CHAPTER I

INTRODUCTION
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1. THE PRESENT SYSTEM OF TESTING

"Learning is a natural inevitable result of human living", has rightly been remarked by Robert D. Strom (135).

Those who are interested in a science of behaviour insist that learning is a change in behaviour. The basic datum in learning as described by Carroll C. Pratt (69) may be summarized as under:

1. Learning is adjustment or adaptation to a situation.
2. Learning is improvement.
3. Learning is restoration of equilibrium.
4. Learning is problem solving.

"Learning is defined as any relatively permanent change in behaviour resulting from past experience" (20).

Further - "Scientific investigation of learning involves exposing an organism to a highly controlled environment and observing the effects of systematic manipulation of this environment upon measurable quantifiable aspects of ensuing behaviour" (20).

The true purpose of school is learning and development. Learning is the outcome of constant endeavour on the part of students and teachers. It appears to be a matter of covering a certain amount of subject matter in a prescribed amount of time.
The procedure adopted since times immemorial has been to test the learning gained by students by some means called 'examination' as or 'test'. This examination has two forms - Oral and Written. In olden times, specially, during ancient and Muslim periods in India, oral examination was prevalent and the entire knowledge gained by a student was measured orally by putting questions. The written examination came later and has adopted various forms, viz. Essay Type Examination, Teacher-made Objective Tests, and Standardized Tests.

Examinations and marks are commonly disliked not only by the students but also by teachers. These examinations distract the attention of the students and the teachers from the real aim of the institution. Both teachers and students possess different views regarding examination. These feelings have clearly been exhibited by H. Sorensen (130).

"The teacher is likely to feel that he is inadequate to categorize neatly the complex human beings, he has been teaching, and the student is likely to feel that he is on trial and being cross examined by a hostile prosecutor".

Examinations may be an evil but they are a necessary evil. Without these there is probably no other means of measuring one's progress in studies. Students cannot get rid of them, slogans cannot shout them down, teachers cannot do without them. They are the prime purpose of our examining universities. They are the be-all and end-all of college life.

Undoubtedly there are serious weaknesses in present day system of testing and marking, and radical changes may be needed. However, even the present examination and marking system may be well used or abused. Accordingly, the good teacher tries to make
'tests and marks devices' for learning, not tools for coercion. These devices surely render help in appraising the progress of the student in learning different subjects and to guide him in a practical way in his school and later career.

Learning has a purpose. When a student has learnt, there is a change in his behaviour i.e., every learning experience brings in desired changes in his behaviour, which represent the end of instruction. An achievement examination is valid only if it appraises the kinds of changes in student, which an instructor seeks to bring about. A teaching method is good only if it helps to bring about the kinds of changes which are regarded as the goals of instruction. Hence there is a close relationship between educational purposes, learning experiences and evaluative techniques represented by the following triangle:

![Triangle Diagram]

Educational Purposes or Objectives

Learning Experiences

Evaluative Techniques

These evaluative techniques are as under:

(i) To diagnose the strength and weaknesses of the student for the purpose of helping him in his further development along the lines indicated by the educational objectives;

(ii) To act as checks on the progress of the student during the term;

(iii) To act as a continual check on the standards of an educational programme.
Hence, examinations are intricately inter-woven with educational purposes and learning experiences.

Examinations serve as a test of efficiency. They provide us with a standard. The various examinations for the various subjects are given to a student to test his intellectual fitness. The progress of a particular student in a particular subject can be measured through examination. We can also find out how far a particular student is superior or inferior to other students i.e. over-achievement or under-achievement of a student can be measured. Examinations reveal student's interest and his inclination to a particular aspect of a certain subject of study as well as his capability of invention or creation or reproduction. They throw light on a student's power of expression and his resourcefulness. They make us know his promptness and quickness in giving answers.

No body is competent to judge every body, and besides for every selection of fitness, an examination would be necessary to choose the right person for the right job.

Examination is the stern child of education; it is a light to guide and a rod to check the erring. Examinations are actually the milestone on the road of education, learning and life. In Schools and Colleges, teachers work year in and year out to fulfil the task with which the society entrusts them. Teachers impart education based on certain aims. Teachers will become successful in imparting education if the aims are clear. In teaching a subject, teachers have to understand clearly the purpose for teaching that subject. Teachers can impart instructions after formulating aims and purposes for teaching a subject. To what extent they are able to attain those aims, can
only be known by examining or evaluating the achievement of students taught by them. Hence examination is a measuring rod to find out the achievement of students.

Evaluation is also necessary because it helps us to find out the effect of desirable and undesirable experiences which have been provided in class instructions.

In this connection, H. Sorensen (130) says, that "The formal examination of learning, whether long or short, specific or expensive, is a class-room instrument for measuring proficiency or, more specifically, achievement in school subjects; and its value is generally analyzed from this point of view".

It is through examination that intellectual attainment of the educand is assessed. Also teachers can find out individual differences and efficiency of students in various subjects. Not only of the student but the efficiency of teachers can also be judged. Sorensen (131) has given three uses of examination viz.:

"First, the examination may be used often for diagnostic instructional purposes, that is to help the student discover his strengths and weaknesses.

Secondly, the examination may be used to organize and integrate knowledge and thought. It can be devised to cover the largest possible body of knowledge from various areas of learning. Such an examination will thus help the student see the inter-relationships of the various areas of learning.

Finally, the examination may be used to indicate the quality of the student's scholarship in order to guide the student in a practical way in his school and later career."

Similarly, Mukerjee (65) has expressed his views about examination in the following words:

"Examinations are employed to assess the quality and the value of the training imparted during the short period of stay in the school and to test the fitness of pupils for further training or for the needs of life or livelihood."

Hence examinations are conducted to find out whether pupils have succeeded in grasping the subject-matter. They give a complete picture to students about their achievements and pitfalls. Through test results educational programme of the student may be adjusted to his requirements and method of teaching may be improved. The student may be benefitted by the right type of guidance and counselling needed for him by means of examination results.

Selover, Townsend, Jacobs and Traxler (84) have investigated the use of test results in a research conducted by them jointly. Their findings may be observed in the following words:

"Test results furnish an understanding of the individual pupil, so that his educational program may be adjusted to his needs, involving the improvement of teaching and guidance. This can influence educational or vocational advice, motivation towards best work by the individual, identification of concentration of interests and the study of all round development of the individual ....."

TESTING IN SCHOOLS AND COLLEGES:

Many subjects are taught in schools and colleges. Teachers adopt different methods of teaching the subjects. Students are expected to study hard throughout the session. Testing is held to know the results of the efforts of students and teachers. Both of them know the amount of work which must be put in within a stipulated period of time. Testing reveals how far students have
progressed in a particular subject. It also reveals the results of the methods adopted by teachers in imparting knowledge of their subjects.

Testing inspires them, makes them systematic, removes their weaknesses and directs their efforts towards a fixed goal and its achievement. It also lays down before the parents and society, an assessment of the progress of students by examining their achievement in each subject.

During previous years generally two examinations were held in schools and colleges, viz. - The Mid-term (Half-yearly) Examination and The Annual Examination. The first examination indicated weaknesses of the students in a particular subject so that they might be removed and the Annual Examination, being the final test, judged the students for promotion to the next higher class.

Now-a-days as per new set up, three examinations namely - The First Terminal, The Second Terminal and The Annual Examination, are held. This indicates that the whole academic session is equally divided into three equal terms excluding the long-holidays of Dashahra, Deepawali and Summer Vacations. Thus at the end of each term an examination is held.

At the end of the first term - The First Terminal Examination (Third Monthly Examination) is held to stimulate the students to prepare and revise the courses taught within this term and to find out their progress in each subject. This examination also reveals the deficiencies of students in a subject or subjects. Hence, here testing not only inspires the students to put hard labour in order to remove their weaknesses but also directs attention of the parents and teachers so that they may be able to
give every possible help to the needy in removing their deficiencies.

At the end of the second term - The Second Terminal (Half-Yearly or Six Monthly) Examination is held covering the whole course taught in both the terms. Generally each paper in each subject contains one-third of the total number of questions from the course taught during the first term and the rest two-third of the questions from the course taught during the second term. The aim of this examination is the same as that of the first examination viz. - stimulating students for regular study; and removing their weaknesses in different subjects. Lastly, at the end of the third and the final term of the academic session - The Annual (Final) Examination is held to find out the students who have come up to the prescribed standard so that they may be promoted to the next higher class or may be weeded out. On the other hand those who do not reach that standard are detained and declared unsuccessful.

Thus tests are held to evaluate the progress of pupils in the class or school.

2. STATEMENT OF THE PROBLEM

Testing is necessary to assess the progress of students and to give direction to further learning. The problem is -

"If testing is held frequently say again and again, after short intervals, does it motivate students, strengthen and promote their learning?"

The researcher will find out the result of 'Frequent Testing' by conducting monthly tests to be given to the groups - controlled and Experimental, and thereby will assess the effect of frequent-testing on their learning outcomes. In the light of
the above, the problem for the researcher is "Frequent Testing and Its Effect on Learning Outcomes".

3. DEFINITION OF TERMS USED

Definitions of the terms used in the problem are as under:

(a) Frequent Testing:

'Frequent' means 'happening in close succession' or 'occurring often' and 'Testing' means 'tests' or 'Examinations'.

Thus 'Frequent Testing' means 'Tests which are conducted or given in close succession'.

In this study - 'Frequent Testing' means 'Tests which were given by the researcher at the end of each month' i.e., 'Monthly Tests'.

(b) Learning Outcomes:

'Learning' means 'knowledge got by study' and 'outcome' means 'consequence' or 'result'.

Thus 'Learning Outcomes' means 'the results of knowledge received or achieved by study'.

In the present study 'Learning Outcomes' means 'the achievement of the students who were given monthly tests frequently'.

4. RATIONALE OF THE PROBLEM

The central problem of all educational efforts is learning. Lindquist (42) affirms -

"Learning is the process of changing human behaviour in socially desirable directions. In this broad interpretation, all the functions of educational measurement are concerned directly or indirectly with the facilitation of learning."
Evaluation requires making judgments about the relatively desireability of something in terms of the standard. Thus we evaluate how well a student is performing in any subject-field, his conduct on the play ground, his motives and the like. Evaluation refers to quantitative as well as qualitative description of behaviour whereas measurement refers to only quantitative descriptions. When we evaluate achievement of students, we are concerned with its value or worth, and this requires formulation of objectives by which worth can be determined. Thus the evaluation procedure includes such steps as:

(a) Identifying the objectives;
(b) Defining them in behavioural terms;
(c) selecting and using measuring tools;
(d) Analysis of results to find out whether desired learning outcomes have been achieved.

Dale P. Scannell and D.B. Tracy (113) assert that -

"Evaluation is the ability to make judgments on the value of ideas, methods or materials. This ability is used in such things as detecting fallacious logic in arguments, selecting the most important set of educational objectives from a longer list and comparing the evidence supporting conflicting theories."

Benjamin S. Bloom (5) affirms that -

"Evaluation is defined as the making of judgments about the value, for some purpose, of ideas, works, solutions, methods, material, etc. It involves the use of criterion as well as standards for appraising the extent to which the particulars are accurate, effective, economical, or satisfying. The judgments may be either quantitative or qualitative, and the criterion may be either those determined by the student or those which are given to him."
Jerome M. Seidman (115) says that -

"Evaluation is a fundamental part of learning process. It is the means by which progress in learning is determined. Evaluation is broader than testing. Evaluation derives facts from testing and from direct observations of behaviour, anecdotal records, conferences, check lists, rating scales, case studies, essay writing and other forms of measurement and observation. As a procedure or device that helps the teacher or pupil to determine next steps in desirable learning experiences, testing is an aid to evaluation."

Regarding difference between Evaluation and Measurement Herbert J. Klausmeier and William Goodwin (31) may be reviewed thus -

"Evaluation is a comprehensive term. Measurement is more restricted. Measurement is concerned with administration and scoring of tests of all types. Evaluation and measurement by school personnel are concerned with the student's abilities and characteristics and with student's progress towards achieving outcomes of learning."

Wilson, Robeck and Michael (139) have differentiated evaluation and measurement by stating that -

"The term 'evaluation' indicates a value or interpretation that one can ascribe to a test score or observation - the meaning, the significance, or the importance of that score or observation relative to certain judgmental criteria concerning what is considered to be desirable outcomes of the educational process."

The views contained in Encyclopaedia Britannica (19) about measurement are worth quoting :-
"Measurement is the determination of the magnitude of anything in terms of a suitable unit. Such units may be quite arbitrary (e.g., the pound, foot, second or degree centigrade) or may be derived from a combination of the arbitrary units (e.g., pounds per cubic foot)."

Monroe (56) in Encyclopaedia of Educational Research also throws light on measurement in the following paragraph:

"Measurement in education is a process of estimating the amount of some quality or attribute possessed by individual objects or specimens. These estimates are usually expressed in numbers (scores), which correspond more or less accurately to the amount of the quality or trait in question."

In continuation to this, the view of Wilson, Robeck and Michael (139) may be quoted:

"Measurement is the process of using a test, scale or instrument to obtain a relatively objective and quantified indication of a person's standing on a characteristic (such as achievement in arithmetic or language ability) represented by the device employed."

The above views of various authors may be summarized thus:

It is not possible to measure achievement in quantitative or physical terms like rice or sugar. Ability can only be measured qualitatively. In order to understand the quality of a person it has to be converted into scores. Hence it is of utmost importance that teachers pay attention to the marks obtained by students.

Testing and measurement represent one of the critical components of the educational environment - they provide the essential information for the development, operation and evaluation
of this enterprise. Robert L. Thorndike (138) has rightly said that—

"The fundamental task of testing and measurement (in education) is to provide information for making basic, essential decisions with respect to education's instructional design and operation. Four activities of instructional design influence measurement requirements, viz. —

(a) analysis of the subject-matter domain under consideration;
(b) diagnosis of the characteristics of the learner;
(c) design of the instructional environment; and
(d) evaluation of learning outcomes."

Owen E. Pittenger and C. Thomas Gooding (68) point out their view regarding testing. According to them—

"Testing is done to determine where to begin learning. In addition testing occurs during the learning process to provide feedback on progress for the student and to give the teacher information that leads to modification of procedures where required.

The most important purpose of evaluation is to help the student make progress in achievement learning outcomes considered by society, the teacher and himself to be of value.

Testing is important in the process of learning. Without testing, the progress of a student cannot be appraised. Robert D. Strom (136) emphasizing the importance of testing writes—

"It is occasionally suggested that schools could get along without tests, or indeed that they might even do a better job if testing were prohibited. It is seldom if ever suggested, though, that education can be carried on effectively by teachers and students who have no particular goals in view, or who do not care what or how much is being learned. If tests are outlawed, some
other means of assessing educational achievement would have to be used in their place."

The importance of testing can never be ignored. Tests can be used as a tool for promoting and motivating learning. Otis E. Lancaster and others (38) have emphatically described the necessity of tests as under:

"There is no other time in the class-room when all students give 100 per cent concentration to the activities as during a test period. They are motivated to do their best. They are asked to do something - to respond - and they do. After these responses they receive (either at the time of the test or when their papers are returned) satisfaction or reinforcement for the correct responses they make. In general, the information requested is not pure recall of specific facts, but rather the application of ideas to a new situation. Thus it is clear that activities during a test meet the four fundamental requirements for learning which were stressed by all theories: namely - motivation, response, reinforcement and transfer."

Jerome M. Seidman (117) has also pointed out usefulness of testing by stating that:

"The usefulness of testing is apparent at the very beginning of a child's schooling when the teacher needs to supplement her judgment of his readiness for learning."

Walter B. Kolesnik (33) has also emphasized the importance of testing as under:

"One way - though hardly the ideal way - to stimulate study is to announce a test. Other things being equal, the student who expects to be tested on material will study it with a stronger intention of remembering it than he would without that incentive."
Monroe (58) in Encyclopaedia of Educational Research also reveals the same view as under:

"A comprehensive and continuing testing program is a powerful educational instrument. Its influence may be good or bad. The nature of the tests influences greatly how and what pupils study and how and what teachers teach. Good tests clarify new objectives and give added meaning to old; they stimulate good teaching and learning procedures."

The motivating function of testing has also been supported by many authors viz. - Lee C. Dighton (18), Otis E. Lancaster (39, 40), Walter B. Kolesnik (34, 36), Walter S. Monroe (51, 55), Morris L. Bigge and Maurice P. Hunt (4), Cronbach, Hilgard and Spalding (16).

In Encyclopaedia of Educational Research the importance of testing has been greatly emphasized by Monroe (48) -

"Johnson reported that testing stimulates learning and Spitzer concluded that it aids in the retention of learning."

E.F. Lindquist (43) also lays emphasis on testing as under:

"Testing procedure properly conceived and executed, places the control of the learning process within the educator's power as no teaching device does. The three functions of a motivating condition are inherent in the test situation and are important criteria in the evaluation of measurement procedure."

These functions are: -

(a) The Directive Function to direct the variable and persistent activity of the organism into desirable channels.

(b) The selective function, to determine the responses that will be eliminated.
(c) The Energizing Function, to increase the general level of activity and effort.

Supporting the energizing function Lindquist (44) says that -

"It has been found in a variety of fields at the college level that when tests are given weekly and results discussed, individual errors noted, and the final examination made up of similar questions, the lower ability students achieve more than with less frequent examinations."

Further "It has been reasoned that if tests increase efforts, the more frequent the testing the greater the total efforts. ...... In general the energizing effect of examinations depends largely upon the degree to which students are successful in them. Those who make high marks, who progress and receive praise are stimulated." (44, 45).

Charles E. Skinner (124) has also recognized the three overlapping functions of testing - viz. (a) The Directive function; (b) The Selective function; and (c) The Motivating function.

Throwing light on the motivating function of testing Skinner (125, 126) says that -

"Tests also stimulate increased efforts. In the high schools many teachers believe tests constitute the principal means of stimulating learning. In the colleges and universities the student's interest in testing is heightened because of the importance attached to a few crucial examinations. The Sporadic last-minute efforts of college students toward the end of a quarter or semester attest to the motivating effect of examinations. If tests stimulate the learner to increased activity, it would seem that for best results they should be given frequently."
Further Skinner (126) reveals the fact that -

"Some studies show that where tests are given frequently lower ability groups in particular are benefitted. They seem to need the extra stimulus of frequent testing and the knowledge of progress revealed. Higher ability groups need less stimulation to learn and are more capable of analyzing their progress."

Robert S. Ellis (21) has also laid emphasis on the six functions of classroom tests: -

(a) Tests are needed for most effective instruction;
(b) Tests have important influence on the methods of study used by the students;
(c) Tests provide an opportunity for student expression;
(d) Tests are most important basis for the location of errors resulting from learning and for adopting corrective teaching.
(e) Tests furnish a basis for marks and reports of progress;
(f) Tests supply an additional motive for studying.

Walter B. Kolesnik (35) emphasizing the effect of frequent testing says that -

"While the evidence is still inconclusive, there is some indication that students given weekly quizzes show greater improvement than those who are tested less frequently."

Hence on the basis of the above views it may be safely concluded that frequent testing helps not only good students but in a great measure it benefits poor achievers. It motivates them in a more effective manner and helps them in getting better marks.
KNOWLEDGE OF RESULTS - FEEDBACK:

The problem in hand is directly concerned with two important subsidiary functions of testing in the motivation of learning. These two functions are - Frequent Testing and Knowledge of Results. Both these functions are closely related. The researcher has cited views of some authors in the previous pages to make it clear that frequent testing certainly motivates the students to study more. The second phase - knowledge of results which is related to frequent testing, also stimulates the students to study more on the right lines and it shows improvement. According to different authors, knowledge of results also motivates students and is one of the instructional aids to learning.

WHAT IS FEEDBACK?

Every day experience provides ample evidence that information about the success or failure of one's efforts to learn, contributes considerably to the effectiveness of learning. The procedure where a learner is made aware of the results of his attempts to learn, is termed as 'feedback' by psychologists. The function of feedback is to inform the operator that he has or has not made a correct response. The immediacy of response feedback in bicycle riding may be one reason why it can be learned rather rapidly; we know how we are doing. This knowledge of result or feedback aids the progress of learning. Similarly in every situation of educational learning, feedback itself acts as an incentive if the learner can see or know progress being made.

Knowledge of results or feedback is a motivating factor in the process of testing for making progress in learning. This fact can be established by going through the views of different authors given as under:-
Otis E. LaCaster (39, 40) has rightly summed up that -

"In the learning field, tests serve as a feedback to the teachers and students. The tests show them what modifications are desirable or even necessary before moving on. The tests may show that the pace is too slow, too fast, or just right."

Wilson, Robeck and Michael (140) have also emphasized the importance of feedback stating that -

"The teacher who is effective in testing practices is also one who will take great pains in returning the papers as early as possible following the testing. This feedback to the students is essential for guiding their learning, and for enhancing and maintaining their motivation."

Jerome M. Seidman (114) also supports the above view. He says that -

"There is abundant testimony that knowledge of results is important in learning. It favours learning the right thing, it prevents repeating and fixating the wrong answers."

Robert S. Woodworth (141) affirms that -

"Knowledge of results has a directive or corrective function and it also has incentive value."

Donald Ross Green (29) has laid emphasis on the importance of knowledge of results when he says that -

"Knowledge of results enhances learning. On this point research has been quite consistent - the more immediate the knowledge of results, the more reliable its effects on learning."

Lee, J. Cronbach (15) in consultation with Hilgard and Spalding has deplored the fact that -
"Feedback is the regulator of expert performance, and it is also the regulator of learning, for it tells the novice when he is improving and when he is wrong. At best it also tells him what to change."

The importance of knowledge of results has been emphasized by various authors like Richard H. Coop and Kinnard White (14), B. Von Haller Gilmer (28), Lee. J. Cronbach (16), S.S. Stevens (134), Lindgren and Byrne (41), Norman L. Munn (66), Kenneth E. Clark (10), Herbert Sorenson (128, 129), and Walter S. Monroe (51, 53, 54).

The New Encyclopaedia Britannica (137) reveals the importance of knowledge of results as under:

"A major influence in learning generally, repetition is the most powerful experimental variable known in psychomotor skills research. But practice alone does not make perfect; psychological feedback is also necessary. The consensus among theoreticians is that feedback must be relevant and reinforcing to effect permanent increments of habit strength. Once developed, habit never dies; it does not even fade away."

"The majority of investigations on informing pupils of their progress are in agreement that pupils learn more rapidly the more frequently they are informed of their progress. A study by Curtis and Wood and a more recent study by Curtis reveal that high school students who score their own examination papers and discuss the correct answers make higher scores on subsequent tests than do students whose papers were marked by the teacher." (51, 53).

A pupil's knowledge of results of his work is an important factor in motivation. The experiments upon this factor, in general, indicate that knowing one's rating in a performance builds up an attitude favourable to improvement whereas continuous work with only partial knowledge of results or with no such knowledge
yields a less effective performance. Knowledge of results leads
the individual to compete against his own record and under some
circumstances against that of other persons.

Charles E. Skinner (124, 125) while describing the
selective function of testing has laid clear emphasis on the
importance of knowledge of results. He says that -

"Tests define accomplishment, and enable the learner to
determine the rightness or wrongness of his responses. Experiemen-
tal evidence indicates that the more direct and immediate knowledge
of results, the better it is."

Lindquist (46, 47) has also stated that -

"Maximum learning results from testing when students are
permitted to score their own papers and discussion of errors and
remedial work follow immediately..... Logic and experimental
evidence indicate that in the test situation the more immediate
and direct the student's knowledge of results when and why he is
correct and when and why he is incorrect, the greater the tendency
to fixate, the correct responses."

This view has also been supported by Robert S. Ellis (22)
He says that -

"It has also shown that students make better progress in
learning when they have knowledge of the progress they are making.
It is not therefore, sufficient simply to give tests, they must be
corrected and the results given to the students; and the sooner
this is done, the better the result will be."

Anne Anastasi (1) has emphasized knowledge of results
as an incentive aid to learning. She says that -

"The incentive value of 'knowledge of results' has been
repeatedly demonstrated by psychological experiments in many types
of learning situations, with subjects of widely varying age and education. The effectiveness of such self-checking is generally heightened by immediacy. Thus when achievement tests are employed primarily as a learning aid, it is desirable for the students to become aware of their errors as soon after taking the test as possible."

Going through the different descriptions and views of different authors, laid down under the heading of Rationale of the problem and knowledge of results the researcher concludes that frequent testing and knowledge of results are certainly motivating factors in the facilitation of educational learning and performance.

It is of utmost importance to dwell upon the following ways to depart from the conventional approach of terminal examinations, so that the process of learning may continue smoothly and students may be benefitted in right earnest:

(a) First, students may be examined more frequently. This encourages students to keep up with their course work and allows them to evaluate their performance frequently.

(b) Secondly, the tests provide immediate feedback to the students, chances to correct their erroneous performance.

(c) Thirdly, examinations should be made repeatable.

The advantageous motivating, energizing functions of frequent testing and knowledge of results inspired the researcher to establish these facts on experimental evidence. Hence the researcher chose this topic 'frequent testing and its effect on learning outcomes'.
5. OBJECTIVES OF THE STUDY

The objectives of the study are as under:

1. To compare the effect of frequent testing on achievement with that traditional testing procedure.

2. To compare the effect of knowledge of results on achievement with that obtained by with-holding the results from the knowledge of the subjects.

Important factors as aids to testing:

1. Testing Procedure.

2. Courses of Study.

3. Study Habits.

1. TESTING PROCEDURE:

Since the nature of the problem in hand was scientific one, experimental method was employed by the researcher to study the problem. Accordingly the researcher obtained three equivalent groups of his sample in each of the two institutions wherefrom he got the sample for this purpose. The researcher named these groups as Group AC₁, Group BC₂ and Group CC₃. The detailed testing procedure has been discussed in Chapter III, pages 68 to 74 under the title 'Design of Study.'

The researcher divided the total nine-month testing programme into three equal terms, each term of three months. The researcher followed the Rotation Group Design in this study. Therefore, the groups were rotated after each term i.e. after three months and with its result the groups changed their respective position. The procedure followed by the researcher has been laid down term-wise -
First Term:

Group $A_1$ - Controlled

(Given test at the end of three months).

Group $B_2$ - Experimental Group I.

(Given frequent tests (say after one month) but the results were withheld from the knowledge of the examinees).

Group $C_3$ - Experimental Group II.

(Given frequent tests (say after one month) and the examinees were given the knowledge of their results).

At the end of the first term, the groups were rotated - that is Group A became $A_3$ Experimental Group II, Group B became $B_1$ controlled Group and Group C became $C_2$ Experimental Group II.

Second Term:

During the second term, the position of the groups was as under:

Group B became $C_1$ - Controlled.

(Given test at the end of three months).

Group C became $C_2$ - Experimental Group I.

(Given frequent tests (say after one month) but the results were withheld from the knowledge of the examinees).

Group A became $C_3$ - Experimental Group II.

(Given frequent tests (say after one month) and the examinees were given the knowledge of their results).
At the expiry of the second term of three months, the groups were again rotated and consequently each group changed its position for the third term.

Third Term:

During the testing programme of the third term - the last one, the groups after rotation secured their positions as under:

Group C became \( C_1 \) - Controlled (Given test after three months).

Group A became \( C_2 \) - Experimental Group I.

(Given frequent tests - say at the end of one month - but the results were kept confidential from the knowledge of the examinees).

Group B became \( C_3 \) - Experimental Group II.

(Given frequent tests - say at the end of one month - and the examinees were given the knowledge of their results).

During this whole period of nine months, the researcher gave detailed direction to the concerned teachers.

(2) COURSES OF STUDY:

The researcher selected the subject Arithmetic for testing programme. He reviewed the whole course of this subject prescribed for Class VII for the complete academic year. He told the concerned teachers of both the institutions to teach two topics - 'Ratio Proportion' and 'Graph' to their students of Class VII within two months, July and August 1974 without his direction as he had to administer Intelligence Tests for splitting the sample into three equivalent groups during these
two months.

The researcher divided all the rest of the topics of arithmetic selected for testing programme into two parts in such a way that each part might be taught within a period of three months. Again each part was divided into three equal sub-parts, so that each sub-part might be taught within the period of one month excluding Sundays and other holidays according to the approved list of holidays by the District Inspector of Schools, Kanpur.

The researcher instructed the concerned teachers regarding teaching of the prescribed topics as per planned programme. They were guided in detail regarding lesson plans of the respective topic to be taught every day.

The following topics were prescribed month-wise by the investigator as the courses of study to be taught during the first term and the second term, each of three months duration:

**First Term:**
(a) First Month: (1) Square root and allied problems.
(b) Second Month: (2)(i) Area of floor.
   (ii) Number of rectangular stones required for a rectangular floor.
   (iii) Area of four walls of a room.
(c) Third Month: (3)(i) Area of a rectangular field.
   (ii) Area of the path round a rectangular field - running 'inside' or 'outside' it.
   (iii) Area of the paths parallel to the sides crossing each other within a rectangular field and allied problems.
Second Term:

(a) First Month: (1) (i) Finding out circumference of a circle and allied problems.
(ii) Finding out area of a circle and allied problems.

(b) Second Month: (2) Average and allied problems.

(c) Third Month: (3) Simple Interest and allied problems.

On account of the Annual Examination of the students for their promotion to the next higher class, the researcher, as per plan, suspended the testing programme.

According to the existing rule of the Education Department of Uttar Pradesh, all the institutions re-open on 8th July every year after the summer vacations. Both the institutions selected for the study also re-opened on July 8, 1975. The researcher contacted both the Principals of these institutions and requested for the facility of time-table, teachers and classrooms to be provided for only three months during the academic year commencing from July 8, 1975. The time-table and other necessary arrangements were made within a week time. The researcher had already completed two-third of his testing programme during the previous academic year 1974-75. Only one third of this programme was left for him to complete. It required a period of only three months. The researcher after consulting the book of Arithmetic for Class VIII, selected only those topics which might be completed within three months.

The researcher gave the concerned teachers detailed guidance about the lesson plans of the topics selected for the third term. The teaching work in the new session started according to the direction of the researcher on July 14, 1975. Topics
for the courses of study taught during the third term which commenced from July 14, 1975 and ended on October 19, 1975, are as under:

Third Term:
(a) First Month: (1) Finding out cuberoot and allied problems.
(b) Second Month: (2) Compound Interest and allied problems.
(c) Third Month: (3) Field Book -
   (i) Area of rightangled triangle.
   (ii) Area of rectangles.
   (iii) Area of a quadrilateral having two sides parallel.

(3) STUDY HABITS:

Habit plays an important role in learning. It helps the students to acquire proper knowledge in learning. Habit enables children to perform certain acts without the help of the conscious mind. The unconscious mind helps them to do the job. It also helps the students to do their things quickly and easily. It not only saves but also surveys mental energy. It stimulates the children to do the job without hesitation.

In schools, the highly motivated students who always know what assignment is, who have the necessary books, papers and other equipment and who keep up with their daily work will usually be well prepared for the final test on account of their regular study habits. Thus they show better results and get the effective use of their time.

Out of several methods of study, testing is one with which pupils can develop efficient study habits if they are given tests very frequently. Pupils come to know their grasp of a subject measured by a test. Test scores encourage good study
habits as students are stimulated by securing progressive marks. They also adopt the habit of picking out important items and recall them during test hours. They also prepare outlines for the answers in an organized and logical way.

It will be worthwhile to give the view of Robert S. Ellis (22) regarding study-habits to supplement the above view as under:

"A realistic appraisal of the study habits of the students will show that they do study more when tests are given frequently, and this conclusion is supported by experimental evidence."

In this connection, the researcher does not fail to point out the view of Walter B. Kolesnik (32). His view is that study habits and skills depend on:

(a) the learner's set,
(b) time and place of studying,
(c) distribution of practice,
(d) over-learning,
(e) attempted recall,
(f) whole and part method of studying.

Out of the methods given above, the most important determinant of effective study is the learner's set. The word 'set' refers to the student's attitude or predisposition toward the work, his intention and expectations. Tests given frequently help the students develop habits of studying more and in a selected manner. Some argue that tests impede learning and encourage study habits of cramming but Walter B. Kolesnik (37) asserts that:

"An effort on the part of the teacher to help students realize that tests have an instructional as well as an evaluative
function, might contribute to the reduction of cramming, as well as of guessing, bluffing and cheating."

It clearly shows that tests develop good study habits. The researcher administered frequent tests so that the students might develop good study habits of revising the course prescribed for the test before the commencement of the test. Frequent tests discipline student's mind to take tests happily and whole-heartedly. Frequent tests develop study habits and study habits save energy and consequently bring about better and improved results and thus progress in learning is attained.

6. THE PLAN OF THE REPORT

According to the objectives of the study, the researcher had to find out the effect of the frequent testing on the learning outcomes. The researcher selected two institutions situated in Govind Nagar, Kanpur for the purpose of testing. One of these schools is for boys and the other for girls. The researcher made the management authorities and the Principals of these institutions agree to get every possible facility required in the procedure of testing from time to time. Accordingly, the investigator selected class VI of both the institutions as his sample. He also selected Mathematics as subject for testing purpose. He constructed two pre-tests, one test was of arithmetic and the second one was of algebra and geometry. He administered both the pre-tests and recorded the scores obtained by each boy and each girl of Class VI of each institution.

The researcher also collected family information of each subject of his sample on a schedule of family information constructed by him, by contacting each subject and his/her parents personally. He was able to secure this type of information in May, 1974.
The institutions as per general practice and rule laid by the State Education Department, reopened on 8th July, 1974. The researcher contacted both the Principals of both the institutions for obtaining facility of time-table, of teachers, rooms according to his planned programme of testing and obtained the desired co-operation.

The researcher reviewed the whole course of arithmetic to be taught to Class VII during the whole academic year. He contacted the concerned teachers teaching arithmetic in both the institutions and asked them to teach only two topics - Ratio-proportion and Graph without his direction because he had to administer intelligence tests on the students of his sample for obtaining equivalent groups.

The researcher obtained three equivalent groups in each institution on the basis of I.Q. and named them controlled, Experimental Group I and Experimental Group II. Both the experimental groups were given frequent tests. Teaching of arithmetic started on October 7, 1974 and the first test was given to the students of both the experimental groups on November 8, 1974. After that teaching of other topics continued and the second test was administered on both the experimental groups on December 14, 1974. Again teaching of other topic continued and the third test was given to all the three groups controlled and Experimental Groups I and II on January 16, 1975.

As per planned programme, the groups were rotated and the researcher administered two tests on both the experimental groups on February 15, 1975 and March 19, 1975 respectively and then the third test was administered on all the three groups controlled and Experimental Groups I and II on April 30, 1975.
Thus the researcher covered two-third of his testing programme. He suspended his programme according to his plan on account of annual examination and summer vacations, as the schools were closed.

The institutions reopened on 8th July, 1975 and the researcher again approached the school authorities and attained the desired facility of time-table, teachers and class rooms.

The groups were rotated as per schedule. Course of arithmetic for Class VIII was reviewed and three topics - Cube-root, Compound Interest and Field-book were selected for teaching as these topics would be taught within the prescribed period of three months. Teaching, according to prescribed programme started on 14th July, 1975. The first test of this third-term was given to both the experimental groups on 14th August, 1975 and the second was administered on them on 24th September, 1975. The third test of the third term i.e. the last test of the whole testing programme was administered on all the subjects of controlled and experimental groups on 20th October, 1975.

The scores obtained by each subject in all these nine tests were recorded from time to time and arranged them in tables of data group-wise and term-wise for analysis and interpretation of the results of frequent testing on the learning outcomes.