2 0 0 0 0 0
Synchrofax	2 2 3 6 1 1	1 2 3 1 1 0	6 8 6 5 1 0	3 0 1 0 0 4	0 2 0 0 0 0	0 2 0 0 0 0
Language Master	3 3 4 0 2 3	1 2 2 0 2 1	9 7 5 1 0 4	2 1 2 0 0 3	2 0 0 0 0 0	2 0 0 0 0 0
Tape Recorder	4 3 5 1 1 1	1 3 2 0 1 1	10 9 4 1 0 2	1 2 1 1 0 3	1 1 0 0 0 0	1 1 0 0 0 0
Talking Typewriter	4 5 5 0 0 1	4 3 0 0 0 1	10 9 4 2 1 0	5 1 0 0 0 2	2 0 0 0 0 0	2 0 0 0 0 0
Record Player	3 2 6 1 2 1	0 3 2 1 1 1	5 5 5 4 0 7	2 1 2 0 0 3	2 0 0 0 0 0	2 0 0 0 0 0
O.H.P.	3 2 4 3 2 1	1 3 0 3 1 0	6 8 2 8 2 0	2 0 1 2 1 2	0 1 1 0 0 0	0 1 1 0 0 0
	6 2 3 1 2 1	3 5 1 0 0 0	10 9 4 2 1 0	4 1 0 0 1 2	1 0 0 0 1 0	1 0 0 0 1 0

Question 12. As part of an in-service training scheme how useful would it be to provide a course on the use of the following aids in the teaching of reading?

Aids	Experience																																			
	1-4 Yrs.		5-10 Yrs.		11-14 Yrs.		15-20 Yrs.		21-24 Yrs.		Over 25 Yrs.																									
	5	4	3	2	1	NR	5	4	3	2	1	NR	5	4	3	2	1	NR	5	4	3	2	1	NR	5	4	3	2	1	NR						
Television	1	2	3	2	0	1	5	7	6	2	0	0	5	1	2	0	0	1	4	1	4	0	1	0	0	1	0	0	0	0	6	1	1	1	0	1
C.C.T.V.	1	1	1	2	3	1	3	3	7	5	1	1	4	0	3	1	0	1	3	2	2	2	1	0	0	0	0	0	0	1	3	0	1	3	1	2
Radio	1	3	1	3	0	1	3	5	7	3	1	1	4	1	0	2	0	2	2	2	3	2	1	0	0	1	0	0	0	0	2	2	2	2	1	1
Synchrofax	2	3	1	0	0	3	4	4	7	0	2	3	4	0	2	0	0	3	3	4	2	0	1	0	1	0	0	0	0	0	3	2	1	1	1	2
Language Master	2	2	2	0	0	3	6	7	5	1	1	0	4	1	2	0	0	2	2	5	2	1	0	0	1	0	0	0	0	0	2	3	1	1	1	2
Tape Recorder	2	3	3	0	0	1	10	7	3	0	0	0	6	2	0	0	0	1	3	3	3	0	1	0	1	0	0	0	0	0	3	3	0	2	0	2
Talking Typewriter	1	2	2	1	0	3	2	5	6	1	1	5	5	0	2	1	0	1	2	3	2	2	1	0	0	0	0	0	0	1	2	1	3	1	1	2
Record Player	1	3	3	1	0	1	3	6	1	8	2	0	4	1	1	1	1	1	2	3	1	2	2	0	1	0	0	0	0	0	1	1	2	4	1	1
O.H.P.	3	2	2	1	0	1	5	10	3	1	1	0	5	1	1	0	1	1	4	2	2	0	2	0	0	0	0	1	0	0	6	2	0	0	1	1

Aids	Training Course																																			
	None		Infant		Inf/Jun		Junior		J/S		Secondary																									
	5	4	3	2	1	NR	5	4	3	2	1	NR	5	4	3	2	1	NR	5	4	3	2	1	NR												
Television	1	0	1	0	1	0	0	2	4	1	0	1	3	7	2	3	0	1	9	3	5	0	0	0	5	1	2	1	0	0	3	0	2	0	0	1
C.C.T.V.	1	1	0	0	1	0	0	0	4	2	1	1	2	3	2	6	1	2	5	1	4	4	1	2	4	0	2	1	2	0	2	1	2	0	0	1
Radio	0	0	2	0	1	0	0	3	2	2	0	1	2	3	3	6	1	1	6	5	3	1	1	1	2	2	2	2	0	1	2	1	1	1	0	1
Synchrofax	2	0	0	0	1	0	1	2	3	0	1	1	3	5	2	0	2	4	7	3	4	0	0	3	3	1	3	1	0	1	1	2	1	0	0	2
Language Master	2	0	1	0	0	0	1	2	3	0	1	1	5	6	2	0	1	2	7	5	3	0	0	2	2	2	1	3	0	1	0	3	2	0	0	1
Tape Recorder	1	0	2	0	0	0	1	4	2	0	0	1	8	5	2	0	0	1	8	6	0	1	1	1	4	2	2	1	0	0	3	1	1	0	0	1
Talking Typewriter	0	0	0	0	2	1	1	1	4	0	1	1	2	7	1	2	0	4	5	2	4	2	0	4	2	0	3	2	0	2	2	1	3	0	0	0
Record Player	0	0	0	2	1	0	0	4	1	1	1	1	3	3	1	7	1	1	6	6	0	2	3	0	2	0	3	4	0	0	1	1	3	0	0	1
O.H.P.	1	0	1	0	1	0	2	3	0	1	1	1	5	6	3	1	0	1	7	6	2	0	2	0	4	2	2	1	0	0	4	0	0	0	1	1

Question 12. As part of an in-service training course how useful would it be to provide a course on the use of the following aids in the teaching of reading?

Aids	Qualifications																										
	Cert.			Cert./Dip			Deg. & PGCE			Degree			Higher Degree			Other											
	5	4	3	2	1	NR	5	4	3	2	1	NR	5	4	3	2	1	NR	5	4	3	2	1	NR			
Television	10	8	12	5	0	1	3	0	0	0	1	1	1	0	1	0	3	0	0	0	0	0	0	1	0	0	0
C. C. T. V.	6	3	12	9	3	3	2	0	0	0	1	1	3	1	2	4	1	1	1	1	0	0	1	0	2	1	0
Radio	7	11	6	10	0	2	1	0	1	0	1	1	2	1	4	2	1	2	0	0	2	0	1	0	2	1	0
Synchrofax	9	11	7	0	1	8	2	0	1	0	0	1	2	1	5	1	2	1	2	0	0	0	1	0	2	1	0
Language Master	9	14	7	0	1	5	1	1	1	0	0	1	3	1	3	3	1	1	2	0	1	0	0	0	2	1	0
Tape Recorder	12	15	6	0	1	2	1	1	0	1	0	1	7	2	1	1	0	1	1	0	2	0	0	0	3	0	0
Talking Typewriter	7	8	13	1	0	7	1	0	1	0	1	1	2	2	1	4	1	2	0	0	0	1	1	1	2	1	0
Record Player	8	12	5	7	3	1	0	0	1	1	1	1	2	1	1	6	1	1	0	0	0	2	1	0	2	0	1
O.H.P.	13	11	5	2	4	1	2	0	1	0	0	1	4	5	2	0	0	1	1	0	0	1	1	0	3	0	0



**Question 13.**

As in any of the analyses knowledge of the common aids was unanimous, it was not felt necessary to produce a table relating to this question. It was felt that comment alone would be sufficient. Among the sexes men had a slightly better knowledge of the more uncommon aids and with regard to "age" the same was true of the group aged 45 years and over. Analysis according to "age range taught" revealed nothing of note, but with regard to "experience" the sample who had been teaching for the shortest period were slightly more ignorant of the less common aids. Analysis according to "training course" reflected that according to "age range taught", but with regard to "qualifications" the Certificate group stood out as least informed about the less common aids.

## CHAPTER 6.

### **Teachers' Comments and Conclusions**

#### **drawn from the Investigation.**

Of the sample of 59, twenty five teachers commented on the questionnaire in one way or another. Seventeen of these were female and eight were male. There follows some extracts from the comments, those chosen typifying the sort of comments made in certain broad areas.

The Place of Audio Visual Aids.

Female Infant Teacher aged 45 years with over 25 years' experience.

"The real benefit of any equipment can only be assessed through use in any given circumstances. Equipment is usually expensive and without some guarantee that it is worthwhile there is a reluctance to allocate money. It would be useful to have equipment on loan for 1 - 3 terms to assess usefulness before committment to buy."

Female Infant teacher aged 26 - 34 years with 5 - 10 years' experience.

"The usefulness of any audio visual aids will of course depend on how they are used. They would only be useful as supplementary work in my opinion as each programme would need to be directed at those at certain attainment levels without regard to individual differences."

Male Secondary teacher aged 35 - 44 years with 11 - 14 years' experience.

"Audio visual machinery is very distracting - something that does not fit into the ordered and familiar environment I encourage."

Audio Visual Aids and Reading.

Male Secondary teacher aged 35 - 44 years with 11 - 14 years' experience.

"Machines to teach reading? At the moment they must be narrow and mechanical (in reading technique) Perhaps in 10 years' time I'll buy one --- but I feel they will teach reading as a sequential process, something it isn't. Will there ever be a machine capable of teaching reading holistically?"

Female Infant teacher aged 45 years and over with over 25 years' experience.

"Learning to read is largely individually programmed.

The level of use of any aid would largely depend on preparation time

involved related to the improvement, if any, over other teaching methods.

Does it stimulate reading in anyway?"

Other Audio Visual Aids and reading.

The writer acknowledges that there were deficiencies in the list of audio visual aids she presented. However, they were intended only as starting points and the following comments are included as suggesting possible extensions.

Female Junior teacher aged 45 years and over with 5 - 10 years' experience.

"You don't list cameras or slide projectors which you can also use in the teaching of reading. e.g. photographing shop signs etc. on a walk --- lots of reading material and motivation."

Female Secondary teacher aged 45 years and over with 11 - 14 years' experience

"What about the use of slides synchronised with a tape recorder? I have found this useful."

Other uses of Audio Visual Aids.

Female Secondary Teacher aged 45 years and over with 11 - 14 years' experience

"I also use audio visual aids as part of my Humanities programme i.e. T.V., 16mm film, tape recorder, V.T.R., slides and film strips."

Female Infant teacher aged 45 years and over with 11 - 14 years' experience.

"With most children starting school their visual perception is well developed and their auditory perception is weak and the cause of a slow start to reading. Language development often needs to be improved also. Audio visual aids do of course help in the stimulation of language but I would like more use to be made of purely auditory aids to improve auditory perception."

Initial Training Courses.

Female College Lecturer aged 45 years and over with over 25 years' experience.

"I do not encourage students to use audio visual aids except for the cassette recorder. I think they need to be self reliant and make cards and apparatus to suit the individual needs of children."

Can this not be done with material produced for audio visual aids so that we develop a self reliant teacher geared to the modern technological age?

In-Service courses.

Female Remedial teacher aged 26 - 34 years with 5 - 10 years' experience.

"However useful this equipment is, In-service courses will be wasted unless schools are enabled to buy any of the equipment".

Female Junior teacher aged under 25 years with 1 - 4 years' experience.

"I feel there should be more courses on the use of audio visual aids in the teaching of reading. Many teachers don't know how to use aids to their best advantage to help with their task of teaching reading".

Female Junior teacher aged 26 - 34 years with 1 - 4 years' experience.

"I attended a five week course on Remedial reading but audio visual aids were only briefly discussed probably because of the economic cutbacks".

Male Junior teacher aged 45 years and over with over 25 years' experience.

"The In-Service courses would only be of use if money was to be made available for this type of apparatus. i.e. my total capitation is about £700 per annum and a synchrofax costs £85 at the moment (1978)".

Audio Visual Aids and Teachers

Female Infant/Junior remedial aged 45 years and over with 5 - 10 years' exp.

"I think the standards were better when teachers projected themselves. Since "visual aids" arrived the teachers make less effort. It would be interesting to see how many aids sit around collecting dust".

Female Junior teacher aged 35 - 44 years with 15 - 20 years' experience.

"Although audio visual aids are useful they can never do more than supplement a good foundation built by a good Infant reading scheme and competent teacher".

Male Junior teacher aged 26 - 34 years with 5 - 10 years' experience.

"Audio visual aids are best used when the "software" for the

machines is made by the teacher for a particular child or group of children. Commercially produced "software" does not always cover the ground needed or apply to the learning problem of the individual child."

Some interesting comments, many of them raised, discussed or experimented on in the course of this study. Others still to be explored and evaluated in the ever changing technological world.

Conclusion.

At the outset of this part of the study the writer indicated several questions to which she hoped the results of the questionnaire might proffer solutions. What conclusions can now be drawn?

One thing was clearly apparent, there is among teachers a dichotomy between their opinion of audio visual aids and how much they use them. Local Education Authorities might supply Audio/Visual equipment to teachers who have a high regard for its merit, but for some reason widespread use of this equipment is not made any more than amongst teachers who do not hold it in high regard. One is prompted to ask why, even though it is a question which may become increasingly less important if money becomes less available for the provision of equipment. Is it that teachers find audio visual aids too demanding to establish and operate within the usual classroom environment? Or is it that though interested in the aids, teachers have received inadequate initial training in their use and are in some cases denied In-service training? Perhaps these questions might in part be answered by reflection at the various teachers' comments. Suffice it to say here that making a subjective comment the writer feels the reason for lack of use may rest there rather than in any fear of the teachers' of the audio visual aid usurping the teachers' position. Of course not all teachers had a good provision of aids and thus their positive opinion of aids was perhaps uninformed. In this chapter one recipient of the questionnaire clearly makes the point that positive attitude to an aid or indeed training in its use are of little value when aids are increasing in price and L.E.A.'s are having to dramatically chop the education budget.

Mention of Initial Training Courses must be made as perhaps more plainly than anything else the results of the questionnaire revealed their glaring inadequacy. Can this really be excused in the technological age? The writer would venture to say it cannot. Surely part

of the initial training course must include some advice on the use of audio visual aids which are increasingly becoming such an important part of the everyday life of the modern child. Comment is made on this by a college lecturer in this chapter, the gist of her remarks being that she does not encourage students to use audio visual aids as she prefers them to be self reliant. Are the two really in conflict or can the student not be encouraged to produce material suitable for use with audio visual aids alongside her production of the more traditional cards and apparatus?

Finally a comment on In-service training. Attendance at courses was not particularly good, although interest in their provision was high. Unfortunately the questionnaire failed to reveal why interested teachers had not made attendance assuming relevant courses were readily available. Perhaps this is an area that future investigation might pursue.

In conclusion the writer feels this part of the study to have been of value. Teachers are an important part of the educational machine and their attitudes are of paramount importance in the formulation of educational innovation. The audio visual aid is an innovation and one which is likely to be around for some considerable time to come. It is important to establish that audio visual aids are held in regard by teachers, whether they are being adequately used, and what sort of guidance teachers need in order to make the best possible use of them in the education of the child of the "technological age."



**CHAPTER 7.**

**Conclusion,**

Separate conclusions have already been made at the end of Chapters 4 and 6 with respect of the two separate halves of the study. However, in that both halves are infact two facets of the same question "Are audio visual aids of use in the teaching of reading?" it is perhaps pertinent to draw some general conclusion.

Children and teachers must both be happy with audio visual aids and derive benefit from them if they are to have a justifiable use in the modern classroom. The experiments showed that children were happy using aids and in some cases showed a significant achievement in their reading, which might in part be attributed to the use of audio visual aids. Teachers who responded to the questionnaire generally accepted audio visual aids, and certainly showed that they would welcome more information on how they might be of greater value. They did not consider them a threat to their position, nor indeed should they. It is merely that the teachers' role in school is changing and they can no longer expect or indeed desire to be the only source of information in the room. One might say teachers need to continue to learn about an ever widening range of machines but this might not be profitable. However, teachers do need to keep technologically up to date so that they can select material most appropriate to the learning of their children. When a teacher has a definite idea of what she wants children to achieve then she needs to design teaching and learning situations in which it might happen. The question reappears "To what extent are audio visual aids useful in the teaching of reading?". However, this can now be extended by "Which machines might do the job best?". The comparative study of media particularly with distinct objects and children in mind would be absorbing and of considerable importance. The writer in this study put forward general ideas of what can be done with various kinds of equipment and tried to assess, at least amongst a small sample, what sort of use was made of audio visual aids in the teaching of reading.

What is needed now is a detailed consideration of the strengths and weaknesses of various aids that do a similar job. The writer evaluated the specific use of Language Master and Tape Recorder in a given situation vis-a-vis the traditional classroom instruction. Having shown that both can be equally as effective as the traditional classroom methods in teaching a child to read, perhaps what is now needed is a consideration of their effect vis-a-vis each other. A comparative study of media is certainly necessary in connection with media selection particularly with rising costs and diminishing funds.

Audio visual aids and reading are inextricably linked. If used selectively they can give considerable impetus to oral work. Listening is an important comprehension skill and some types of sound recording may be found useful in giving children practice in intensive listening for short periods of time. Phonic work, so basic to a good reading vocabulary can be aided considerably by the use of relevant audio visual aids. The list is endless. Audio visual aids are here to stay and they have a definite role to play in the teaching of reading.

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The first part of the report discusses the general situation of the country and the progress of the work done during the year. It also mentions the various committees and sub-committees that have been formed to deal with different aspects of the problem.

The second part of the report deals with the specific details of the work done. It describes the various experiments that have been carried out and the results that have been obtained. It also discusses the various theories that have been advanced to explain the results.

The third part of the report discusses the various practical applications of the work done. It describes the various methods that have been developed for the production of the various substances and the various uses that have been found for these substances.

The fourth part of the report discusses the various theoretical aspects of the work done. It describes the various theories that have been advanced to explain the results and the various experiments that have been carried out to test these theories.

The fifth part of the report discusses the various practical aspects of the work done. It describes the various methods that have been developed for the production of the various substances and the various uses that have been found for these substances.

**APPENDIX A**

This appendix contains the various tables and figures that are referred to in the text. It also contains the various chemical equations and the various diagrams that have been used in the work.

The first table in the appendix gives the various physical constants that have been used in the work. The second table gives the various chemical constants that have been used. The third table gives the various results of the experiments that have been carried out.

The first figure in the appendix is a graph showing the variation of the various physical constants with temperature. The second figure is a graph showing the variation of the various chemical constants with concentration. The third figure is a graph showing the variation of the various results of the experiments with time.

The first chemical equation in the appendix is the equation for the reaction of the various substances. The second chemical equation is the equation for the reaction of the various substances. The third chemical equation is the equation for the reaction of the various substances.

The first diagram in the appendix is a diagram showing the various apparatus that have been used in the work. The second diagram is a diagram showing the various apparatus that have been used. The third diagram is a diagram showing the various apparatus that have been used.

Table 1. Record of mean recognition over a six week period

<u>Week</u>	<u>Control Group</u>	<u>Experimental Group</u>
1	2.0	2.9
2	3.7	4.4
4	5.8	7.3
5	7.2	9.1
6	9.7	10.9

Table 2. Record of Increase in mean recognition over a six week period

<u>Week</u>	<u>Control Group</u>	<u>Experimental Group</u>
1 - 2	1.7	1.5
2 - 4	2.1	2.9
4 - 5	1.4	1.8
5 - 6	2.5	1.8

Table 3. Comparison of Boys and Girls Scores in the groups

<u>Boys Week</u>	<u>Control Group</u>	<u>Experimental Group</u>
1	2.2	2.2
2	4.2	3.6
4	5.6	6.3
5	8.1	7.4
6	9.1	10.5
<u>Girls Week</u>	<u>Control Group</u>	<u>Experimental Group</u>
1	1.6	3.5
2	2.6	5.5
4	6.0	8.5
5	6.0	11.5
6	10.8	11.5

Table 4. Scores from t test administered at the end of week 1.

<u>Control Group</u>	0, 4, 0, 1, 6, 2, 3, 1,
N = 15	2, 0, 4, 1, 4, 0, 2.
<u>Experimental Group</u>	2, 3, 4, 5, 1, 2, 2, 5,
N = 16	2, 0, 9, 3, 1, 0, 3, 3.

$$\underline{t = 1.095}$$

Table 5. Scores from t test administered at the end of week 6.

<u>Control Group</u>	12, 12, 14, 10, 11, 8, 11, 10,
N = 15	8, 3, 16, 6, 16, 5, 5.
<u>Experimental Group</u>	9, 12, 16, 12, 5, 16, 10, 16,
N = 15	7, 9, 16, 13, 13, 6, 5.

$$\underline{t = 0.817}$$

Table 6. Scores from Wilcoxon T test comparing progress of groups within themselves at two weekly intervals

<u>Control Group</u>	<u>Week 1</u>	<u>Week 3</u>	<u>Week 5</u>
N = 15	0	4	12
	4	8	12
	0	7	14
	1	3	10
<u>T = 0</u>	6	10	11
<u>significant</u>	2	5	8
<u>at 0.01 level</u>	3	5	11
	1	5	10
	2	4	8
	0	3	3
	4	11	16
	1	4	6
	4	12	16
	0	1	5
	2	Ab.	5
<u>Experimental Group</u>	<u>Week 1</u>	<u>Week 3</u>	<u>Week 5</u>
N = 16	2	5	9
	3	8	12
	4	14	16
	5	7	12
<u>T = 0</u>	1	4	5
<u>significant</u>	2	4	16
<u>at 0.01 level</u>	2	6	10
	5	13	16
	2	5	7
	0	7	9
	9	14	16
	3	6	13
	1	8	13
	0	2	6
	3	Ab.	5
	3	8	Ab.

Table 7. Scores from t test administered at the end of week 1.

<u>Control Group</u>	2, 1, 5, 1, 9, 6, 1,
N = 14	3, 15, 8, 2, 3, 9, 8.
<u>Experimental Group</u>	8, 3, 4, 10, 14, 8,
N = 13	10, 1, 1, 4, 2, 6, 13.
	<u>t = 0.787</u>

Table 8. Scores from t test administered at the end of week 2.

<u>Control Group</u>	8, 6, 7, 2, 13, 10, 2,
N = 14	5, 15, 10, 13, 1, 9, 15.
<u>Experimental Group</u>	13, 6, 10, 19, 17, 15, 11,
N = 13	3, 3, 10, 6, 13, 16.
	<u>t = 1.354</u> significant at 0.20 level

Table 9. Scores from t test administered at the end of the experiment

<u>Control Group</u>	18, 12, 5, 5, 3, 15, 4,
N = 14	8, 22, 15, 22, 7, 22, 17.
<u>Experimental Group</u>	17, 8, 15, 22, 22, 22, 16,
N = 13	6, 5, 11, 8, 22, 22.
	<u>t = 0.974</u>

**Table 10.** **Scores from t test administered to compare the scores of the control group in week 1 and week 4 of the experiment**

<u>Week 1.</u>	2, 1, 5, 1, 9, 6, 1,
N = 14	3, 15, 8, 2, 3, 9, 8.
<u>Week 4.</u>	18, 12, 5, 5, 3, 15, 4,
N = 14	8, 22, 15, 22, 7, 22, 17.

t = 3.318 significant at 0.01 level.

**Table 11.** **Scores from t test administered to compare the scores of the experimental group in week 1 and week 4 of the experiment**

<u>Week 1.</u>	8, 3, 4, 10, 14, 8, 10,
N = 13	1, 1, 4, 2, 6, 13.
<u>Week 4.</u>	17, 8, 15, 22, 22, 22, 16,
N = 13	6, 5, 11, 8, 22, 22.

t = 3.856 significant at 0.001 level.



Table 12. Scores from t test administered at the end of week 1, using balanced control and experimental groups of N = 12

<u>Control Group</u>	2, 1, 5, 9, 6, 3,
N = 12	15, 8, 2, 3, 9, 8.
<u>Experimental Group</u>	8, 3, 4, 10, 14, 8,
N = 12	10, 1, 1, 4, 2, 6.
	<u>t = 0</u>

Table 13. Scores from t test administered at the end of week 2 using balanced control and experimental groups of N = 12

<u>Control Group</u>	8, 6, 7, 13, 10, 5,
N = 12	15, 10, 13, 1, 9, 15.
<u>Experimental Group</u>	13, 6, 10, 19, 17, 15,
N = 12	11, 3, 3, 10, 6, 13.
	<u>t = 0.618</u>

Table 14. Scores from t test administered at the end of week 4 using balanced control and experimental groups of N = 12

<u>Control Group</u>	18, 12, 5, 3, 15, 8,
N = 12	22, 15, 22, 7, 22, 17.
<u>Experimental Group</u>	17, 8, 15, 22, 22, 22,
N = 12	16, 6, 5, 11, 8, 22.
	<u>t = 0.253</u>

**Table 15. Scores from Wilcoxon T test administered at the end of week 1.**

	<u>Control Group</u>	<u>Experimental Group</u>
	1	1
N = 12	2	1
N = 12	2	2
	3	3
	3	4
	5	4
<u>T = 10.5</u>	6	6
	8	8
	8	8
	9	10
	9	10
	15	14

**Table 16. Scores from Wilcoxon T test administered at the end of week 4.**

	<u>Control Group</u>	<u>Experimental Group</u>
	12	6
N = 12	18	5
N = 12	22	8
	8	8
	7	15
	5	11
<u>T = 43</u>	15	22
	15	17
	17	22
	3	22
	22	16
	22	14

Table 17. Sample: 30 Children C. A 7 years 4 months

*control group	<u>Pre test scores</u>				<u>Post test scores</u>			
	<u>Schonell</u>		<u>Burt</u>		<u>Schonell</u>		<u>Burt</u>	
1*	10y	1m (58)	9y	10m (67)	10y	8m (65)	10y	2m (70)
2	10y	2m (59)	9y	6m (63)	11y	4m (71)	10y	11m (77)
3*	9y	0m (43)	9y	2m (60)	9y	2m (45)	9y	6m (63)
4	9y	1m (44)	9y	1m (59)	9y	5m (48)	10y	1m (69)
5*	8y	9m (40)	9y	0m (59)	8y	11m (42)	8y	9m (56)
6	9y	0m (43)	8y	10m (57)	9y	8m (52)	10y	1m (69)
7*	8y	3m (33)	8y	5m (52)	-		8y	2m (49)
8	8y	8m (39)	8y	3m (50)	9y	8m (52)	9y	1m (59)
9*	8y	6m (36)	8y	2m (49)	8y	5m (35)	-	
10	8y	5m (35)	7y	11m (46)	9y	6m (50)	8y	10m (57)
11*	8y	5m (35)	7y	10m (45)	8y	9m (40)	8y	6m (53)
12	8y	6m (36)	7y	7m (42)	8y	10m (41)	8y	8m (55)
13*	7y	9m (28)	7y	10m (45)	7y	9m (28)	7y	7m (42)
14	8y	0m (30)	7y	5m (39)	-		8y	5m (52)
15*	7y	10m (29)	7y	5m (39)	7y	10m (29)	8y	0m (47)
16	7y	9m (28)	7y	5m (39)	8y	1m (31)	7y	10m (45)
17*	7y	9m (28)	7y	3m (37)	8y	1m (31)	7y	5m (39)
18	7y	8m (27)	7y	1m (35)	8y	3m (33)	7y	6m (41)
19*	7y	7m (25)	7y	1m (35)	8y	0m (30)	7y	7m (42)
20	7y	7m (26)	7y	1m (35)	7y	8m (27)	7y	10m (45)
21*	7y	4m (21)	7y	1m (35)	7y	6m (24)	7y	1m (35)
22	7y	7m (25)	7y	1m (35)	8y	3m (33)	7y	7m (42)
23*	7y	5m (22)	6y	11m (33)	7y	7m (25)	7y	1m (35)
24	7y	6m (24)	7y	0m (34)	7y	9m (28)	7y	4m (38)
25*	7y	2m (18)	6y	9m (30)	7y	3m (19)	6y	9m (31)
26	7y	4m (20)	6y	8m (29)	-		7y	3m (37)
27*	6y	11m (14)	6y	8m (29)	7y	2m (17)	6y	9m (31)
28	7y	1m (16)	6y	8m (29)	7y	5m (22)	7y	0m (34)
29*	6y	8m (9)	6y	4m (23)	6y	11m (13)	6y	7m (27)
30	7y	2m (18)	6y	8m (29)	7y	5m (22)	7y	0m (34)

Table 18. t test using scores from Schonell Reading Test -  
pre experiment

<u>Control Group</u>	58, 43, 40, 33, 36, 35, 28, 29,
N = 15	28, 25, 21, 22, 14, 9, 18.

<u>Experimental Group</u>	59, 44, 43, 39, 35, 36, 30, 28,
N = 15	27, 26, 25, 24, 40, 16, 18.

$$\underline{\underline{t = 0.472}}$$

Table 19. t test using scores from Burt Reading test -  
pre experiment

<u>Control Group</u>	67, 60, 59, 52, 49, 45, 45,
N = 15	39, 37, 35, 35, 33, 30, 29, 23.

<u>Experimental Group</u>	63, 59, 57, 50, 46, 42, 39,
N = 15	39, 35, 35, 35, 34, 29, 29, 29.

$$\underline{\underline{t = 0.257}}$$

Table 20. Wilcoxon T test for experimental group using scores from  
Burt Reading test administered before and after the  
experiment

	<u>Before</u>	<u>After</u>
	63	77
N = 14	59	Ab
<u>T = 0</u>	57	69
significant	50	59
at 0.01 level	46	57
	42	55
	39	52
	39	45
	35	41
	35	45
	35	42
	34	38
	29	37
	29	34
	29	34

Wilcoxon T test for experimental group using scores from  
Schonell Reading test administered before and after the  
experiment

	<u>Before</u>	<u>After</u>
	59	71
N = 13	44	48
<u>T = 0</u>	43	52
significant	39	52
at 0.01 level	35	50
	36	41
	30	Ab
	28	31
	27	33
	26	27
	25	33
	24	28
	20	Ab
	16	22
	18	22

**Table 21. Wilcoxon T test for control group using scores from Burt Reading test administered before and after the experiment.**

	<u>Before</u>	<u>After</u>
	67	70
N = 13	60	63
<u>T = 21</u>	59	56
	52	49
	49	Ab
	45	53
	45	42
	39	47
	37	39
	35	42
	35	35
	33	35
	30	31
	29	31
	23	27

**Wilcoxon T test for control group using scores from Schonell Reading test administered before and after the experiment.**

	<u>Before</u>	<u>After</u>
	58	65
N = 12	43	45
<u>T = 1.5</u>	40	42
significant at	33	Ab
0.01 level.	36	35
	35	40
	28	28
	29	29
	28	31
	25	30
	21	24
	22	25
	18	19
	14	17
	9	13

Table 22. t test using scores from Schonell Reading  
test - post experiment

<u>Control Group</u>	65, 45, 42, 35, 40, 28, 29,
N = 14	31, 30, 24, 25, 19, 17, 13.
<u>Experimental Group</u>	71, 48, 52, 52, 50, 41, 33, 27,
N = 13	33, 28, 22, 22.

t = 1.410 significant at 0.20 level.

Table 23. t test using scores from Burt Reading  
test - post experiment.

<u>Control Group</u>	70, 53, 56, 49, 53, 42, 47, 39,
N = 14	42, 35, 35, 31, 31, 27.
<u>Experimental Group</u>	77, 69, 69, 59, 57, 55, 52,
N = 15	45, 41, 45, 42, 38, 34, 34, 37.

t = 1.212

Table 24. t test comparing scores of Control group from Schonell  
test pre and post experiment.

Pre - experiment            58, 43, 40, 33, 36, 35, 28,  
N = 15                            29, 28, 25, 21, 22, 14, 9, 18.

Post - experiment            65, 45, 42, 35, 40, 28, 29, 31,  
N = 14                            30, 24, 25, 19, 17, 13.

t = 0.495

Table 25. t test comparing scores of Control group from Burt  
test pre and post experiment.

Pre - experiment            67, 60, 59, 52, 49, 45, 45,  
N = 15                            39, 37, 35, 35, 33, 30, 29, 23.

Post - experiment            70, 63, 56, 49, 53, 42, 47,  
                                      39, 42, 35, 35, 31, 31, 27.

t = 0.372



Table 26. t test comparing scores of Experimental group from  
Schonell test pre and post experiment.

<u>Pre - experiment</u>	59, 44, 43, 39, 35, 36, 30,
N = 15	28, 27, 26, 25, 24, 20, 16, 18
<u>Post - experiment</u>	71, 48, 52, 52, 50, 41, 31,
N = 15	33, 27, 33, 28, 22, 22.

t = 1.602. significant at 0.10 level.

Table 27. t test comparing scores of Experimental group from  
Burt test pre and post experiment.

<u>Pre - experiment</u>	63, 59, 57, 50, 46, 42, 39,
N = 15	39, 35, 35, 35, 34, 29, 29, 29.
<u>Post - experiment</u>	77, 69, 69, 59, 57, 55, 52, 45,
N = 15	41, 45, 42, 38, 34, 34, 37.

t = 1.94 significant at 0.05 level.

Table 28. t test using scores from Burt Reading test  
pre - experiment.

Control Group 30, 45, 27, 34, 15, 32, 20, 5, 27.

N = 9

Experimental Group 36, 47, 27, 35, 15, 30, 15, 7, 27.

N = 9

t = 0.00701.

Table 29. t test using scores from Burt Reading test after  
first half of experiment

Control Group 33, 45, 27, 39, 18, 30, 28, 11.

N = 8

Experimental Group 43, 53, 27, 44, 18, 39, 22, 12, 28.

N = 9

t = 0.42

Table 30. t test using scores from Burt Reading test at the  
end of experiment.

Control Group 41, 19, 19, 25, 28, 41, 28, 55, 45.

N = 9

Experimental Group 35, 20, 20, 30, 32, 35, 30, 55, 42.

N = 9

t = 0.036

Table 31. t test using accuracy scores from Neale form A  
after 1st. part of the Experiment.

<u>Control Group</u>	24, 36, 21, 28, 7, 26, 12, 5, 19.
N = 9	
<u>Experimental Group</u>	29, 46, 23, 30, 15, 28, 15, 12, 25.
N = 9	
	<u>t = 0.475</u>

Table 32. t test using rate scores from Neale form A  
after 1st. part of the Experiment.

<u>Control Group</u>	33, 41, 26, 32, 17, 31, 23, 19, 33.
N = 9	
<u>Experimental Group</u>	54, 57, 35, 29, 19, 32, 18, 17, 41.
N = 9	
	<u>t = 0.946</u>

Table 33. t test using comprehension scores from Neale form A  
after 1st. part of the experiment.

<u>Control Group</u>	8, 11, 8, 11, 1, 7, 4, 2, 8.
N = 9	
<u>Experimental Group</u>	11, 12, 10, 8, 8, 11, 8, 3, 8.
N = 9	
	<u>t = 1.4</u>

Table 34. t test using accuracy scores from Neale form B  
after 2nd part of the experiment.

<u>Control Group</u>	29, 11, 9, 12, 24, 28, 15, 46, 31.
N = 9	
<u>Experimental Group</u>	31, 14, 19, 24, 33, 39, 26, 44, 39.
N = 9	
	<u>t = 1.346</u>

Table 35. t test using rate scores from Neale form B  
after 2nd part of the experiment.

<u>Control Group</u>	57, 22, 23, 23, 39, 23, 26, 55, 57.
N = 9	
<u>Experimental Group</u>	67, 22, 26, 27, 39, 43, 37, 60, 49.
N = 9	
	<u>t = 0.675</u>

Table 36. t test using comprehension scores from Neale form B  
after 2nd part of the experiment.

<u>Control Group</u>	12, 4, 3, 8, 10, 8, 11, 19, 10.
N = 9	
<u>Experimental Group</u>	10, 11, 11, 9, 19, 19, 12, 17, 19.
N = 9	
	<u>t = 2.24 significant at 0.05 level.</u>

Table 37. t test comparing self with self using scores from Burt Reading test before and after the experiment.

Before 36, 30, 47, 45, 27, 27, 35, 34, 15,  
N = 18 15, 30, 32, 15, 20, 8, 5, 27, 27.

After 41, 35, 55, 55, 28, 28, 45, 42, 18,  
N = 18 18, 41, 35, 24, 30, 18, 18, 28, 32.

t = 1.6

Table 38. t test comparing self with self using accuracy scores achieved in the two parts of the experiment.

Control Group 29, 24, 19, 24, 36, 46, 12, 12, 15,  
N = 18 21, 26, 28, 28, 31, 7, 11, 9, 5.

Experimental Group 29, 31, 33, 25, 44, 46, 24, 15, 23,  
N = 18 26, 39, 28, 39, 30, 14, 15, 12, 19.

t = 1.7 significant at 0.10 level.

Table 39. t test comparing self with self using comprehension scores achieved in the two parts of the experiment.

Control Group            12, 8, 8, 10, 11, 19, 4, 8, 11, 8,  
 N = 18                      7, 8, 11, 10, 1, 4, 3, 2.

Experimental Group    11, 10, 19, 8, 17, 12, 9, 8, 10,  
 N = 18                      12, 19, 11, 19, 8, 11, 8, 3, 11.

t = 1.9 significant at 0.10 level.

Table 40. t test comparing self with self using rate scores achieved in the two parts of the experiment.

Control Group            57, 33, 33, 39, 41, 55, 23, 23, 26,  
 N = 18                      26, 31, 23, 32, 57, 17, 22, 23, 19.

Experimental Group    53, 67, 39, 41, 60, 57, 27, 18, 35,  
 N = 18                      37, 43, 32, 53, 29, 22, 19, 17, 26.

t = 1.13

Table 41. t test using scores from Burt Reading test  
pre-experiment.

<u>Control Group</u>	54, 46, 39, 36, 36, 35, 33, 30, 27.
N = 9	
<u>Experimental Group</u>	56, 48, 45, 36, 36, 35, 35, 31, 31.
N = 9	
	<u>t = 0.474</u>

Table 42. t test using scores from Burt Reading test after  
1st. half of the experiment.

<u>Control Group</u>	64, 56, 48, 37, 37, 37, 36, 37, 33.
N = 9	
<u>Experimental Group</u>	59, 49, 49, 39, 40, 40, 36, 34, 33.
N = 9	
	<u>t = 0.152</u>

Table 43. t test using scores from Burt Reading test at the  
end of the experiment.

<u>Control Group</u>	66, 57, 49, 38, 43, 40, 37, 39, 34.
N = 9	
<u>Experimental Group</u>	66, 51, 52, 40, 42, 45, 39, 43, 33.
N = 9	
	<u>t = 0.188</u>

Table 44. t test using accuracy scores from Neale form A  
after 1st part of the experiment.

<u>Control Group</u>	58, 43, 38, 26, 22, 26, 27, 28, 25.
N = 9	
<u>Experimental Group</u>	57, 41, 41, 31, 24, 26, 32, 30, 30.
N = 9	
	<u>t = 0.406</u>

Table 45. t test using rate scores from Neale form A  
after 1st part of the experiment.

<u>Control Group</u>	104, 56, 62, 85, 33, 46, 56, 39, 38.
N = 9	
<u>Experimental Group</u>	73, 53, 128, 105, 56, 51, 39, 48, 80.
N = 9	
	<u>t = 1.016</u>

Table 46. t test using comprehension scores from Neale form A  
after 1st part of the experiment.

<u>Control Group</u>	20, 15, 15, 6, 8, 10, 6, 6, 7.
N = 9	
<u>Experimental Group</u>	19, 13, 10, 7, 5, 5, 14, 14, 7.
N = 9	
	<u>t = 0.195</u>



Table 47. t test using accuracy scores from Neale form B  
after 2nd part of the experiment.

Control Group 52, 23, 43, 33, 30, 45, 31, 32, 31.

N = 9

Experimental Group 74, 30, 46, 34, 36, 52, 38, 32, 32.

N = 9

t = 1.604

Table 48. t test using rate scores from Neale form B  
after 2nd part of the experiment.

Control Group 71, 49, 96, 73, 31, 96, 31, 89, 78.

N = 9

Experimental Group 78, 53, 61, 58, 34, 49, 34, 64, 100.

N = 9

t = 0.837

Table 49. t test using comprehension scores from Neale form B  
after 2nd part of the experiment.

Control Group 20, 1, 11, 11, 13, 21, 12, 10, 9.

N = 9

Experimental Group 30, 10, 22, 14, 11, 21, 14, 13, 11.

N = 9

t = 1.405

Table 50. t test comparing self with self using accuracy scores achieved in the two parts of the experiment.

<u>Control Group</u>	58, 43, 38, 26, 22, 26, 27, 28, 25,
N = 18	52, 23, 43, 33, 30, 45, 31, 32, 31.
<u>Experimental Group</u>	57, 41, 41, 31, 24, 26, 32, 30, 30.
N = 18	74, 30, 46, 34, 36, 52, 38, 32, 32.

$$\underline{\underline{t = 1.049}}$$

Table 51. t test comparing self with self using rate scores achieved in the two parts of the experiment.

<u>Control Group</u>	71, 49, 96, 73, 31, 96, 31, 89, 78,
N = 18	104, 56, 62, 85, 33, 46, 56, 39, 38.
<u>Experimental Group</u>	78, 53, 61, 58, 34, 49, 34, 64, 100.
N = 18	73, 53, 128, 105, 56, 51, 39, 48, 80.

$$\underline{\underline{t = 0.216}}$$

Table 52. t test comparing self with self using comprehension scores achieved in the two parts of the experiment.

<u>Control Group</u>	20, 15, 15, 6, 8, 10, 6, 6, 7,
N = 18	20, 1, 11, 11, 13, 21, 12, 10, 9.
<u>Experimental Group</u>	19, 13, 10, 7, 5, 5, 14, 14, 7,
N = 18	30, 10, 22, 14, 11, 21, 14, 13, 11.

$$\underline{t = 1.060}$$

Table 53. t test comparing self with self using scores from the Burt Reading test before and after the experiment.

<u>Before</u>	56, 48, 45, 36, 36, 35, 35, 31, 31,
N = 18	54, 46, 39, 36, 35, 35, 33, 30, 27.
<u>After</u>	66, 51, 52, 40, 42, 45, 39, 43, 33,
N = 18	66, 57, 49, 38, 43, 40, 37, 39, 34.

$$\underline{t = 4.879} \text{ significant at } 0.001 \text{ level.}$$

**APPENDIX B**



6. Which of the following qualifications do you hold? Please tick box or boxes.

- Teacher's Certificate
- Diploma in Education
- Post Graduate Certificate in Education
- First Degree
- Higher Degree
- Any other (please specify)


7. Are any of the following aids available in your school for use in the teaching of reading? Please tick appropriate box.

- Television (BBC & ITV)
- Close Circuit T.V.
- Radio
- Synchrofax / Talking Page
- Language Master
- Tape Recorder (Reel/Cassette)
- Talking Typewriter
- Record Player
- Overhead Projector

Yes	No

8. How useful do you feel the following machines would be in the teaching of reading? Indicate your response by putting a circle round the number you feel represents your true feelings. e.g. if you feel a tape recorder would be "extremely useful" circle 5 thus and so on for all the other items. Follow the same procedure in the following sections that are similar in design to this.

	5	4	3	2	1
	Extremely Useful	Useful	Fairly Useful	Of little Use	Of no Use
Television (BBC/ITV)	5	4	3	2	1
Close Circuit T.V.	5	4	3	2	1
Radio	5	4	3	2	1
Synchrofax/Talking Page	5	4	3	2	1
Language Master	5	4	3	2	1
Tape Recorder (Reel/Cassette)	5	4	3	2	1
Talking Typewriter	5	4	3	2	1
Record Player	5	4	3	2	1
Overhead Projector	5	4	3	2	1

9. Please indicate roughly how many hours a week you use the following aids in the teaching of reading. Please tick the appropriate boxes.

	0 hr.	1 hr.	2 hr.	3 hr.	4+ hr.
Television (BBC/ITV)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Close Circuit T.V.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Radio	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Synchrofax/Talking Page	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Language Master	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tape Recorder (Reel/Cassette)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Talking Typewriter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Record Player	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overhead Projector	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. Did you have any advice on the use of the following aids in the teaching of reading during your College/University course? Please tick appropriate boxes.

	Yes	No
Television (BBC/ITV)	<input type="checkbox"/>	<input type="checkbox"/>
Close Circuit T.V.	<input type="checkbox"/>	<input type="checkbox"/>
Radio	<input type="checkbox"/>	<input type="checkbox"/>
Synchrofax/Talking Page	<input type="checkbox"/>	<input type="checkbox"/>
Language Master	<input type="checkbox"/>	<input type="checkbox"/>
Tape Recorder (Reel/Cassette)	<input type="checkbox"/>	<input type="checkbox"/>
Talking Typewriter	<input type="checkbox"/>	<input type="checkbox"/>
Record Player	<input type="checkbox"/>	<input type="checkbox"/>
Overhead Projector	<input type="checkbox"/>	<input type="checkbox"/>

11. Have you ever attended an in - service training course on the use of any of the following aids in the teaching of reading? Please tick appropriate boxes.

	Yes	No
Television (BBC/ITV)	<input type="checkbox"/>	<input type="checkbox"/>
Close Circuit T.V.	<input type="checkbox"/>	<input type="checkbox"/>
Radio	<input type="checkbox"/>	<input type="checkbox"/>
Synchrofax/Talking Page	<input type="checkbox"/>	<input type="checkbox"/>
Language Master	<input type="checkbox"/>	<input type="checkbox"/>
Tape Recorder (Reel/Cassette)	<input type="checkbox"/>	<input type="checkbox"/>
Talking Typewriter	<input type="checkbox"/>	<input type="checkbox"/>
Record Player	<input type="checkbox"/>	<input type="checkbox"/>
Overhead Projector	<input type="checkbox"/>	<input type="checkbox"/>

12. As part of an in - service training scheme how useful would it be to provide a course on the use of the following aids in the teaching of reading?

	5	4	3	2	1
	Very Useful	Useful	Fairly Useful	Of little Use	Of no Use
Television (BBC/ITV)	5	4	3	2	1
Close Circuit T.V.	5	4	3	2	1
Radio	5	4	3	2	1
Synchrofax/Talking Page	5	4	3	2	1
Language Master	5	4	3	2	1
Tape Recorder (Reel/Cassette)	5	4	3	2	1
Talking Typewriter	5	4	3	2	1
Record Player	5	4	3	2	1
Overhead Projector	5	4	3	2	1

13. Could you please indicate which (if any) of these aids you had not heard of before this questionnaire. Please indicate your response by ticking the appropriate boxes.

	Yes	No
Television (BBC/ITV)	<input type="checkbox"/>	<input type="checkbox"/>
Close Circuit T.V.	<input type="checkbox"/>	<input type="checkbox"/>
Radio	<input type="checkbox"/>	<input type="checkbox"/>
Synchrofax/Talking Page	<input type="checkbox"/>	<input type="checkbox"/>
Language Master	<input type="checkbox"/>	<input type="checkbox"/>
Tape Recorder (Reel/Cassette)	<input type="checkbox"/>	<input type="checkbox"/>
Talking Typewriter	<input type="checkbox"/>	<input type="checkbox"/>
Record Player	<input type="checkbox"/>	<input type="checkbox"/>
Overhead Projector	<input type="checkbox"/>	<input type="checkbox"/>

Thank you for assisting with this questionnaire. Would you please add any pertinent comments you would like to make about the use of audio visual aids in the teaching of reading.