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CHAPTER III

THE PRESENT STUDY

The present study is an attempt to prepare instructional material and adopt appropriate instructional techniques with the aim of developing communication skills in adults who attend English Improvement Courses.

3.1 STATEMENT OF THE PROBLEM

The problem under investigation bears the title "Developing Languages skills in Adults attending English Improvement Courses".

3.2 OBJECTIVES OF THE STUDY

The study was undertaken with the following primary objectives:

(1) To prepare (i) auto-instructional material and support material in English for the development of speaking, reading and writing skills in adults who attend English Improvement Courses, and (ii) to sequence the course with lecture, tape-recorder, discussion, practical work, unit tests and feed back sessions.

(2) To study the effectiveness of the course as a whole in terms of students' performance on the criterion tests after each of the three units and a comprehensive test at the end.

(3) To study the effectiveness of different techniques used in each of the units in terms of students' reactions.

(4) To study the relationship between achievement through the course and (a) intelligence, (b) academic qualification, and (c) socio-economic status of the subjects.

(5) To compare the achievement of students of (a) higher and lower levels of intelligence, (b) higher and lower academic qualification (graduates and under graduates), and (c) grade-I and grade-II socio-economic status levels.

3.3 HYPOTHESES

3.3.1 Research Hypotheses

(1) The course in English prepared with adults' particular needs in focus will help adult learners to develop their speaking, reading and writing skills in English.

(2) The reactions of the group of adult learners will be favourable towards the course.

(3) The intelligence level as measured by Raven's progressive Matrices will affect achievement through the present course.

(4) Academic qualification of the adult learner will affect achievement through the present course.

(5) Socio-economic status level of the subject as measured by Kuppuswamy's Urban Scale will affect achievement through the course.

3.3.2 Directional Hypotheses

Research hypotheses have to be tested for their confirmation or rejection for which purpose they have to be operationalised. Operational hypotheses lend themselves more readily to testing than do the research hypotheses. Hence based on the researcher's proposition, earlier stated as research hypotheses directional hypotheses have been formulated.

(1) The mean achievement score of the group on the posttest will be significantly greater than the mean achievement on the pretest.

(2) The reactions of the adult learners will be significantly favourable towards the course.

(3) There will be significant relationship between achievement through the course and the subject's intelligence level, as measured by Raven's Progressive Matrices.

(4) There will be significant relationship between achievement through the course and the subject's previous academic qualification.

(5) There will be significant relationship between achievement through the course and the subject's socio-economic status level as measured by Kuppuswamy's Urban SES Scale.

The directional hypotheses automatically defines the sources of data. In order to employ the data efficiently,

it will be more convenient to change the statement from directional hypotheses into the statistical alternate hypotheses. Once the statistical alternate hypotheses are defined, it is possible to formulate the null hypotheses. With the null hypotheses defined it is then possible to employ the theory of probability in the process of arriving at a decision to reject or accept the null hypotheses.

In order to employ statistical inference in the process of deciding whether to accept or reject the directional hypotheses, the following null hypotheses have been formulated.

3.3.3 Null Hypotheses

(1) There is no significant difference in the mean scores of the pre-test and post-test performances of the group.

(2) There is no significant difference in the reactions expressed by the adult learners towards the programme.

(3) (a) There is no significant relationship between achievement of students and their intelligence.

(b) There is no significant difference between achievement of students belonging to the higher and lower intelligence levels.

(4) (a) There is no significant relationship between achievement of students and their previous academic qualification.

(b) There is no significant difference in the achievement of graduates and under graduates.

(5) (a) There is no significant relationship between achievement of students and their socio-economic status.

(b) There is no significant difference between the achievement of students belonging to the grade-I and grade-II levels of socio-economic status.

3.4 TERMS DEFINED

(a) Developing

Development implies the existence of something which requires to grow larger, fuller and complete. The investigation considers preparation of instructional material and sequencing teaching techniques which would help the adults improve their linguistic skills in English. A secondary school certificate is essential for anyone to be able to benefit from this course.

(b) Language skills

All languages recognise the four main linguistic skills, namely listening, speaking, reading and writing as essential for communication. True to this universal recognition, the present study considers development of the aforesaid four skills as imperative for an English Improvement Course for adults.

(c) Adults

The study recognizes the definition given by the National Adult Education Programme (NAEP) adequate for the purpose of the study, as far as the adult age range is concerned; men and women who fall in the age range 15-35.

(d) English Improvement Courses

Various classes run by individuals, private agencies and public undertakings in the towns and cities of Gujarat provide instruction to adult learners who seek to improve their communication - skills in English. In Baroda alone there are over twenty such classes and in Ahmedabad over twenty five. Vidyanagar and Surat have a considerable number of such classes, too. Men and women whose age range is between sixteen and thirty-five on an average, attend these classes, although not infrequently does one come across men and women in their forties. These adults form a highly heterogeneous group in terms of their academic qualifications, occupational placement, intelligence levels and socio-economic status. School leavers, college students, college dropouts, graduates and post graduates, in occupations as varied as business, teaching, industry and house-keeping attend these classes.

'English Improvement Course' implies a course of study inclusive of content, method, set-tasks, exercises, etc.

3.5 SELECTION OF TECHNIQUES

Any instructional process to prove effective should

aim at a two way attack on 'content' and the method of presenting the content, using appropriate 'techniques'. Any one of these singled out and given prefrential treatment to the negligence of the other can effect only partial success as far as the learning outcome is concerned. The study, hence, had to consider the choice of techniques in such a way as to attain instructional objectives and ensure optimal learning.

The long term objectives of the study may be stated as:

1. That the adult learners would be further motivated towards the course.

2. That the adult learners would acquire an understanding regarding linguistic skills, their priorities and purposes.

3. That the adult learners would develop self stdy habits.

4. That the adult learners would develop reference skills.

5. That the adult learners would develop communication skills in English.

In view of the above long term considerations the following techniques were incorporated to make instruction effective and palatable.

    1. Structured lecture

    2. PLM

    3. Tape Recorder

4. Support material

5. Discussion

6. Practical work

7. Unit tests

8. Feed back sessions

Currie (1973) sees a three - cornered relationship between educational method, teaching technique and lesson materials. Content or lesson material, unless presented through the most appropriate techniques - appropriate in terms of the learners' age, level of learning, psychology of the learner, the time available and the cost involved, - cannot be expected to yield estimated results. So the next step in the preparation of the material involved locating the most suitable techniques in making the content effectively presentable. Development in modern language teaching practices have a diversity of techniques to offer a language teacher to make teaching efficient and enjoyable. Radio and television, film, tape-recorder, language laboratories, team teaching, audio-lingual, audio-visual and audio-textual methods and programmed learning are some of the results of technological and linguistic advances which render language-teaching effective. Of the many available techniques for the purpose, PLM, assisted by tape-recorder, structured lecture, discussion and practical work were considered suitable for the present course. Their relevence as instructional techniques, is discussed in the following section.

3.5.1 Structured Lecture

The first broad objective takes into account the motivational factor, which adult learners possess to a much greater extent than the child/adolescent learners. However motivation can be further stimulated specifically towards the course through the instrumentality of a structured lecture, introducing the nature of the course, the content, bringing to focus adults' particular needs, aspirations etc. Such an exercise besides being motivational, provides information, provides for demonstration and interest by building a rapport between the learners and the teacher and creating a free and fearless environment that is conducive to learning.

Although the technique known as 'lecture' is brought under heavy ceasure with the advance in educational technology, its value as a group technique cannot be lost sight of. Another point that deserves attention is the fact that adult learners have been conditioned to traditional instructional techniques and as a result they need to be provided with what is familiar before they can be exposed to more advanced methods of instruction.

3.5.2 Programmed Learning Material

PLM as a teaching technique is appropriate for all levels of education and has shown itself to be remarkably adaptable to different circumstances whether used as a method of presenting a lesson simultaneously to many in a

class or with small teams of learners of mixed ability as individual or supervised work or private study. In addition to the above considerations with regard to the built-in advantages of PLM, as an instructional technique, the second objective which has reference to the cognitive aspect in learning and the fourth objective which concerns itself with the development of self-study habits made the selection of the programmed learning technique adaptable for this course.

Besides, PLM with the extent of exposure to the target language that it provides the learner with, has the added advantage of being self-paced and helping even the slow learner with the mastery of skills. Caroll (1963) has suggested that one of the most important variables in the learning process is the total amount of time spent actively in the learning situation. That the use of PLM requires active participation of the learner in the learning situation is an additional advantage that makes PLM relevant in the present study.

3.5.3 Tape Recorder

The use of audio-visual, audio-lingual and audio-textual techniques have been widely in vogue in the Western Countries ever/since the movement for educational technology gained momentum after the second world war. Auding, being the first linguistic skill, training in 'listening', has to be empha-sized and the skill developed, if oral communication is to be

meaningful. The use of cassettes containing model-dialogues and readings in the target language has four functions to its credit:

1. to improve communication,
2. to provide variety,
3. to add interest, and
4. to provide reference points.

Mastery of prondunciation, intonation and stress-patterns necessitates such a technique for development of the respective sub-skills. Access to individual manipulation of the tape-recorder as and when required further assists in the development of self learning facility and improvement of listening skills.

3.5.4 Support Material

Support material prepared to supplement and strengthen the instructional process had distinct functions to perform.

The third objective refers to communication skills in general. Correct and effective communication implies the acquirement of many sub skills, namely, the skills of reference, use of punctuation marks, articles, prepositions, capitals, pronunciation, intonation etc., which can be developed in a variety of ways. The present study explored the possibility of developing such skills through the preparation of support material.

The support material, self instructional in nature (not programmed) provides for independent self-study, taking

into consideration individual differences. Items which may not require uniform emphasis to all the learners (the group being heterogenous) need not be forced on the whole group. At their own choice they may seek the benefit of the support material.

Most of the support material items are based on grammatical points which are likely to hinder correctness in speech and writing. It is the investigator's hunch that the methodology of teaching grammar employed at the school level is neither palatable nor adequately profitable for the students. As a result the younger learner and the adult learner alike view grammar teaching or learning with suspicion and distaste. So an effort has been made to approach grammar as it functions in every day speech and writing, selecting grammatical items on the basis of error-analysis done by researchers and the investigator's own observations. Grammar thus presented in an informal and untraditional manner given according to individual's option is expected to return more gains in terms of adult learning.

3.5.5 Discussion

Jackson (1966) distinguished between the 'preactive' and 'interactive' phases of teaching. By 'preactive' he meant those aspects of teaching behaviour that the teacher engages in prior to meeting learners face to face, where the teacher selects objectives, plans curriculum and studies the readiness of the learners. In the interactive

phase the teacher provides the learners with verbal stimulation of various kinds, makes explanations, asks questions, listens to learners' responses and provides guidance. Such an exercise where individual learners participate actively, seeking clarifications and giving opinions, not only maximises learning but provides for variety, too. Besides, the teacher gathers a fuller idea of the individual learner's as well as the group's problem areas in speech.

3.5.6 Practical Work

In addition to self instructional practices, work in pairs and small groups provides for social interaction and the exploitation of group dynamics and co-operative heuristic methods. The concepts acquired through PLM, lecture and discussion, unless applied in practice at the group as well as individual levels, cannot ensure learning. So practical work as a teaching technique was included to make learning effective.

3.5.7 Unit Tests

Criterion tests based on each unit measures the extent to which a learner has mastered the material being taught. These tests are relevant both from the learner's as well as the teacher's point of view. To the former it is an additional learning experience, to the latter it is an index of the learner's progress.

3.5.8 Feed back Sessions

A discussion based on the common mistakes committed by the group and a clarification of issues which demand such an exercise further should prove instrumental to efficient learning.

With the use of technology, less interest is now shown in the use of individual devices than in the organization of multi-media systems. The use of mass-media and in particular broadcasting services, radio and TV have dramatically increased the accessibility of languages to audiences on large scale. The adoption of such techniques can enrich the learning of English in our country.

3.6 SAMPLE

The sample for the study constituted all the adult learners who attended the English Improvement Class run by the Department of Adult and Continuing Education of M.S. University of Baroda during summer 1980. Initialy the group consisted of forty-four adults, highly heterogenous in terms of academic qualification, occupation, intelligence level and socio-economic status. However for the purpose of experiment only thirty were included who were regular in attendance and from whom the desired data could be gathered.

3.7 VARIABLES

(i) Treatment and Criterion

The course prepared as the result of the investigation

has been considered the treatment or independent variable
in the present study. The criterion or dependent variable
is the measure of students' achievement in terms of criterion
tests and the final comprehensive test.

(ii) <u>Intervening Variables</u>

The study, however considers intelligence, academic
qualification and socio-economic status as intervening
variables.

3.8 <u>SCOPE AND LIMITATIONS</u>

The present investigation is a developmental study,
quasi-experimental in nature and envisages selection, pre-
paration and arrangement of learning sequences and teaching
techniques to benefit the adults who attend English
Improvement Classes.

English Improvement Classes have become an essential
feature of the towns and cities of Gujarat. These classes
can utilize the course prepared as a result of the present
study. Adults who find no time to attend such classes can
study the programme on their own, since most of the learning
sequences and supplementaries are developed to suit their
level of ability and need.

Although the sample is drawn from Gujarat, that too, from the
city of Baroda only, it can be utilised by all those inte-
rested in such a course. Since the need for communication
in English is not the monopoly of Gujarat alone, with
modifications (if necessary) an adult with the minimum

required academic qualification can benefit from the programme, whichever part of this country he may belong to.

Limitations

The present study takes into consideration only those adults who have had a minimum qualification of ten years of schooling (Secondary School Certificate holders).

Although the study emphasizes the development of speech skills in English, the skills of reading and writing are also taken care of.

The experimental design applicable for the present study is the one group design, which itself has certain limitations which becomes the limitation of the study - (quasi-experimental in nature).

3.9 TOOLS

1. Programmed learning material

2. Support material

3. Criterion referenced tests and a comprehensive test

4. Reaction scale

5. Raven's Progressive matrices

6. Kuppuswamy's urban SES scale

3.9.1 Programmed learning material

Programmed learning as a method of instruction can be used in more than one way to make learning effective. Leith and Tobin (1966) provide sample evidence regarding the flexibilities of PLM, through their research studies. They

found PLM to be effective for basic teaching purposes, for remedial teaching activities, for enrichment work, for levelling courses, for imparting ancillary skills and for supplementing scarce resources. In the present study PLM was used as an instructional tool, performing most of the functions it is expected to (For more information ref. 3.5.2).

3.9.2 Support material

Support materials based on various grammatical items, letter-writing, reading and pronunciation were used for self-learning, group work and practical work (For more information refer 3.5.4).

3.9.3 Criterion - referenced tests

Given at the end of each unit, criterion - referenced tests measure the extent to which a learner has mastered the material being taught. Such tests provide an additional learning experience to the learner besides providing the investigator with the means of a formative evaluation, indicating how close each student has come to attaining the objectives. Moreover the learner has the satisfaction of knowing his progress at every stage and not just at the end.

Comprehensive test

A comprehensive test based on the course objectives and the expected terminal behaviour served both as a diagnostic pre-test and post-test. The design of the experiment being a one group pre-test post-test design, it was necessary

to construct such a tool to provide data for summative evaluation of the adults' progress.

Besides being a data gathering tool, a comprehensive test at the beginning serves the significant purpose of preparing the adult learner and motivating him by giving him an extensive idea of what he is to expect from the course that is to follow. Such an exercise in the beginning is not only beneficial, it is essential too, because most of the learners are not aware of what an English Improvement Course is all about at the point of entry. They need an orientation towards the course.

The same test repeated after the course, provides the investigator with the required data regarding the subjects' progress while enabling the learners to experience their own rate of progress.

3.9.4 Reaction Scale

The reaction scale developed by Sansanwal (1977) was used with modifications to study the reactions of the students towards the course in general and each of the techniques used in particular. Since learning outcome to a great extent is dependent on the attitude of the learner towards the learning process itself, such a tool was necessary to study the reaction of the students towards the programme.

It is a four-point scale where responses have to be ticked as pertaining to the individual, choosing from the

four given options: (1) helped very much, (2) helped to some extent, (3) did not help much, and (4) did not help at all. There are twenty-five response items altogether, five pertaining to the lecture technique, five to the PLM, five to discussion, five to practical work, two to unit tests and three to discussion of the unit test performance. The reaction scale is placed in the appendix G

3.9.5 Raven's Progressive Matrices

The matrices represent an attempt to measure the intellectual functioning within the context of Spearman's concept of 'g' (Bortner 1965). The tasks or matrices consist of designs which require completion. The testee chooses from multiple choice options, the design or design part which best fits. An answer which fits may (a) complete a pattern, (b) complete an analogy, (c) systematically alter a pattern, (d) introduce systematic permutations, or (e) systematically resolve figure into parts. The number of items correctly solved is then translated into a percentile rank.

The progressive matrices tests have been subjected to extensive research in several countries and with a wide variety of groups. Numerous reliability coefficients quoted by Raven vary from 0.70 to 0.90. With older children and adults test-retest reliability varied within approximately the same range as those fond by the split-half method. Validity of the progressive matrices tests has been studied

in the usual ways. When Stanford Binet test of Intelligence was used as the criterion, correlation varied from 0.50 to 0.86.

The assumption that intelligence may act as a significant intervening variable led to the decision to measure the intelligence level of the adult learners.

3.9.6 Kuppuswamy's Urban SES Scale

One of the objectives of the study was to see the relationship between achievement through the course and the socio-economic status of the adults.

The urban socio-economic status Scale of Kuppuswamy consists of three items on the basis of which an individual may be placed on the scale. The three items are education, occupation and income, each consisting of seven items to choose from, according to the individual's educational, occupational and income-wise details. Each response has its own given weightage, the addition of which decides an individual's placement on the Scale. Grades are allotted to the scores and adults fall into any one of the groups: grade-I, grade-II, grade-III or grade-IV levels.

3.10 DESIGN OF THE EXPERIMENT

The present study is an experiment - a quasi-experimental type, developmental in nature. Although research in education can avail of highly sophisticated experimental designs in view of the constraints placed on the research situation,

the simple one group pre-test and post-test design was
decided upon. Considering the objectives of the study
although not very sophisticated, the design that is adopted
is quite appropriate. Apart from the simplicity of the
design, the other requirements of an experimental research
are all fulfilled by the study namely:-

(i)   It was conducted under controlled conditions in a
        regular English Improvement Class for adults with
        a sample of thirty adult learners.

(ii)   The instructional material for the experiment was
        developed scientifically.

(iii)   The experiment was conducted only after individual
        and group try-outs.

(iv)   It contains independent and dependent variables.

(v)   It provides scope for further experimentation.

(vi)   Apart from studying the effectiveness in terms of
        achievement, efforts mere made to study the feasi-
        bility of such a course by taking into consideration
        the learners' reactions too.

Two types of field experiments commonly engaged in by
researchers in the behavioural sciences are exploratory and
hypothesis-testing types. The exploratory researches seek
to report existing facts while the hypothesis testing
researches predict relations. The study under report
possesses the qualities of both types. Development of

material necessitates exploration of existing facilities
for adults to improve English language skills and validation
requires the process of testing hypotheses.

3.11 PROCEDURE

The procedure followed to develop the instructional
material, and validate it through experiment can be divided
into four definite phases.

Phase - I

The first phase was devoted to determine the course
content.

As mentioned earlier, the foremost objective of the
present study was to construct a course for adults, which
would help them develop communication skills in English.
The stated objective implies that whatever assistance Indian
adults receive in this direction is inadequate and hence
fresh attempts have to be made in the area, to make adult
learning of English effective. Before such a course can be
developed a researcher has to as of necessity undertake
atleast two specific exercises which could render the course
result-oriented; the content for the course has to be
determined and appropriate instructional techniques
selected. The manner in which the content for the present
course was determined is described in the following section.
Four relevant factors and activities of exploration in
these areas formed the basis for this decision. They are:

(1) The subjects' level of knowledge and application,

(2) Situational demands,

(3) Research findings, and

(4) Expert opinions.

Subjects' level of knowledge and application

The Gujarat Secondary Board's syllabus for English language at the tenth class level was taken to provide a general basis for the preparation of instructional material. According to the Board's stipulations, at the school leaving stage pupils are expected to have at their command an active vocabulary of 2500 words and the mastery of 250 English sentence structures, which should be sufficient to enable school leavers to handle communication in English positively well. Experience however shows by way of research findings and otherwise that at the close of school stage learners do not achieve the specified level of mastery over English. Hence the course had to be remedial in nature.

Visits to the various English Improvement Classes in Baroda, Ahmedabad and Surat and interviews with adult learners of English and their teachers yielded further information regarding the needs of the adults, their expectation from the course, the learning/teaching materials used for the purpose etc. The adults' fascination for intensive short courses was taken note of, too.

Situational demands

Another source of help came from an English Improvement

Class taught by the researcher at the initial stages of the research, which was sponsored by St. John's Education Trust, Baroda. The class was conducted for three months and was attended by men and women in the age range 16-45. There were graduates (some of them trained graduates), undergraduates and secondary school pupils. There were teachers, students, officers and house-wives. These classes with periodical assessments of written exercises and constant observation of the spoken language and casual interviews with the adult learners individually and collectively made their difficulties and expectation distinct. The group being heterogenous as already pointed out provided relevant data which was suffi- cient indication of what a course for adults should include.

Research findings

Sinha (1967) of the Central imlitute of English and foreign languages, Hyderabad, conducted a study entitled 'Remedial Work in English for Pre-University and first year's degree students in Hindi speaking areas'. His findings indicate that 93% of the errors were in the use of articles, wrong choice, omission or insertion of the prepositions 'in' 'to' 'on' 'at' 'with' and 'from', verbal forms and patterns, and punctuations.

Nair (1966) conducted a study of the common language difficulties in English of Secondary school pupils in Kerala. His findings are on similar lines. He reports that 20% of the total errors in the area of grammatical

structure are in the use of articles, 15% in the use of prepositions, more than 65% in the area of grammatical structure. Punctuation was another area where the students were found to have difficulty.

Dave and Saha (1968) undertook a study with a view to locate the common errors in English and suggest remedial treatment at the higher secondary level. They located atleast three areas which needed remedial treatment namely grammatical structure, spelling, usage and idiom.

Ghosh (1977) conducted 'A Study of Backwardness in English in the Secondary schools of West Bengal'. One of his objectives was to diagnose the backwardness in specific areas of English. Taken in order of their intensity were capital letters and punctuations to be followed by other common problem areas like comprehension, usage, spelling, vocabulary and sentence construction. He further pointed out that one of the reasons for such backwardness was a lack of necessary books and teaching aids.

It may be stated here that almost all the observations pertain to the written mode of language and hardly any observation concerns the oral or spoken aspect of English. In this regard the researcher had to rely heavily on personal observations, learners' own expression of their need in the area and expert-opinions.

Expert Opinion

The Central Institute of English and Foreign Languages,

Hyderabad, British Council, Madras, Department of English, University of Madras, Department of English, M.S. University of Baroda, and Institute of English, Vallabh Vidyanagar, were contacted in person by the researcher and interviews and discussions with experts in the field of English language teaching provided considerable enlightenment in selecting the content for the present course. Not only at the initial stage, at subsequent developmental stages also, expertise was availed of from some of the above mentioned educational bodies, which are esteemed highly for the contributions they make to the field of English teaching, in our Country.

Correspondence with various ELTIs in India and bodies which offer correspondance courses in English and University departments of English were further sources of help.

From the exhaustive scope and possibilities of a course for adults in English (considering the time factor that restricts adults due to the various demands made upon them as adults) a discreet content selection had to be made. The content thus selected was later analysed and part programmed and the rest presented in the form of non-programmed support material.

Phase - II

The second phase was devoted to the actual preparation of the instructional material (inclusive of PLM, and support

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ELTIS - English Language Teaching Institutes

material) and sequencing the material with different
instructional techniques, namely structured lecture,
discussion and practical work. The development of the
programme and individual and field testing and the modifi-
cation that were effected as a result of these initial
try-outs are elaborately accounted in chapter four that is
to follow.

Phase - III

The third phase was devoted to the conduct of the experiment,
which took place to validate the course prepared as a result
of the present study. The experiment lasted for eight weeks
in the Summer of 1980. Before starting the final experiment
the measures on student characteristics were obtained
employing the various tools adopted for each purpose. The
tools employed were

      (i)   Pre-test,

      (ii)   Kuppuswamy's Urban SES Scale, and

      (iii) Raven's Progressive Matrices.

Phase - IV

The fourth phase was devoted to the analysis and inter-
pretation of the results and reporting of the research
proceedings.

3.12 STATISTICAL TECHNIQUES USED IN THE ANALYSIS OF DATA

(1) Effectiveness of the programme as a whole was studied by computing descriptive statistics like mean, SD and percentiles on

(a) Pre-test and post-test scores

(b) Unit test scores.

(2) Chi-square test was used to analyse the reactions of the students towards the programme. For a clearer picture of the adult learners' reactions, items were separately considered and their percentages in terms of the total computed.

(3) t-test was applied to study the significance of difference in the achievement of students belonging to different levels of intelligence, academic qualification and socio-economic status. A detailed picture of the data and their analysis and interpretations are given in Chapter V.

The chapter that follows presents in detail, the procedure employed in developing the instructional material.

REFERENCES

1. Caroll, J.B., A Model of School Learning, Teacher College Record, 64, 723-33.

2. Currie, W.B., New Direction in Teaching English Language, Longman Group Ltd., London, 1973.

3. Dave and Saha, A Study of Common Errors in English at the
Higher Secondary Level. Report of the Fifth
Conference of Chairmen and Secretaries of the
Boards of Secondary Education, NCERT,
New Delhi (1968).

4. Ghosh, A Study of Backwardness in English in the Secondary
Schools of West Bengal, (1977), in Second Survey
of Research in Education, Buch M.B.(Ed.),
Society for Educational Research and Develop-
ment, Baroda, 1979.

5. Jackson, P.W., 'The Way Teaching is', Report of the Seminar
on Teaching, Association for Supervision and
Curriculum Development and the Center for the
Study of Instruction; Washington D.C., 1966, 7-27.

6. Leith, G.O.M. and Others, Programmed Learning, A Symposium
Compiled by the National Centre for Programmed
Learning, University of Birmingham, Great
Britain, 1966, PP 34-38.

7. Nair, A Study of the Common Language Difficulties (in English
of Secondary School Pupils in Kerala, (1966), in
A Survey of Research in Education, Buch M.B.(Ed.),
CASE, Baroda, 1974.

8. Sansanwal, D.D., 'Experimental Study in Programmed Learning
for Teaching Methodology Course at M.Ed. Level',
Ph.D. thesis in Education, M.S. University of
Baroda, Baroda, 1977.

9. Sinha, Remedial Work in English for Pre-University and

First Year Degree Studies in Hindi Speaking

Areas, CIEFL, Hyderabad, (1967).