CHAPTER III

THE RESEARCH DESIGN
THE RESEARCH DESIGN

The research design presents a brief account of the method used in conducting the research, the population, the sample and the tools used in conducting the research. It also tells the procedure adopted for the collection of the date along with the statistical techniques applied in the study. The study aims at investing the study habits, reading interest, attitude towards teaching and their bearing upon achievement of the pre service teachers. Therefore the area of the study has been confined to a descriptive and Analytical approach. The relevant tool for measuring the achievement of the B.Ed. Pupil teachers have been designed by the Researcher. Study Habits, Reading Interest and Attitude towards teaching tools were already available and they have been used by the researcher to collect the data. These tools were administered upon a sample of about 450 B.Ed. pupil's in service teachers of the regular stream. The results were compiled and the statistical analysis were done for.
all the 450 B.Ed. in service pupil teachers. 200 males, 200 females, 200 rural and 200 urban students. The results received by some of the B.Ed. in service teachers were not found correct. Some of the students did not attempt all the questions and some left it unanswered or some of the students reply at random for example ticking number 2 in every answer. These B.Ed. pupil teacher's replies were not taken into consideration. The result of the other 400 were calculated.

METHOD

According to the nature of the study, normative survey method was used for the collection of data. All the four tools were administered upon the sample and the data was collected by the Investigator with the help of some other teachers also.
In this research, the population, which refers to the whole or aggregate apprised of B.Ed. Pre service pupil teachers belonging to the various colleges of education affiliated to M.D. University. The University has 12 affiliated colleges of education from where the sample of the study has been taken.

The researcher tried to ensure the representativeness of the population. Therefore, the investigator first selected the regular colleges of education of M.D. University, Rohtak on the basis of their district wise representation. In addition to that, it may be mentioned here that it would not be possible for the researcher to reach all the B.Ed. students of the regular stream in all the 14 colleges of education affiliated to M.D. University, Rohtak. Therefore, the researcher identified a sampling frame. There are five districts, in which the University has 14 affiliated colleges of education.
# TABLE - 1

DISTRICT-WISE DISTRIBUTION OF THE COLLEGES IS AS UNDER :-

S.NO. NAME OF THE COLLEGE AND DISTRICT-PLACE

1. K.M. COLLEGE OF EDUCATION, BHIWANI
2. GOVT. COLLEGE OF EDUCATION, BHIWANI
3. SARASWATI COLLEGE OF EDUCATION, CHARKHI DADRI (BHIWANI)
4. SHIVA COLLEGE OF EDUCATION, TAIGOAN, (FARIDABAD)
5. R.B.S. COLLEGE OF EDUCATION, REWARI
6. S.P. COLLEGE OF EDUCATION, REWARI
7. R.L.S. COLLEGE OF EDUCATION, SINDHRAWAI, (GURGOAN)
8. C.R. COLLEGE OF EDUCATION, ROHTAK
9. VAISH COLLEGE OF EDUCATION, ROHTAK
10. ARYA VAISH KANYA COLLEGE OF EDUCATION BAHADURGARH (ROHTAK)
11. G.B. COLLEGE OF EDUCATION, ROHTAK
12. B.P.S. COLLEGE OF EDUCATION, KHANPUR KALAN, SONEPAT
13. TIKA RAM COLLEGE OF EDUCATION SONEPAT
14. HINDU COLLEGE OF EDUCATION, SONEPAT
Out of these five districts, the districtwise selection was made. Out of the 4 colleges in Rohtak, 2 colleges and out of 3 in Bhiwani and Sonepat, 2 colleges from each district were taken. Out of the 2 college in Mahendragarh, one college was choosen by the draw of lots. There is only one college in District Gurgaon and Faridabad, so both the colleges were taken for the collection of data. Thus, in all 9 regular colleges of Education of B.Ed. Pupil teachers were selected. The colleges were selected through the draw of lots, which are mentioned as under:

**TABLE - 2**

District-Wise distribution of selected colleges:

<table>
<thead>
<tr>
<th>S. NO.</th>
<th>NAME OF THE COLLEGE AND DISTRICT-PLACE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>K.M. COLLEGE OF EDUCATION, BHIWANI</td>
</tr>
<tr>
<td>2.</td>
<td>SĀRASWATI COLLEGE OF EDUCATION, CHARKHI DADRI</td>
</tr>
</tbody>
</table>
3. SHIVA COLLEGE OF EDUCATION, TAIGOAN, FARIDABAD
4. R.L.S. COLLEGE OF EDUCATION, SINDHRAWAI, GURGOAN
5. R.B.S. COLLEGE OF EDUCATION, Rewari
6. ARYA VAISH KANYA COLLEGE OF EDUCATION BAHADURGARH
7. G.B. COLLEGE OF EDUCATION, ROHTAK
8. B.P.S. COLLEGE OF EDUCATION, KHANPUR KALAN, SONEPAT
9. TIKI RAM COLLEGE OF EDUCATION SONEPAT

After selecting the 9 colleges of Education, one of the sections comprising of about 50 to 52 students of the B.Ed. regular pre-service teachers were selected by the draw of lots, in this way randomised cluster sampling technique was used for selecting the sample. Arya Vaish Kanya College of Education, Bahadurgarh and B.P.S. college of Education, Khanpur Kala
(Both are purely girls institutions). The sample of female candidates of 100 students was taken. In this way, the rest of the seven colleges 100 female students were taken. In this way 200 female and 200 male students were selected out of collected data of 450 teachers.

### TABLE - 3

**COLLEGE WISE DISTRIBUTION OF THE STUDENTS**

<table>
<thead>
<tr>
<th>S NO.</th>
<th>NO. OF STUDENTS</th>
<th>MALE/FEMALE</th>
<th>RURAL/URBAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. K.M. COLLEGE OF EDUCATION</td>
<td>35/15</td>
<td>20/30</td>
<td>BHIWANI</td>
</tr>
<tr>
<td>2. SARASWATI COLLEGE OF EDUCATION, CHARKHI DADRI</td>
<td>30/20</td>
<td>30/20</td>
<td></td>
</tr>
</tbody>
</table>
3. SHIVA COLLEGE OF EDU., 28/22 26/24 TAIGOAN FARIDABAD.
4. R.L.S. COLLEGE OF EDU., 24/26 35/15 SINDHRAWAI,
5. R.B.S. COLLEGE OF EDUCATION, 22/28 28/22 REWAR
6. ARYA VAISH KANYA 50 girls 24/26 COLLEGE OF EDUCATION,
   BAHADURGARH.
7. G.B. COLLEGE OF EDUCATION, 35/15 23/27 ROHTAK
8. B.P.S. COLLEGE OF EDU., 28/22 KHANPUR KALAN, SONEPAT
9. TIKA RAM COLLEGE OF 35/15 26/24 EDUCATION SONEPAT
   Total 450 209/241 240/210
The following tools have been used in the present study for the collection of data:

1. Study Habits by Dr. C.P. Mathur
2. Attitude towards teaching by Dr. S.P. Alluhwalia
3. Reading Interest Inventory by Dr. D.K. Chadda
4. B.Ed. Achievement test standardized and constructed by the Researcher himself.

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>TOOLS USED</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACHIEVEMENT TEST</td>
<td>Constructed &amp; Standardized by Researcher</td>
</tr>
<tr>
<td>STUDY HABITS</td>
<td>DR. C.P. Mathur</td>
</tr>
<tr>
<td>ATTITUDE TOWARDS TEACHING</td>
<td>DR. S.P. Alluhwalia</td>
</tr>
<tr>
<td>READING INTEREST</td>
<td>DR. D.K. Chadda</td>
</tr>
</tbody>
</table>
ACHIEVEMENT

The quality of performance has become very important for the progress of the persons. Parents desire that their children should achieve more and more because achievement has become the measure for categorising the students. It has become the basis to get admission in higher classes. The achievement in the competitive examinations helps to recruit the students on various posts that means that the achievement is the only criteria for admission for recruitment, for selection to any post. The desire for high achievement puts a lot of pressure on the students and teachers, schools and on the educational system itself. it appears that the whole system of education evolves around the academic achievement of the students. Therefore, a lot of time and efforts of the parents and educational institutions are used for helping the students to achieve better achievement. Academic achievement refers to the degree of success or proficiency attained in specific areas.
concerning academic work, it is the student's performance on cognitive tests at a level, which is according to the posts and according to the standard set of the class. It measures what students learned in the academic area.

Achievement tests are used to measure what and how much students have learnt as the result of classroom formal Education. These tests measure the level of performance of the individuals or groups in academic learning. The scores of achievement tests are used in deciding which grade a student should be given or what are the areas of strength or weakness. The Achievement tests are used for evolving the course of study or efficiency of teaching and teaching methods or other educational factors. The items which are generally used in the achievement tests can be classified as selection type items or supply type items.
The Selection type items present the students with a study of possible responses from which they select the most appropriate answers. In the supply type items the students are required to create and supply their own answers.

**Selection type items**

1. Multiple Choice
2. True/False
3. Matching
4. Interpretive exercise

**Supply type items**

1. Short answers
2. Essay (restricted response)
3. Essay (extended response)
In this study, the researcher has constructed the achievement test having Multiple Choice Test Items for measuring the achievement of B.Ed. pupil teachers of the regular stream. The investigator has used the Multiple Choice Test Items under the Selection type items. These items have been chosen because these items are the most likely used. They can be designed to measure a variety of learning outcomes for example, knowledge, proficiency and provide the higher quality items. In the Encyclopaedia of Educational research by Harold E. Mitze, Multiple Choice items have the following advantages over other type items:

1. Multiple Choice Test Items can be used to assess the wide range of skills.

2. With the use of these items, large sample of knowledge can be assessed in a brief period.
3. These items are efficient to score even for large number of takers.

4. These types of items can be made highly reliable.

Moreover, it has been mentioned that it is very difficult to prepare Multiple Choice Test Items but it is very easy to score them. Therefore, Multiple Choice Test Items have advantages over the other types so the researcher has constructed the achievement test having Multiple Choice questions only in the first four compulsory papers of the B.Ed. syllabus of the Regular Stream.
ACHIEVEMENT TEST

According to Encyclopaedia of Educational Research by Harold, E. Mitzel, multiple-choice items have following advantages over the other types.

* Multiple choice type items can be used to assess wide range of skills.
* By the use of these items large sample of knowledge can be assessed in a brief period.
* These items are efficient to score, even for large number of takers.
* These type of items can be made highly reliable.

Due to the above mentioned advantages of multiple choice type items over the other types, the investigator has constructed the achievement test having multiple-choice type items only.
The following steps were followed for the construction of achievement test:

1. **PREMINARY PLANNING AND SELECTION OF THE CONTENTS**

This phase consisted of:

* Detailed study of the whole syllabli of different compulsory subjects and teaching subjects offered at the B.Ed. level.

* Detailed study and analysis of the literature related to test construction and its standardisation.

* Analysis of curricula, text-books, research studies etc.

* Preparation of blue-print, by taking into consideration the relative importance of various units, which was then discussed with various educationists dealing with the subjects.

* Paper-wise Blue Print (Unit wise distribution of items in the achievement test) is given in the following tables.
### TABLE - 4.1

UNIT-WISE DISTRIBUTION OF THE ITEMS IN THE 
ACHIEVEMENT TEST

(PAPER - 1: EDUCATION IN THE EMERGING INDIAN

SOCiETY)

<table>
<thead>
<tr>
<th>UNIT NO.</th>
<th>NO. OF ITEMS</th>
<th>NO. OF ITEMS SELECTED</th>
<th>WEIGHTAGE in (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>8</td>
<td>4</td>
<td>16%</td>
</tr>
<tr>
<td>2.</td>
<td>16</td>
<td>8</td>
<td>32%</td>
</tr>
<tr>
<td>3.</td>
<td>12</td>
<td>6</td>
<td>24%</td>
</tr>
<tr>
<td>4.</td>
<td>8</td>
<td>4</td>
<td>16%</td>
</tr>
<tr>
<td>5.</td>
<td>4</td>
<td>2</td>
<td>8%</td>
</tr>
<tr>
<td>6.</td>
<td>2</td>
<td>1</td>
<td>4%</td>
</tr>
</tbody>
</table>
**TABLE - 4.2**

UNIT-WISE DISTRIBUTION OF THE ITEMS IN THE ACHIEVEMENT TEST

(PAPER - II: EDUCATIONAL PSYCHOLOGY)

<table>
<thead>
<tr>
<th>UNIT NO.</th>
<th>NO. OF ITEMS SELECTED (Try out test)</th>
<th>NO. OF ITEMS SELECTED (Final form)</th>
<th>WEIGHTAGE in (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>2</td>
<td>8%</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
<td>5</td>
<td>20%</td>
</tr>
<tr>
<td>3</td>
<td>6</td>
<td>3</td>
<td>12%</td>
</tr>
<tr>
<td>4</td>
<td>6</td>
<td>3</td>
<td>12%</td>
</tr>
<tr>
<td>5</td>
<td>6</td>
<td>3</td>
<td>12%</td>
</tr>
<tr>
<td>6</td>
<td>8</td>
<td>4</td>
<td>16%</td>
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<tr>
<td>7</td>
<td>6</td>
<td>3</td>
<td>12%</td>
</tr>
<tr>
<td>8</td>
<td>4</td>
<td>2</td>
<td>8%</td>
</tr>
</tbody>
</table>
TABLE - 4.3

UNIT-WISE DISTRIBUTION OF THE ITEMS IN THE ACHIEVEMENT TEST

(PAPER - III A : INDIAN EDUCATION SYSTEM, STRUCTURE AND ITS PROBLEMS)

<table>
<thead>
<tr>
<th>UNIT NO.</th>
<th>NO. OF ITEMS</th>
<th>NO. OF ITEMS</th>
<th>WEIGHTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Try out test)</td>
<td>(Final form)</td>
<td>in (%)</td>
</tr>
<tr>
<td>1</td>
<td>6</td>
<td>3</td>
<td>12%</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
<td>5</td>
<td>20%</td>
</tr>
<tr>
<td>3</td>
<td>6</td>
<td>3</td>
<td>12%</td>
</tr>
<tr>
<td>4</td>
<td>12</td>
<td>6</td>
<td>24%</td>
</tr>
<tr>
<td>5</td>
<td>16</td>
<td>8</td>
<td>32%</td>
</tr>
</tbody>
</table>
**TABLE - 4.4**

UNIT-WISE DISTRIBUTION OF THE ITEMS IN THE ACHIEVEMENT TEST

*(PAPER - IV: ESSENTIALS OF TEACHING-LEARNING)*

<table>
<thead>
<tr>
<th>UNIT NO.</th>
<th>NO. OF ITEMS</th>
<th>NO. OF ITEMS SELECTED (Final form)</th>
<th>WEIGHTAGE in (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>12</td>
<td>6</td>
<td>24%</td>
</tr>
<tr>
<td>2.</td>
<td>6</td>
<td>3</td>
<td>12%</td>
</tr>
<tr>
<td>3.</td>
<td>4</td>
<td>2</td>
<td>8%</td>
</tr>
<tr>
<td>4.</td>
<td>6</td>
<td>3</td>
<td>12%</td>
</tr>
<tr>
<td>5.</td>
<td>10</td>
<td>5</td>
<td>20%</td>
</tr>
<tr>
<td>6.</td>
<td>6</td>
<td>3</td>
<td>12%</td>
</tr>
<tr>
<td>7.</td>
<td>6</td>
<td>3</td>
<td>12%</td>
</tr>
</tbody>
</table>
STUDY HABITS

One of the most important objectives of education is the qualitative improvement in the adjustment ability reading and good habits. Learning is a matter of habit formation. Habits are formed, learned and developed in a planned way. The behaviour of an individual to a great extent is controlled and shaped by the habits one develops in the course of development. It is very essential for the parents to develop good habits and good reading habits among the children for proper education.

Klapper in his book, "Principles of Education and directions" says for personality is called in habits and habits are the very garment of the soul.

Good habits are needed for good reading. Good reading habits lead towards better achievement. Habits are formed at a particular age i.e. before adolescence. That is why, parents should be very
careful in forming the good reading habits among the children. Once a good reading habit is formed or any habit is formed it remains throughout the life. Habits are a permanent view of the life. Habits are like the permanent education and life long education for a child. Whatever habits are formed during the childhood they remain with the children for ever. For example, habits for worship, habit for sincerity, habit for honesty, habit for affection, habits for devotion. All these habits are formed during the childhood due to the influence of the parents. The same is true about the study habits. Once the study habits are formed, they remain with the child throughout the life, and influences his achievement permanently. James an eminent Psychologists has mentioned the habits as the "fly wheels of the Society"

Hill Says, the combination of S-R, which is re-inforced by some rewards or punishment forms habits.

Habits are formed through repetition. Habits are semi mechanical and automatic.
The test of Study habits has been designed for the use with the school colleges and University students. The test is suitable for both sexes. The test is based on the nine major areas of said techniques, habits and attitude viz. attitude towards teachers, school and home environment, attitudes towards education, study habits, mental conflict, concentration, home assignment, self confidence, examination.

A high score in this test indicates high order of study habits and a low score shows poor study habits. The test contains 60 items seeking response yes, doubtful and no. Responses are given on a separate answer sheet and the test booklet can be used over and again. First scoring can be done by measuring the group study habits by using the Key 'A'. Structures for administrative of the test of Study habits.
Attitude refers to the favourable or unfavourable reactions towards teaching. How individual feels and what a person believes, is the attitude. Thurston says, "the concept of attitude can be defined to denote the sum total of man's in creation or feelings, objectives or bias pre conceived notions ideas, evils, threats and convictions about any specific topic. It is, further mentioned that the attitude is a degree of positive or negative effect associated with some psychological object. By psychological objects, Thruston means any simple phrase slogan persons or ideas opportunities which people can differentiate with respect to positive and negative effect. G.W. Allport says, "A mental and neutral set of readiness exerting a directive dynamic influence among the individuals responses to all the objectives and situations with which it is related is known as attitude. This definition reveals the following facts concerning attitude:-
1. Attitude is the mental or neutral study of readiness.
2. Attitude influences the reactions of the individuals.
3. Attitude changes the reactions of the individuals.

According to Mr. K. Young, "An attitude may be defined as a learned, more or less effective tendency of predisposition in a responded learning surprising manner, shall, positive or negatively in reference to some situation, value, material, object or class of such objectives or persons or group of persons".

New-Comb defines attitude, "An individuals attitude towards something is his predisposition to perform, to perceive, to think and to feel in relation to it". Therefore the attitude has the following major characteristics:

1. Attitudes are related to images thoughts and external objects.
2. Attitudes guide the behaviour of the individual in one particular direction.

3. Unconscious motive is an important factor in creation, of the attitude.

4. Attitudes are related to the persons needs and the problems.

Although, we see that the attitudes are described as permanent yet we find the change and development. Therefore, the stability of attitudes is relative. The permanent attitude towards an object does not come into being all of a sudden, but it is the result of steady development. Attitude changes and develops at a slow rate and at different rates among different individuals.

The main determinants of change in attitudes are :

1. Psychological determinants.

2. Functional determinants.

3. Cultural determinants.
Therefore, we can say that attitude towards teaching is the psychological determinant, where affective experience brings change in attitude towards teaching.

MEASURING THE ATTITUDE

The measure of attitude of the teachers held by them is very important to know their professional alertness and their abilities. A teacher performs his duty, dependent upon to a lot extent, on his attitude values, viewpoints, and beliefs. A positive attitude makes the work easier, more specific and rewarding. A negative, unfavourable attitude makes the teaching unpleasant, hard, harsh and tedious. Teacher's attitude affects his behaviour in the classroom through interaction with the students. Effective, forceful and comprehensive learning on the part of the pupils can be achieved by the observable attitude of the teacher. Therefore, it is very important
to measure the attitude of the practising teachers towards teaching profession.

In this study, Teacher Attitude Inventory (TAI) constructed and standardised by Dr. S.P. Alhuwalia has been used for measuring the attitude of the B.Ed. pupil teachers towards teaching.

TEACHER ATTITUDE INVENTORY

This inventory is a 90 item Likert instrument consisting of six sub scales. These sub scales were developed by the Likert summated rating procedure. Each scale has 15 statements that pertain to a particular aspect of prospective and practising teacher's professional attitudes. The six aspects dealt within the inventory are, Attitude towards:
Originally 300 attitude statements, 50 on each sub-scale were collected from diverse sources. After careful discussion and cautious deliberations in two seminars of educators, teacher educators, measurement specialists and persons knowledgeable in the field of Education, Psychology and Sociology, weak and poor items were either modified and improved or dropped. The selected 180 attitude statements, 30 on each sub-scale were discussed in a small group (n=25) of pupil teachers and teachers. On the basis of their judgement and reasoning only 150 attitude statements, 25 on each sub-scale, were retained for inclusion in the preliminary form of the Teacher Attitude Inventory (TAI) for wide tryout.
The answer sheets were scored and arranged in descending order. The upper 27% and lower 27% of cases were taken to find out the t-value of each attitude statement by using the formula given by Edwards 1959.

Keeping the rationale of attitude scale construction in mind 90 psychometrically "good" attitude statements, 15 on each sub scale were selected to constitute the final form of TAI. Out of 90 items, 56 are in positive declarative form and 34 of them are in negative form. Again 43 items are meant to assess attitude in favourable direction and 46 in unfavourable direction. Thus the favourable-unfavourable continuum adequately measures the aforesaid six selected areas.

The TAI consists of a bilingual (English and Hindi) re usable test booklet with a separate answer sheet.

Table shows the total number of favourable and unfavourable items and their distribution in each sub scale.
## TABLE - 5

TOTAL NUMBER OF FAVOURABLE AND UNFAVOURABLE ITEMS AND SCALE WISE THEIR SERIAL NUMBERS

<table>
<thead>
<tr>
<th>SUB SCALE</th>
<th>SERIAL NUMBERS</th>
<th>TOTAL NO. OF ITEMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>F 1,8,20,33,41,66,85</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>UF 13,34,46,48,60,72,79,86</td>
<td>8</td>
</tr>
<tr>
<td>II</td>
<td>F 2,9,14,17,42,47,53,67</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>UF 35,38,59,61,65,73,84</td>
<td>7</td>
</tr>
<tr>
<td>III</td>
<td>F 3,11,16,27,37,39,49,62,64,80</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>UF 25,54,75,83,90</td>
<td>5</td>
</tr>
<tr>
<td>IV</td>
<td>F 15,28,36,43,50,55,71,87</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>UF 4,7,10,32,63,74,76</td>
<td>7</td>
</tr>
<tr>
<td>V</td>
<td>F 5,44,81,82,89</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>UF 18,22,29,31,37,51,56,58,70,77</td>
<td>10</td>
</tr>
<tr>
<td>VI</td>
<td>F 6,23,40,52,88</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>UF 12,19,24,26,30,45,57,63,69,78</td>
<td>10</td>
</tr>
</tbody>
</table>

90
Favourable - SA=4, A=3, U=2, D=1, SD=0
Unfavourable - SA=0, A=1, U=2, D=3, SD=4

RESPONSE MODE

Likert continuum strongly agree, agree, undecide, disagree and
strongly disagree has been provided for each item. The subject
responds to each item by putting a tick mark (✓) in the square of the
chosen alternative against the serial number of the attitude statement
in the answer sheet. Subjects are required to respond to all the items
like wise. They do not have the option to leave any item unanswered.
The subjects are not permitted to make any mark on the test booklets.
RELIABILITY

Reliability was estimated by the split half (odd even) method and found to be .79 (corrected to .88) for a sample of 239 prospective teachers. The test retest reliability coefficients after the interval of 3 months and 9 months are found to be .59 (N=102) and .64(N=290).

VALIDITY

Determination of validity of an attitude inventory is a hard task. The inventory appears to have content validity and the method of selecting items supports this supposition. The validity was also determined through stimulus group technique.
This reading interest inventory is a detailed questionnaire to provide specific information about a person's likes and dislikes, habits and preference. It is mainly used in measuring the interest of a person. The reading interest inventory has been designed and constructed by Dr. D.K. Chadda to measure the reading interest. The reading interest Inventory has been used to measure the reading interest of the B.Ed. regular pupil teachers of the affiliated colleges of M.D. University, Rohtak. The inventory has been used to measure the reading interest as there was no other inventory was available to measure the reading interest of the B.Ed. regular pupil teachers. The reading interest has been measured by creating certain situations and on the basis of the answers to the questions. The reading interest has been measured by making the students to reply various situations, various questions and various check query questions.
The items in the reading interest inventory have been selected by seeking the information of the subject experts and only those items in reading interest inventory have been kept where the above has been found.

SCORING PROCEDURE

Key for each item was prepared and the scoring of the reading interest inventory was done. No response is right or wrong, but all the 30 replies have been assigned marks as 3,2,1; 1,2,3; and 2,3,1. Scoring key is given as under:-

<table>
<thead>
<tr>
<th>ITEM NUMBERS</th>
<th>SCORING KEY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2,3,5,6,8,9,11,14,15,16,18,19,21,23,24,25,30</td>
<td>3,2,1</td>
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<tr>
<td>4,7,10,12,13,17,22,27,28,29</td>
<td>1,2,3</td>
</tr>
<tr>
<td>20,26</td>
<td>2,3,1</td>
</tr>
</tbody>
</table>
INTERNAL CONSISTENCY

The subject experts information was taken while selecting the items for reading interest inventory and only those questions were kept in reading interest inventory where 75% or more unanimity was obtained as suggested by Prof. Udai Parekh, 1965.

RELIABILITY

The reliability of the reading interest inventory has been calculated by Test and retest method after a gap of 3 months and was found to be .71, which is quite significant for an outlay to be used for the purpose, it has been prepared.
ACHIEVEMENT TEST

For calculating the data for the present for this country regarding the achievement of the B.Ed. Pupil teachers of the regular stream, the investigator has to prepare the achievement test in all the four compulsory papers of the B.Ed. regular courses because no standard Achievement Test for measuring the achievement of the B.Ed. pupil teachers was available. There was a dire need to construct an achievement test to measure the achievement of the B.Ed. regular pupil teachers. The items used in the achievement test are classified as selection type items.
3. PREPARATION AND EDITING OF TEST ITEMS:

* Writing of items by the investigator. The number of items framed was three times the number required for the final test.

* Submission of items to authorities for critical evaluation.

* Revision of items in view of suggestions received from the subject experts.

* Preparation of experimental form of test.

3. ADMINISTRATION OF EXPERIMENTAL FORM AND PREPARATION OF TENTATIVE FINAL FORM:

* Framing of different instructions to be given to the testees. Administration of experimental form over 50 students of B.Ed. programme.
Deletion of ambiguous items and modification of the items which had language difficulty.

Revision and final editing of the items for tentative final form.

For this the investigator particularly kept in mind the following points:

i. The statements of the items were clearly and concisely worded.

ii. There was no ambiguity in meaning and construction of the statements.

iii. The statements were related directly to the topic.

iv. The irrelevant statements were avoided.

v. The statements were arranged properly and systematically under several problem areas.

vi. The sequence of the items was maintained in such a way that they were educationally sound.
vii. Efforts were made to test as much information as possible.

The number of items in the tentative final form was almost double the number required in the final form.

4. TRY OUT OF THE TEST

The test was administered over a representative sample of students of B.Ed. programme of M. D. University, Rohtak. As for item analysis, the researcher needed 370 test papers, the test was administered over 400 B. Ed. pupil teachers so as to keep margin for discarding the spoil ones. The testees were given following instructions:

* This is a test of what you have learned during the B.Ed. programme. The result of this test will be used for research purpose only.
This test has four compulsory papers.

In each of the four parts, there are 25 multiple choice. For each item select the answer that best completes the statement, or answers the question, and encircle the letter of that answer.

Do not make unnecessary haste/delay to finish the test.

Since your score will be the number of items answered correctly. Be sure to answer every item.

5. TIME LIMIT

For taking the try out test no time limit was kept. The test was administered and was taken back from the students after they had completed the test. On an average the students took three and a half hours to complete the test.
6. SCORING

The test papers were scored with the help of scoring key already prepared by the researcher on the basis of 1 mark for a correct answer and a zero for an incorrect one.

6. MEASUREMENT OF DISCRIMINATION AND DIFFICULTY VALUE OF THE TEST ITEMS.

For measuring the difficulty value and discrimination power, the following procedure was adopted:

a. Selected 370 test papers randomly.

b. All the 370 scored test papers were arranged in decending order from the highest score to the lowest score.
c. Counted off 27% of the total number of test papers from the top of the stack. This formed the upper group.

d. Counted off 27% of the total number of test papers from the bottom of the stack. This formed the lower group.

e. Put aside the middle group i.e. 46% papers of the total, since it is not used in the item analysis.

f. For each item counted the number of students, in the upper group and in the lower group, who answered the items correctly and recorded the same as \( P_u \) i.e. Proportion of students in the upper group who answered the items correctly and \( P_l \) i.e. proportion of the students in the lower group who answered the items correctly.

g. Following formula was applied for determining the difficulty value \( d_v \) of each item:

\[
d_v = \frac{P_u + P_l}{2}
\]
where:

\( d_v \) = Difficulty value of the item

\( P_u \) = Proportion of correct responses to the item in the upper group.

\( P_l \) = Proportion of correct responses to the item in the lower group.

h. The formula applied for determining the discriminating power is as follows:

\[ D = P_u - P_l \]

Where

\( D \) = Index of discriminating power

\( P_u \) = Proportion of correct responses to the items in the upper group

\( P_l \) = Proportion of correct responses to the items in the lower group
For determining the difficulty value and discriminating power, although our calculation is based on the upper and lower groups only and middle 46% are discarded, it provides a close approximation of the estimate that would be obtained with the total group.

In this regard, it becomes essential to quote that:

Davis (1951) computed the reliability coefficient of a group of typical item difficulty indices estimated in this way and has found it is to be 0.98, when the sample included 100 examinees in the highest 27% and 100 examinees in the lowest 27% group.

7. ITEM SELECTION FOR THE FINAL DRAFT

The items for the final tests were selected on the basis of the following criteria:
1. **DIFFICULTY VALUE**

Since "difficulty" refers to the percentage answering the item correctly, the smaller the percentage figure, the more difficult the item. Only those items were retained, the difficulty value of which ranged from 0.2 to 0.8 as the items having difficulty value below 0.2 are considered to be very difficult and above 0.8 very easy.

2. **DISCRIMINATION POWER**

The discriminating power of an item is reported as a decimal fraction; maximum positive discrimination is indicated by an index of 1.00. This is obtained only when all students in the upper group answer the items correctly and no one in the lower group does.

Zero is obtained when an equal number of students in each group answer the items correctly. Negative discriminating power is obtained when more students in the lower group than in the upper group answer correctly. Both of these types of items were deleted.
from the test and only those items whose discriminating power ranged from 0.1 to 0.6 were retained.

8. RELIABILITY

By reliability is meant the degree to which the test agrees with itself. To what extent can two or more forms of the test be relied upon to give the same results; or the same test to give the same results when repeated? If the scores on the test are stable under these conditions, the test is said to be reliable. In a word, reliability means consistency.

The absence of reliability in a test is a sign of weakness. Although high reliability is no guarantee that the test is good, low reliability does indicate that it is poor.

There are many ways by which reliability of a test can be found out. The reliability of a test can be found out. The reliability of this achievement test was found out by test-retest method.
This method has certain limitations, for example in the case of achievement test, this delay is likely to introduce other variables, the pupils may discuss the test between trials, do extra study or do other things that effect a change in the status of their knowledge. In addition to this, their physical and mental conditions may also effect the test. But in spite of these limitations the method has many advantages. Firstly, construction of two or more than two forms is always not possible and usually it is a troublesome job. Secondly, even if there is only one form, the split half technique may not be possible or feasible in all cases, as one to one matching is difficult to obtain.

The researcher used this method because of its superiority over other methods.

This method was used as only one form of the test was required, no matching between the items was required and it was easy to administer the test to the respondents even twice. Also, the gap
between the first and the second test would not make the difference because the respondents cannot talk with each other so easily.

The reliability of the measures of this achievement test, was found out to be 0.71, using the test-retest method.

9. VALIDITY

'Validity' refers to the degree to which the test or other measuring instrument measures, what it claims to measure. In a word validity means "Truthfulness". No matter what other merits the test may possess, if it lacks validity, it is worthless.

According to Lindquist (1951) - The content of an achievement test is often formulated by the analysis of curriculum and text books and by the pooled judgement of recognised authorities in the field. Under these circumstances, a well constructed test may constitute the best available measure of criterion in a sense that the
test itself defines the function it is to measure. Such test may be described as self defining.

Guilford (1954) also says "There are some measures whose validity is taken for granted, for example achievement test scores."

In view of the above viewpoints the validity of the achievement test used for the present study was taken for granted, because it was an achievement test and was constructed, keeping in view the weightage of the different portions of the syllabi. Thus, the content validity method was used for determining the validity of the achievement test constructed by the investigator.

10. **FINAL FORM OF ACHIEVEMENT TEST**

A. It consisted of 100 items (25 items in each subject)

B. The scoring key was prepared for it.
C. The instructions to be given to the testees were printed on the cover page of the test.

D. The time limit for the test was two and a half hours.

11. PROCEDURE FOR DATA COLLECTION

For the present research study, the data was collected from B.Ed. pupil-teachers enrolled with the regular colleges of education, M.D. University, Rohtak. Sample was drawn using the randomised cluster method of sampling and the selected pupil-teachers were asked to fill in the required proformas. The investigator himself administered the tests with the help of fellow professionals from the colleges of education affiliated to M.D.University, Rohtak and teaching staff of the various colleges.

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As four sets of data, pertaining to:

a. Scholastic Performance
b. Study Habits
c. Attitude towards Teaching and
d. Reading Interest

Of the B.Ed. pupil-teachers, were to be collected, the work of data collection was completed in four parts:

I. The first part comprised of collection of data regarding the scholastic performance of B.Ed. pupil teachers, for which the selected pupil-teachers were given an achievement test comprising of four compulsory papers.

II. The second part comprised of collection of data regarding the teaching attitude of B.Ed. pupil teachers. For this, Teacher Attitude Inventory (TAI) of Dr. S.P. Alhuwalia, was
administered upon the pupil-teachers and their answer sheets were collected.

III. To study the Study Habits of the B.Ed. pupil-teachers, Study habits of Dr. C.P. Mathur was administered upon the b.Ed. pupil teachers and the answer sheets were collected. This comprised the third part of the data collection step.

IV. To know the reading interest of B.Ed. pupil teachers, Reading interest Inventory (RII) constructed by Dr. D.K. Chadda was administered upon them and the answer sheets were collected.

Thus, each B.Ed. pupil-teacher selected for the present investigation had to complete all the four parts of data collection. The answer sheets collected from all the pupil teachers were scored and the data was organised for its analysis in accordance with the objectives of the study. The entire process of data collection took about one year.
STATISTICAL TECHNIQUES USED

It is the rejection/acceptance of hypotheses which ultimately determines the contribution of the investigation in the scientific development of a particular area. In the present investigation also, various statistical techniques have been employed, as per design of the study, for testing various hypotheses, so as to arrive at certain conclusions. The main techniques that have been employed include C.R. test, Pearson's Product Moment Method for computing coefficient of correlation, Multiple Correlation and Multiple Regression Equations. A brief rationale of the these statistical techniques is as under:-
CRITICAL RATIO (C.R.) TEST

Critical Ratio (C.R.) test is used to ascertain whether two observed statistics, such as two means, two correlation coefficients etc. indicate differences in a corresponding pair of parameters. The distribution of the C.R.'s is known to be normal around the true difference between the population mean.

In the present study Critical ratio (C.R.) tests have been employed to test the significance of difference between mean scores of B.Ed. pupil teachers of the campus based in their Achievement, Study Habits, attitude towards teaching and reading interest. It has also been used for testing the significance of difference between the correlation coefficients.

\[
CR = t = \frac{M_1 - M_2}{\sqrt{\frac{(\sigma_1)^2}{N_1} + \frac{(\sigma_2)^2}{N_2}}}
\]
Where:

- $M_1$ = Mean of Group I
- $M_2$ = Mean of Group II
- $\sigma_1$ = Variance of Group one
- $\sigma_2$ = Variance of Group two
- $N_1$ = Number of cases in first sample
- $N_2$ = Number of cases in Second sample

**CORRELATION**

Correlation is concerned with describing the degree of relation between two variables. The degree of relationship between the two variables is measured by computing the coefficient of correlation. A coefficient of correlation is a single number that tells us to what
variations in one variable go with variations with the other. There are various techniques of computing the correlation coefficients of bivariate distribution.

When the relationship between two sets of measures is linear, i.e. can be described by a straight line and also when the scores of two variables are distributed normally or atleast not badly skewed, Pearson's Product Moment technique can be used for computing the correlation coefficient between two sets of data. As the data in the present investigation has satisfied both the conditions, the Pearson's Product moment method has been employed for determining the coefficients of correlation between scholastic performance and Study Habits, scholastic performance and attitude towards teaching, scholastic performance and Study Habits, Reading Interest and attitude towards teaching, study Habits and Reading Interest and reading interest and attitude towards teaching. The size of the sample (N) quite large.
The following formula has been used for obtaining the precise index of correlation of bivariate distribution.

\[ r = \frac{N \sum x'y' - \Sigma x' \Sigma y'}{\sqrt{N \sum x^2 - (\Sigma x')^2} \sqrt{N \sum y^2 - (\Sigma y')^2}} \]

where:

- \( r_{xy} \) = Coefficient of correlation between the variables of X and Y
- \( N \) = Number of individuals measured
- \( \Sigma x \) = frequency on X scale
- \( \Sigma y \) = frequency on Y scale.
$X' = $ An individual's score deviation, in step intervals from an
arbitary origin on X scale.

$Y' = $ An individual's score deviation, in step intervals from an
arbitary origin on Y scale.

**STANDARD DEVIATION**

It is used as a measure of the dispersion of scores in a
distribution.

$$SD = \sigma = \sqrt{\frac{N \Sigma x^2 - (\Sigma x)^2}{N^2}}$$

Where

$\Sigma x^2 = $ The sum of squares of raw scores

$N = $ Total number of observation
Standard Deviation is a very useful device for comparing characteristics that may be quite different or that may be expressed in different units of measurement. The Standard Deviation is independent of the magnitude of the mean and provides a common unit of measurement.
Regression and Prediction

Regression analysis attempts to establish the nature of relationship between variables - that is to study the functional relationship between the variables and thereby provide a mechanism for prediction or forecasting.

Regression line x on y tells us about the best possible mean value of x for given value of y. In this regression line, x is treated as dependent variable and y is the independent variable.

Regression line y on x tells us about the best possible mean value of y for given value of x. In this regression line, y is treated as dependent variable and x is the independent variable.

Regression equation of \( Y \) on \( X \)

\[
\frac{\delta y}{\delta x} = r \quad (x - x)
\]

\[
y - y = r \quad (x - x)
\]
Correlation Coefficient

Dependent variable

Independent variable

Average of dependent variable

Average of independent variable

Standard Deviation of dependent variable

Standard Deviation of independent variable