CHAPTER I

INTRODUCTION

1.1 Introduction

Education is viewed as an important process to bring about desirable changes in the individual in order to help him adjust to his ever changing environments. Society today is rapidly progressing due to scientific and technological advances. In view of the explosion of knowledge and the availability of various resources at large, sciences have posed challenges to the process of education itself. Changes in the process of education ~~has~~ have thus become an inevitable task.

1.1.1 Education in Modern Times

Education in the twentieth century has become increasingly a matter of research. A research into child development and learning implications of social structure; teaching methods and teaching aids; the backwardness and special problems of the school, its organization and administration of educational programmes. Education in the world today has thus become a growing phenomenon.

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The change leading to growth in education is necessarily due to ~~the~~ development in psychological and educational theories as well as ~~those~~ in ~~the~~ human knowledge. In ~~the~~ society today on one hand there are millions of illiterates for whom the educational system has to start virtually from ~~a~~ scratch. On the other hand there is an increased demand for continuing education to meet the needs of those who want to keep abreast with the knowledge.

The above considerations call for new and more efficient methods of education. It warrants for education which is suitable to the abilities of the students, to the individual needs of the learners and to the content requirements. It calls for continuity of learning through properly ordered and organized sequences on which the learning of complex skills can be based. It demands harmonizing learning process through sequential presentation of information, timely feedback and reinforcement necessary for any kind of learning.

1.1.2 Technology in Education

In recent years in India, various formal and informal educational programmes have come into existance to meet the problems confronted by ~~the~~ modern educationists. Diversified curriculum, technical, vocational and multipurpose educational system are some of the educational schemes offered under the formal educational programmes. Continuing and adult education, extension education, nutrition, health and sanitation as well as population education are some of the informal educational schemes. Home Science Education has been an integral part of most of these educational schemes.

Implementation of these new educational schemes in the educational programme has necessitated the introduction of suitable strategies which have to be adapted to cater to the learners under these various educational systems as well as to programmes. In the recent years numerous researches are found to have been geared towards exploring new techniques for facilitating learning. Increasingly human and non-human resources are being developed to promote learning in the most efficient manner. Adaptation of technological means for promoting learning, has been a very recent addition in the educational system today.

This does not however imply that educationists have not thought about the use of technology in education in the past. As early as the beginning of the 20th century, history has evidence of the need for a new educational technique being expressed and described by Thorndike, the eminent educational psychologist. In recent years it was known as programmed instruction.

According to Thorndike (1912), ' If a miracle of mechanical ingenuity, a book could be so arranged that only to him who had done what was directed on page one would page

This does not read well. I am sure that Thorndike did not say it this way. Please check the quotation.

two become visible and so on, under that now requires personal instruction could be managed by print.... A human being should not be wasted in doing what forty sheets of papers or two photographs can do. Just because personal teaching is precious and can do what books and apparatus cannot, it should be served for its peculiar work. The best teacher uses books and appliances as well as his own insight, sympathy and imagination.'

This shows that technology was professed to be in use in the earlier days, too. However, to-day the necessity for use of technology in education is mainly felt due to three main reasons viz. explosion of knowledge, explosion of student population and explosion of the resources available for teaching and promotion of learning. As a result of an explosion of these three components of education a number of strategies mainly pertaining to instructional systems have come into existence in the educational forefront.

Personalized system of instruction, multi-media packages of learning, instructional modules, individually prescribed instruction, feedback classrooms and computer assisted instruction are some of the technological means adapted to meet the challenges of modern education.

2.1.3

The word technology is often referred to as a 'machine'. However etymologically the word technology comes from a

Greek word 'techniko' which means art. The basic concept of technology thus refers to a pattern or a construct of interrelated parts which results in improving efficiency.

Educational technology refers to improving efficiency in teaching leading to decrease in time needed to achieve particular objectives, augmenting the capacity of the individual teacher and affecting the economics in the final cost of learning.

As Mukalel (1976) states,

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> '... Educational technology should not be identified with the use of machines or the mass media devices in teaching situations. It is a new field of inquiry in education. It has its own principles, structure, tools and a frame work. The technology in education is found to have been used in two ways. One way is through machines or hardwares and the second way is through programmed text generally referred to as softwares'.

1.1.3 Programmed Learning Material (PLM)

Programmed Learning Material (PLM) is found to have been used in most of educational strategies pertaining to the instructional system mentioned earlier.

The National Council of Educational Technology, U.S.A. (1970) has defined programmed learning as the development, application and evaluation system, technique and aid to improve the process of learning.

G.O.M. Leith (1970) of the National Center for Programmed learning defines it as application of scientific knowledge about

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learning and the condition of learning to improve the effectiveness and efficiency of teaching and training.

Instruction through programmed learning materials is a recent experiment in shaping new education. It has been mainly used as an answer to the pressure for a quicker, more efficient and economical way of implementing education. Development and use of a programmed text or programmed learning material is based on the principles of reinforcement and the law of effect and associative shifting emphasized by E.L. Thorndike (1912). ?

Thorndike is not in the bibliography!

B.F. Skinner (1968) was the first psychologist who offered a practical paradigm of human learning based on operant conditioning of learning. He developed a technique of auto-instruction which is now popularly known as programmed learning or programmed instruction.

Programmed learning ~~is~~ involves the presentation of facts in meaningful increments, step by step. According to Stalurow (1966) there are six critical requirements of instructions which are the functions of any teaching-learning programme. They hold true for programmed instructions also. These are the small sequential steps, learners response, self pacing, feedback, reinforcement and product evaluation. However there are four main characteristics of programmed instructions which are similar to those stressed above. These are namely, the step-by-step

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presentation of materials in meaningful increments in small amount, interaction of students with the programmed learning material through active response, knowledge of results after each response and proceeding at one's own pace.

Development of programmed learning material calls for following certain steps. There are eight main steps to develop a programme. These are (1) selection of a topic, (2) Statement of assumptions regarding its use by specific group of learners and for specific type of learning, (3) Statement of objectives in terms of identifiable behaviours, (4) selection of a model for presentation, (5) ordering of content, (6) individual or group testing (7) evaluation and (8) revision of the programme. Programmed learning material so developed can be thus used for various purposes such as auto instruction, aided instruction~~s~~ as well as remedial instruction~~s~~.

1.1.4 Programmed Learning in India

The Programmed learning movement in India dates back to the year 1963. Though the use of machines or hardware~~s~~ for teaching purposes may require some more time, the use of programmed text or software has been experimented with for quite some time now. In India Programmed Learning Materials (PLM) are developed by individual teachers as well as by educational researchers and training institutions. They are also developed and tested by pace setting organizations at the National and at state level, like the State Institutes of Education (the SIE). The PLM in India are developed for use at various stages of education as well as in various curricular areas, too.

While summarizing ~~on~~ the trends in researches concerning PLM Kapadia and Kulkarni (1974) ~~have~~ classified researches conducted in India into ~~in~~ five main categories, namely (1) programmed learning vis-a-vis the traditional approach to training; (2) different forms of PLM; (3) different uses of PLM; (4) Programmed learning and instructional media and (5) programmed learning and individual differences. This summary indicates that in India considerable work of development and use of PLM has been done in the various subject matter areas except in home science.

1.2 The Present Investigation : Its Focus

The present investigation is a study of suitability of PLM in Home Science for adolescent girls.

1.3 Development of Home Science Education in India

Home science education is referred to as systematic education for home living. It came into existence as a fulfledged educational discipline in 1932 with the establishment of a college of Home Science at the recommendation of the National Council of Women. The main objectives behind the establishment of this college were :

- To provide supplementary training in home making to the future home makers ;
- To train the teachers to teach home science to the future home makers at the secondary school level.

1.3.1 Need and Significance of Home Science Education

The need for providing supplementary training in home making was felt due to the fact that the traditional Indian homes and the task of home making had undergone a tremendous change during the past years. The modern home is a result of various social and economical changes as well as technological and scientific advances. The modern home has ceased to be a socio-economically dependent unit with the break up of the joint family system and with the establishment of the nuclear and extended families. It no longer remained a production unit. But day by day it has been more of a consumer unit. In that the resources used by the home and family are produced outside the home. Its efficient utilization called upon for altogether a different skill and ability. The tasks of home making, too, differed with the nature and composition of the family. The roles of man and woman under the new social and family structure have undergone a change. The role of woman is no longer limited to that of a wife and a mother. It is extended to that of a wage earner and a community worker.

Increase in the educational level of women resultant of political and social conditions and increased job opportunities at various levels due to industrialization, provided ample opportunities to them to find their place in the world of work. The limited resources at home on account of establishment of nuclear families necessitated gainful employment and sharing up of economic responsibility on the part of a woman. Woman's entry into the world of work has posed two main problems - the immediate being managing home affairs in the limited time and training of future home makers in home making.

In the traditional Indian homes, training in home making was received by adolescent and young girls at home during the course of their development and maturation from adolescence to adulthood under the guidance and supervision of elders and the mother in the family itself. However, with the breaking up of the joint families and absence of home makers on account of gainful employment outside the home, this task was left to the educationists to deal with. Home science education came into existence mainly as a result of this social need.

The home maker in the modern society had to tackle the problems of carrying out her daily routine as a housewife in the limited time that she had at her disposal due to her engagement in gainful employment outside the home. With the fast disappearing servant class this problem became all the more acute. Hence a need for a systematic approach to home making was felt and the introduction of education for home making was thought of as most important in the recent years. Home science education as a fullfledged educational discipline was therefore established under the educational programmes for women to take care of this problem.

Since ancient times the female education was entirely domestic and vocational. At the end of 19th century, too, it was recommended by Indian Education Commission (1881) that the programme for women's education should be drawn up with special reference to the needs and requirements of home life and occupations of women. As a result of this, several educational programmes were specially designed to meet the needs of women. The beginning of Home Science Education can be traced in the establishment of these programmes offering domestic science, house-craft and housewifery as subjects.

However, the present programme of Home Science is different from those previously offered programmes. The ones mentioned earlier are centred more around the promotion of definite arts and crafts useful in domestic life viz., cookery, tailoring and embroidery etc. Whereas the present structure of home science is based more on the scientific principles of home making. Home science as an academic discipline today is more systematic. It has a concern for family and the family life. It unifies principles from basic arts and sciences for applying them to solve the problems of modern living and for meeting the challenges of family life in today's dynamic society. It aims at developing in its students skills and techniques useful for modern living. It is therefore more broad based than the courses offered earlier.

1.3.2 Teaching of Home Science

Home Science education as it exists today is more an applied discipline. It draws fundamentals from basic arts and sciences which are applicable to home life. Thus, teaching of these principles calls for utilization of a variety of means to promote desired learning. Teaching of home science, therefore, becomes a complex process. A teacher of home science needs to know about and use several general and special methods of teaching.

Home science education, as expressed earlier combines fundamentals from various basic sciences and arts for application in daily living in order to solve the problems of modern living and meet the challenges resultant of this. It, therefore, calls for mastering a large amount of content from both the basic arts and sciences as well as the applied branches of home science education. This calls for utilization of more time by the students as well as the teachers.

One of the unique characteristics of home science education is personalizing of instruction. Probably no discipline other than home science believes that the educational needs and abilities of individuals differ to a large extent: Home science educationists believe that as no two individuals are the same, no two families are similar.

Though all the students of home science need to know certain basic fundamentals from various arts and sciences, their application under the different home and family situation would vary.

1.4 Significance for Use of PLM in Home Science Education

These two unique characteristics of home science education namely unifying of knowledge from different basic disciplines and personalizing of instruction provide ample scope for use of PLM as an instructional device. Explosion of knowledge in the basic disciplines necessitates learning of the same by the home science students. On the other hand, home science as an educational discipline over 45 years old has developed its own body of knowledge to be mastered by its students. Therefore use of PLM in Home Science can facilitate self-learning through auto-instruction in case of students with better ability to learn as well as help slow learners through its use as an aid to conventional teaching method.

PLM has been successfully used in promoting home economics education in U.S.A. Hurt and Alexander (1960) have emphasized the use of PLM as a new approach for reaching different organizational groups as well as the boys and girls and men and women, particularly for promoting consumer and home making education. According to them, the schools in which flexible scheduling and individualized instructional experiences are offered, students may select the learning modules of most interest to them and fit them into their individual schedules whenever possible.

In the schools offering home science in India-though they may not follow flexible scheduling - for promoting personalized instructions the use of PLM can be tried out during library hours or can be given as home assignments both for individual self-instruction and for aided or remedial learning.

In order to experiment with the use of PLM in home science what one needs to do is to develop PLM and establish its suitability for a given group of students. As rightly expressed by J.P.Naik (1969),

> 'What India needs today is a large number of programmes, either prepared or adopted, in different school subjects. The best strategy to sell this idea would be to give the teachers an opportunity to use programme in the classroom. They could soon realize that programmed learning is something which far from replacing them relieves them of many non-creative tasks.'

One can therefore conclude that one needs to experiment with the multifarious use of PLM in various areas of education today. Its use for individual students as well as for group of students having various characteristics as a substitute or supplement to teachers teaching, and in various forms will help educators not only to study its suitability but also in identifying some practical difficulties and issues concerning it. In the present investigation the suitability of the use of PLM as self and aided method of study will be established for high school going adolescent girls opting for home science with selected personality variables.

1.4.1 Adolescent and Home Science

Adolescence is a period of transition from childhood to adulthood. It is a period of maturation. An adolescent girl is getting transformed into womanhood during this period.

This period of transformation is characterised by certain developmental tasks which adolescents have to meet during this process of growth and matuation. A developmental task is defined by Havinghurst as a midway between an individual's need and the societal demand during a given growth or developmental period. Some of the most important and closely related developmental tasks of adolescence to the field of Home science are -

- Preparing for marriage and family life ;
- Achieving feminine social role ;
- Preparing for an occupation.

Home science as an educational discipline aims at fulfilling these tasks. In fact, the whole discipline has come into existence to train the future home makers through educational instruction. Preparing adolescent and young girls for marriage and family life as well as for the greatest of all the occupations i.e. home making has been the primary concern of home science education. In getting prepared for this role an adolescent has to develop several managerial skills. She has to plan, execute and evaluate various activities concerning home living. As homes today have become more of consumer units the future home maker will have to deal with efficient management of family resources at hand to meet the immediate and the long term needs and goals of each of the family members. Management of family finance which is one of the important family resources has thus, become an important and inevitable task for her. It was, therefore felt necessary to develop PLM on one of the aspects of family finance - Savings.

1.4.2 Development of PLM in Home Science for Adolescent Girls

Home Science education today assumes an important position at secondary as well as higher education. It caters today to the needs of both adolescence and the youth. In ordef to do so the home science teacher has to try out various methods of teaching and learning. Along with general methods, use of special methods is also required in promotion of learning in case of programmes including Home Science. Limited studies on use of methods and materials for promotion of Home Science education are carried out to test their suitability independently as well as when compared to general methods of teaching. Most of these studies are carried out on the adolescent population.

Home Science education was initiated for adolescent girls and was introduced at high school level. Teaching Home Science to adolescent girls was given more important than teaching any other group. Hence in the present investigation also this group is considered for conducting the present investigation.

Home Science education still assumes an important position in the secondary and higher secondary curriculum. It is offered as optional subject, as academic stream as well as vocational subject. However, generally only one teacher is appointed to take care of all the classes from eighth onwards. Therefore availability of Home Science teacher to the adolescent girls opting for home science is limited to only a few hours. The slow learners are therefore affected as far as learning of various subjects of Home Science are concerned.

Programmed Learning Material facilitates learning among various groups of learners independently as well as under the supervision of a teacher. It helps the slow learners as well as the low achievers to achieve better immediately as well as over a period of time. Its use, generally tried out with adolescent, has given excellent results in terms of achievement - immediate as well as delayed. Hence developing PLM in Home Science for adolescent girls opting for it was thought of as a valuable contribution in this area. Programmed so developed can be useful for adolescent girls having varying degrees of intelligence level and achievement. Its use for adolescent girls opting for home science can be promoted both in a formal classroom situation as well as in informal situation during library hours or even at home. Hence development of PLM in Home Science for adolescent girls will be an important contribution.

The researches on the development and validation of PLM in Home Economics conducted in U.S.A. revealed that in order to develop suitable PLM for students at various levels of education and under various educational programmes, a researcher or a teacher needs to follow some important steps.

In the first instance one needs to undertake certain basic studies for selection of concepts and generalizations. Then one needs to select and develop observable instructional objectives. It further calls for organization of content to be learnt in an orderly manner.

In the second phase construction of frames and their validation through individual and group testing is called for. In the final stage PLM so developed and validated needs to be tested for its use for various purposes and for various students possessing different characteristics as per our assumptions.

In the present investigation all these three steps are followed in order to develop PLM in Home Science for adolescent girls possessing certain characteristics.

1.5 Delimiting the Scope of Study

As pointed out earlier studies concerning use of PLM in general as well as those in home economics in particular revealed that they are conducted to establish its suitability for various purposes namely as a self instructional method or as an aid. They are also conducted in order to establish its effectiveness when compared to certain conventional methods of study namely lecture, discussion, laboratory and demonstration. Researches in PLM have also established its suitability for pupils having various personal characteristics. The usual input variables considered were intelligence and/or achievement, extent of preparation to enter an expected educational experience and socio-economic status.

Investigations concerning PLM in general also pointed out that they were undertaken to develop and use various forms of PLM namely linear, branching, hybrid etc. Those in Home Economics though have not specified the form seem to have developed the linear form most often followed by the branching form.

Review of related researches in Home Economics revealed that most of the studies regarding development and use of PLM were done in the areas such as food and nutrition and clothing and textile. They aimed at promoting higher levels of cognitive behaviour which will promote the transfer of desired skill in these areas.

In the present investigation however the area in which PLM is to be developed is limited to finance management under home management. The reason being revision of the syllabi in home science at the time when the investigation was undertaken and the appropriateness of the content for the form of PLM to be developed for the study

(I) The development of programmed learning material in home science in the present investigation is limited to :

* A linear form of PLM
* Only one topic in finance management i.e. Savings
* Individual testing of frames
* Testing of PLM on a group of adolescent girls from a school where home science is offered as an optional subject.

(II) Testing its suitability in teaching home science to adolescent girls is limited to -

* Its use as self instructional and aided method of study.
* Its comparison with selected traditional method of teaching namely lecture-cum-discussion, and
* The adolescent girls varying on the basis of selected personality variables such as intelligence, overall achievement and achievement in home science, socio-economic status (SES), extent of preparation, time taken to go through the PLM and adjustment to the school
* When compared to immediate and delayed retention scores on subjective as well as objective items of the test.

1.6 The Broad Aims of the Study

The present investigation aimed at :

* Selecting appropriate concepts, generalizations and objectives for developing PLM on 'Saving' ;
* Organizing content for linear form of PLM on savings;
* Validating the development of linear form of PLM through individual and group testing.
* Developing and validating a linear form of PLM in Home Science for selected adolescent girls opting for Home Science.
* Studying the suitability of linear form of PLM in Home Science as self instructional and aided method of study for selected adolescent girls opting for Home Science.
* Studying the effectiveness of linear form of PLM in Home Science over selected conventional method of study when used as self instructional and aided method of study.
* Studying the suitability of linear form of PLM in Home Science for selected adolescent girls varying on the basis of selected input variables such as intelligence, overall achievement and achievement in Home Science, socio-economic status (SES), extent of preparation, time taken to go through the PLM and adjustment to the school.

1.7 Research Methodology

The present investigation is an experimental study. It explores the possibility of developing linear form of PLM in Home Science. It also includes testing of linear form of PLM in Home Science as auto and aided method of study to confirm its suitability as an instructional device in Home Science education for selected adolescent girls.

The present experiment consists of three treatments, namely use of PLM for auto instruction, use of PLM as an aid to conventional teaching and use of conventional method of teaching namely the lecture-cum-discussion, for the students varying on the basis of selected personality variables such as intelligence, level of achievement - overall as well as in Home Science, extent of preparation, SES, time taken to go through PLM, as well as adjustment to school.

1.8 Development and Testing of Linear Form of Programme in Home Science

In the present investigation, as indicated in the studies concerning development and testing of PLM in Home economics education, first the objectives and the concepts to be learnt were selected. A list of objectives in terms of identifiable behavioral outcomes was prepared in consultation with the subject matter teacher of the school where the experiment was to be conducted. Related concepts from the textbook of Home Science at secondary school level and the booklet on 'concepts and generalisations in Home Economics' were selected by experts from Home Science Education and Home Management Department of the Faculty of Home Science, Baroda. They were then checked by the school teachers in Home Science from Maharani High School for girls as well as the Alembic Vidyalaya for their suitability for the girls under experiment.

On selection of the appropriate concepts and generalizations in the topic 'saving' the content was arranged in an hierarchical order to suit the development of a linear form of programme where information needs to be presented in progressive steps. The content given in the textbook was taken as the basis for developing the hierarchical order. It was then checked by specialists from each area of saving included in the PLM. These areas were namely banking, insurance, government saving schemes, private saving schemes. It was also checked by experts from Home Management and Home Science Education Department of Faculty of Home Science as well as the school teachers teaching Home Science. This was done in order to check the authenticity of information presented as well as to check the adequacy of information for building the selected concepts and arriving at the proposed generalization at the ninth grade level.

The next step was to develop the frames for linear form of PLM on savings and validate each of them through individual and group testing. The content was divided into five main components, namely, the general information on saving, banking, insurance, government saving schemes and private saving schemes. Then for each of these components first the individual testing was carried out and then the group testing was done on the 21 students opting for home science at the Alembic High School, Baroda.

1.9 Procedure for Measurement and Analysis

In the first phase of this study an index of agreement was arrived at by means of percentage to select the appropriate objectives, generalizations and concepts for developing the linear form of programme on saving.

A group mean was considered suitable to select a frame for developing a linear form of programme in savings. The frames were thus validated.

For testing suitability of the PLM on savings for adolescent girls forty five students were selected under each of the three selected experimental treatments. Since the experiment was conducted during the regular class hours initially all the students in the five divisions of the class ninth were treated under each of the three selected methods of treatment. Students from divisions A and D were treated for auto-instructional purposes. Students from B and E divisions participated in the treatment where PLM was used as an aid to conventional method. Students in C division were treated under conventional method of teaching. The final sample for analysis of data was selected on the basis of constant presence of students during the experiment. Under each of these three treatments forty five students were finally selected. So the sample of the study consisted of 135 students.

In order to work out the levels of students under study for each of the selected input variables viz. intelligence, achievement, preparation, SES, etc. the following measures were taken :

1. The Desai-Bhatt group Intelligence Test : A standardized tool to measure intelligence of adolescence was used to calculate the IQ.
2. To arrive at the overall achievements of the students and also their achievement in Home Science the Cumulative Record cards were referred to.
3. To find out their level of preparation for entering the experimental treatment a pre-test was developed by the investigator in consultation with the school teachers. The scores on the pretest were analyzed to arrive at mean and standard deviation. Three groups were then formed to indicate the levels of preparation, viz.

4. For studying the SES of the students a test prepared by the investigator was administered and three groups mainly were formed on the basis of scores obtained by the students on this test.
5. In order to work out the time taken, clear instructions were given on the PLM to indicate time at the beginning and on completion of each sub-unit. The supervising teacher checked that the entry was made at every session. On completion of the test, median was computed and the group was divided in two groups only - One who took less than median time and the other who took more than median time.

In case of conventional treatment actual class hours of 120 minutes in total was considered as time taken to study the selected unit in saving. However, no analysis for group under conventional method was done for time as a variable.

To study the main effects of the treatment and the variables under each treatment analysis of variance was carried out. For further discussion the average mean of the means in each category was worked out and reported.

Operational Definitions :

Suitability of PLM is refered to in relation to the achievement scores on immediate as well as delayed retention test having subjective and objective items.

Subjective items refer to short answers and short notes.

Objective items refer to recall, recognition and association of information taught or presented.

Immediate retention test scores refers to scores on the test taken immediately on completion of a given sub-unit.

Delayed retention test scores refer to scores on the test taken after a given period of time on completion of the whole unit.

Operational Abbreviations Used in this Study :

PLM	-	Programmed Learning Material
IRT	-	Immediate Retention Test
IR	-	Immediate Retention
DRT	-	Delayed Retention Test
DR	-	Delayed Retention
SES	-	Socio-Economic Status
IQ	-	Intelligence Quotient

1.10 The Scheme of Chapterization

Chapter 1 : Introduction - Education in Modern times - Technology in Education - Programmed Learning Material - Programmed Learning in India - The Present Investigation; Its focus - Development of Home Science Education in India - Need and Significance of Home Science Education - Teaching of Home Science - Significance of Use of PLM in Home Science Education - Adolescent and Home Science - Development of PLM in Home Science for adolescent girls - Delimiting the Scope of Study - The Broad Aims of Study - Research Methodology - Development and Testing of PLM -

- Procedure for Measurement and Analysis - Operational definitions and Abbreviations - Scheme of Chapters - Conclusion.

CHAPTER II : Review of Related Researches : Introduction - Trends and issues related to Programmed Learning in India - Programmed Learning in Home Economics - Researches on Development and Validation of Programme - Researches on Programmed Learning Materials Vis-a-Vis the Conventional Methods of Teaching at School Level - Researches on Programmed Learning Materials Vis-a-Vis Conventional Methods of Teaching at College Level - Researches on Programmed Learning Materials for Different Types of Students - Conclusion.

CHAPTER III : Procedure : Introduction - Population - Sample - Sampling Method - Catagorization of Variables - Group Intelligence Test - Overall Class Achievement - Achievement in Home Science - Extent of Preparation - Adjustment to School - Time Taken in studying the Content - Socio-Economic Status - The Items on the test - Hypothesis of the Study - Coding and Analysis of Data - Conclusions.

CHAPTER IV : Development and Validation of PLM : Introduction - Development and Validation of PLM through Selection of Topic - Framing Assumptions, Stating of Objectives - Concepts and Generalizations - Selecting a Model - Arranging Content in order - Construction of Frames - Individual testing - Group Testing - Use of Prompts in Construction of Frames - Evaluation - Conclusion.

CHAPTER VI : Findings and Interpretation : Introduction - Characteristics of the Sample - Effects of Methods of Study on Variations in IRT and DRT - Part I - Effect of

Conclusion

The present investigation was carried out to explore the possibility of developing a linear form of PLM in Home Science Education. The steps to develop a linear form of PLM on savings for transfer of cognitive behaviour were followed and validation of PLM through individual and group testing was done.

An experiment to study the effectiveness of PLM so developed was carried out to study the suitability of linear form of PLM as an auto-instructional device, as an aid and over the selected conventional method. The effectiveness of PLM in Home Science for students grouped according to selected input variables was also studied.

The findings of this experiment will help to establish as to whether it is possible to develop linear form of PLM in Home Science and that whether it is suitable as an auto-instructional device or an aid for selected adolescent girls on basis of the selected input variables. It will also help to establish whether or not it is as good as or superior to the selected conventional method of study. The study will be a pioneer attempt and an original one in an unexplored area in Home Science Education in India.