CHAPTER – 3

RESEARCH DESIGN AND CONSTRUCTION OF THE TOOL

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3.1 Introduction

This chapter presents the method of conducting the study and item analysis of the items selected for the construction of the inventory. It starts with overall design of the study which includes population, sample, sampling method, research method, data collection tool, data collection and method of analysis of the data.

No planning of educational research can be completed without a detailed design of investigation. Research design tells us about what to do, when to do, how much to do. “A research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure.”

In fact, the research design is the form or organization of concepts within which the research is conducted; it establishes the detailed plan for the collection and analysis of data. It gives the outline of the researcher’s work, and the way he will conduct his study, which includes writing of the hypothesis, data collection, analysis and interpretation.

Research is the endless quest for knowledge or unending search for truth. It is the need of the day to carry out research in every field. To carry out research, tool to collect data is most important instrument required. The study of criteria of a good tool must touch upon the characteristics of a good item. Thus, the concern about the quality of an item seems essential when we attempt at developing a tool. To determine how good a test item is, we must know the features that go into its constitution and the qualities that contribute to its soundness. After studying the reference material, researcher wanted to construct a tool for the study. Under the guidance of her guide, the researcher prepared mental health inventory. This inventory was constructed after referring various study material i.e. books, online information, journals etc. related to mental health.

1.2 Origin of the problem

A research problem, in general, refers to one of the difficult situation which the researcher experiences in relation to some practical situation for which he tries to find the solution.
Now a day the problem of mental health is very common in the society and people have become aware of these problems and want to find the measures to treat the same. Being a teacher the researcher is very close to the students especially the adolescents. It has been noticed that students at this age face many problems and many diversions are found in their thought processes. They are always in tension. Their behavior is different at different places and in different situations. Sometimes they show unexpected behavior. They cannot face failure in their life, if such situation arises in their life they get depressed and heartbroken. This may be due to different reasons such as they need time to settle or we can say to adjust with the hormonal changes in their body, family pressure, peer pressure, stress due to studies, self image, recognition in the society, individual’s ambition, teacher’s pressure and many more. Many times it has been seen that even the family members do not understand their needs. Children feel they are neglected and gets restless. Their behavior changes and they start misbehaving or else they stop expressing themselves. There are many students in the school facing these problems but instead of finding the reasons behind the misbehavior of the child, teachers scold or neglect them. In the beginning it may not be too serious but if not paid attention the problem may reach to its extreme. Such cases should be brought under notice and appropriate steps should be taken. Since many years of teaching career, there had been many cases where children needed some special care and understanding. Being a teacher the researcher tried to take the initiative to find the causes of the misbehavior of such children. Hence, the researcher chose this title for the study which would be of great help to the society.

1.3 Research design

A research design is the most important step to be involved in any scientific research. It is very important part of research.

It deals with the selection and the development of the components of the research. It is the blueprint for the procedure conducted during the process of research work. It helps to plan for the population and sample selection, tool selection, selection of research method and finally selection of the data analysis procedure. A Research design is prepared in relation to the objectives and the hypothesis of the research. It is the planning stage of research which deals with logic and practicability of the research. Important features of research design:
1. It is a plan that helps to collect the information related to research problems from the relevant sources.

2. It helps in planning the appropriate methods to be used for collecting and analysing the data.

3. It helps to maintain the time and cost budget as both are important constraints to be kept in mind while conducting the research study.

Following are the points that Research design must contain:

a. Objectives of the study.
b. A problem to be studied.
c. Terms in the problem statement.
d. Methods and instrument to collect the data for research study.
e. The population to be studied.
f. Sampling plan.
g. Methods to be used in analysing data.
h. Reporting the findings.

A research design should be good enough to avoid the bias and should be reliable. It should help the researcher to complete the research study.

### 3.4 Population of the study

Population is the larger group from which individual are selected to participate in a study.

According to Borg, Walter R.

“A population is any group of individuals who have one or more characteristics in common that are of interest to the researcher”. ²

From the above definition it is clear that the population in any educational research is the description of the elements that is to be focused for the study. The elements can be person, organization, objects etc.

**Characteristics of population**
Following are the characteristics of the population of the study:

1. It is aggregate or totality of objects or individuals.
2. It is a set of well defined class of people, object etc.
3. It connotes the group.
4. It is associated with people, phenomenon and object.
5. It is the generalization of research.
6. It is associated with real or hypothetical objects, people etc.

Whatever be the population, it increases the cost for gathering and analyzing the data. It requires more man power to conduct the field work and further processing of data. Research requires greater accuracy and it is difficult to manage all this with large population. In such situation it is necessary to select an appropriate representative of the population which would have all the characteristics of the population.

The population of the present study comprises of IX standard students (studying in the year 2013-2014) of English medium schools of Central Gujarat, which comprises of Ahmedabad, Vadodara, Kheda, Anand, Nadiyad, and Mehsana districts.

3.5 Sample of the study

The elements selected from the population are called as the sample. Sample should be truly representative of population; it should have all the characteristics of the population. It should be selected without being partial so that the result obtained will be valid and reliable. The results obtained can be used to make generalization about the population in the form of estimates.

According to V. Young

“A sample is a short form of the well defined clear group (population).”

According to Good and Hat

“A sample is a small representation of a big population.”

From the above definitions it is clear that, the sample is the small group selected according to a definite method from a big population which represents the whole population.

Characteristics of Sample

Following are the characteristics of a Sample:

1. It is small in size.
2. It represents the population.
3. It has the characteristics of population.
4. Its findings are applied on population.
5. It is unbiased.
6. It deals with accuracy.
7. It is reliable.
8. It is approachable.
9. It should be homogenous in nature.
10. It should be easily controlled during data collection.

3.5.1 Sampling Methods

A sampling plan specifies how elements will be drawn from the larger or “parent” population, and how many elements will be drawn. Sampling methods are used to select the sample from the population. It helps to learn about the population on the basis of a sample drawn from it.

The process of selecting the elements from the comparative larger population is called sampling and the elements selected are called the sample of the study.

The process of sampling includes three main steps:

1. To select the sample.
2. To collect the information from the sample.
3. To make the conclusion about the population.

For the selection of a sample the researcher requires the list of population elements and using different methods of sampling the sample is drawn from the target population.

Method of Sampling

- Non probability Sampling
  - Purposive Sampling
  - Convenient Sampling

- Probability Sampling
  - Random
  - Stratified Random
  - Systematic Sampling
  - Cluster Sampling
In the present study Stratified Random sampling method of probability sampling method is used.

### 3.5.1.1 Stratified Random Sampling Method

The method involving division of the population in homogenous strata and then selecting simple random samples from each stratum is called stratified random sampling. Stratification actually provides increased accuracy in sample calculation without real increase in the cost. It implies probability sampling. In this method the population is divided into different strata and then from each stratum items are selected randomly to form the sample for the study. This method is more reliable and gives detailed information of the sample unit because each stratum is more homogenous than the total population. This type of sampling may be proportionate or disproportionate.

#### 3.5.1.1.1 Advantages of Stratified Sampling Method

1. It helps in the selection of good sample.
2. It provides equal chance of selection to all the units of population.
3. It is objective in nature.
4. Samples are good representative of the population.
5. It provides with unbiased selection.
6. It converts the heterogeneity of the population into homogeneity.
7. It includes formation of different strata.
8. Its results are reliable.
9. Since the strata are homogenous there is less chance of standard error.
10. Observations obtained can be further used for the inferential purpose.

#### 3.5.1.1.2 Disadvantages of Stratified sampling method

1. It is difficult to form strata.
2. There is a risk in generalization.
3. Appropriate knowledge of method is required by the researcher.
4. It needs time, money and man power.
5. It is difficult for the researcher to decide the relevant criterion for stratification.
6. Only one criterion can be used for stratification.

3.5.1.1.3 Steps of Stratification

Following steps should be followed to form the strata and collect the sample:

1. Population is heterogeneous.
2. Division of population into strata according to particular characteristics.
3. Strata are formed on the basis of gender, caste, socioeconomic status, area, school type, type of board, parents education etc.
4. The division of strata can be done more than one time.
5. Selection of sample.
6. If the selection is equal we shall have equal number of units from each stratum.
7. If the selection from each stratum is proportional there may not be equal units of sample from each stratum.

For the present study, in order to select a representative sample, some pre- determined criteria were taken into account. First of all from whole of the Gujarat state, Central Gujarat was taken for the selection of the sample, out of which five districts namely Ahmedabad, Baroda, Anand, Nadiad and Mehsana of Central Gujarat were selected randomly. These five districts were divided area wise into urban and rural areas. From each area schools running state board and other boards were selected randomly. Out of which boys and girls were selected from each school as the sample for the study. Hence 20 such schools were selected randomly. While selection of schools running different boards, area in which these schools resides was also kept in mind. Thus schools of rural and urban area were selected. From 20 schools of both rural and urban areas, 1600 students of standard IX were selected randomly.
Figure 3.1 represents the steps followed in the sample selection process.

<table>
<thead>
<tr>
<th>Schools (20)</th>
<th>Total Students (1600)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural (800)</td>
<td>Urban (800)</td>
</tr>
<tr>
<td>State Board (400)</td>
<td>Other Board (400)</td>
</tr>
<tr>
<td>Boys (200)</td>
<td>Girls (200)</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>State Board (400)</td>
<td>Other Board (400)</td>
</tr>
<tr>
<td>Boys (200)</td>
<td>Girls (200)</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based upon criteria and steps identified in fig. 3.1, in the present study sample was selected from 20 schools through the use of stratified random sampling procedure of probability sampling method. Thus 1600 students of standard IX were selected out of which 800 were boys and 800 were girls. List of the schools is attached in the table II

3.6 Research Method

Research methods are the methods used by the researchers in performing research operations.

It helps the researcher in the following ways:

1. To understand the research problem from the local populations point of view.
2. To obtain the specific information about the values, behaviour and social relation of particular population.
3. To carry out the investigation systematically.

The research method which we follow should be directly related to the problem statement and the objectives of the study. Depending on the type of problem to be studied and the various objectives different research methods are used.

**Fig. 3.2 Types of Research Method**

In the present study the method of research is the descriptive method of which survey method is used.

**3.6.1 Descriptive Method**
Descriptive research helps to find out the observable facts under investigation. It consists of research objectives and hypothesis of the study. It includes the relationship between the variables. The relation among different variables is revealed using statistical methods.

**Characteristics of Descriptive Research**

1. It deals with present.
2. It helps to know the status of a given phenomenon.
3. It involves large sample.
4. It is less scientific.
5. It provides more particular data.
6. It establishes cause and effect relationship.

**3.6.1.1 Survey Method**

Survey method describes and interprets what exist at present. It deals with existing conditions or relationships, practices, beliefs, ideas, attitudes, influences that are advancing. It is concerned with what exists, of what we want, and of how to get that.

According to Kerlinger

“Survey research studies large and small populations by selecting and studying samples chosen from the population to discover the relative incidence, distribution and inter relations of sociological and psychological variables.”

In descriptive method, generally Survey method is used. This method helps to collect the data from large number of sample at a given time. The survey method gathers data from a relatively large number of cases at a particular time; Surveys are concerned with describing, recording, analysing and interpreting conditions that either exist or existed. The researcher does not manipulate the variable or arrange for events to happen.

**Characteristics of the Survey Method**

1. It gathers data from a relatively large number of subjects at a particular time.
2. It is cross sectional in nature.
3. It involves definite objectives.
4. It helps to analyse and interpret the data carefully.
5. It helps to describe the findings logically.
6. It is complex in nature.
7. It contributes to the advancement of knowledge.
8. It determines the present situations and gives solution for the prevailing problems.
9. It helps the researcher to decide the tool for the study.

**Objectives of Survey Method**

1. To describe the problem or phenomenon under consideration.
2. To describe and interpret what exists at present.
3. To verify the hypothesis.
4. To compare the different variables.
5. To over view the existing conditions or relationships, practices, beliefs, ideas, attitudes and trends that are developing.

**1.7 Tool of the study**

The utility and the importance of the study depends upon the findings of the study which in turn depends on the data collected and the instrument used to collect the data.

Tools are the ways and means to conduct research and the conduct of research could only be justified through the methods and techniques meant for it. One of the most important tasks of the researcher is to select an appropriate tool for the data collection. The tool used for the collection of data must be according to the research study. It should be reliable as well as valid.

For the present study the researcher has constructed and standardised mental health inventory.

**3.7.1 Construction of mental health inventory**
To construct the mental health inventory review of the existing material was carried out. Other inventories were reviewed. Factors affecting the mental health of the individual were found out. And finally under the guidance of the guide five factors were selected that are discussed further in the study. Items that checks the mental health of students of adolescent age and the objective of the study was verified.

In the present study, construction and standardization of mental health inventory is the main purpose of research. To do the same, the researcher studied the theoretical background about mental health and different parameters which could help to measure the positive mental health status of an adolescent. The researcher also studied various mental health factors given by different researchers as well as other psychologists. Among those factors studied the researcher selected the common factors to construct the inventory. The 5 main factors were selected; further each 5 factors had 5 subgroups. They are as under:

**Table 3.1**

**Factors used to construct the Mental Health Inventory**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Factors to check Mental Health</th>
<th>No. of positive Statements</th>
<th>No. of negative Statements</th>
<th>Total statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>Introspection</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a.</td>
<td>self concept</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>b.</td>
<td>how I feel about myself</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>c.</td>
<td>my attitude</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>d.</td>
<td>self analysis</td>
<td>4</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>e.</td>
<td>self regulation</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>(2)</td>
<td>Physical growth</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a.</td>
<td>Pace of physical growth</td>
<td>1</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>b.</td>
<td>Proportion</td>
<td>-</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>c.</td>
<td>energy quotient</td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>d.</td>
<td>Physical fitness</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>
e. Physical appearance & 3 & 2 & 5  

(3) Cope with Stress  

a. stress causing factors & 1 & 4 & 5  

b. coping ability & 3 & 2 & 5  

c. my relation with stress and coping ability & 3 & 2 & 5  

d. Adjustment & 4 & 1 & 5  

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Factors to check Mental Health</th>
<th>No. of positive Statements</th>
<th>No. of negative Statements</th>
<th>Total statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>e.</td>
<td>my reflection and stress</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

(4) Autonomy  

a. my concept about autonomy and freedom & 3 & 3 & 6  

b. sense of freedom and responsibilities & 3 & 2 & 5  

c. discipline and life & 3 & 2 & 5  

d. my autonomy and others & 2 & 3 & 5  

e. decision ability & 4 & 1 & 5  

(5) Environmental Mastery  

a. environment and me & 3 & 2 & 5  

b. influence of environment on me & 4 & 1 & 5  

c. interpersonal relationship & 3 & 2 & 5  

d. hygienic conditions & 4 & 1 & 5  

e. my control over environment & 5 & - & 5  

5 statements in each subgroup were framed. Some were positive and some were negative statements. Hence, total 126 statements were constructed. It consisted of 5 alternatives to respond each of the statements. They were ‘Always’, ‘Often’, ‘Sometimes’, ‘Rarely’ and ‘Never’. The respondents will have to tick any one of the alternatives.
In the beginning of the inventory, the request letter for the students was typed following with the requirement of personal data of the respondent. Below that the clear instruction to respond the inventory was given. The duration of completing the inventory was not decided. The inventory is attached in Appendix I

3.7.2 Arrangement of items

After selecting the items appropriate to each group and subgroup, arranging those items will be the next step which is very important. For this the researcher has taken into account different points. They are as under:

1. Each item that is constructed should be relevant to the group and its subgroup.

2. Each item framed should fulfill the objective of the study.

3. Language used should be simple and easy.

4. Items should be constructed keeping in mind the age and the level of the students.

5. Items constructed should not be ambiguous.

6. Items should be arranged in order of easy to difficult value.

7. The instructions to respond the inventory should be clear and mentioned in the beginning so as to obtain perfect understanding.

Responding the statements of Mental health Inventory

Students will read the statements and put (✓) to only one option out of 5 given responses in the inventory. They will give the response to the statement related to them.

Format of the inventory
After making necessary changes according to the suggestions given by the experts, the inventory had 123 statements left. Out of which 75 were positive statements while 48 were negative statements. The researcher decided the format of the inventory. According to which the introduction of the mental health inventory was given. Followed by, the details to be collected from the students. After that the instruction to be followed to give the responses was explained. The inventory had five point rating scale which includes Always, Often, Sometimes, Rarely and Never. The students have to tick (       ) before any one alternative to give their response.

### Scoring Method

The positive statements are scored from 5, 4, 3, 2 and 1 while the negative statements are scored from 1, 2, 3, 4 and 5. The maximum score of the inventory will be 615 and the minimum score will be 123.

The inventory will be used for the pre pilot test. The inventory used for the pre-piloting (with 123 items) is attached in the Appendix II.

After arranging the items keeping in mind the above points the inventory was made ready. After the constructing raw inventory, it is necessary to get it evaluated at two stages:

1. To give it to the expert of subject.
2. Pre-Pilot test of the inventory by giving it to the students.

#### 3.7.3 Evaluation by the Experts

Following is the information and the list of panel of experts:

1. Prof. Sonal Thareja
   Principal (off g.) JG College of Education (Affiliated to Gujarat University)
   M.Com. M.Ed (Gold Medalist) NET (Education)

2. Dr. Dipiti Bhatt
   Prof. JG College of Education (PG) (affiliated to Gujarat University)
3. Dr. M Milind Mistry  
Prof. Department of Education. (Gujarat University)  
M.A, M. Ed., Ph.D  

4. Dr. Ashwin B. Jansari  
Head and Hon.Director(PGDCP), Psychology Department,  
School of Psychology Education and Philosophy,  
Gujarat University, Ahmedabad  

5. Dr. Harikrishna A. Patel  
Asst. Professor, Dept. of Education, KSV, Gandhinagar.  

3.7.3.1 Suggestions given by the experts:  

Following suggestions were given by the expert:  

1. To make changes in the length of the statements by making it short and appropriate.  
2. To check the grammar of some statements.  
3. Made changes in some of the statements with respect to content.  
4. To make changes in the font size.  
5. Removal of irrelevant statements.  
6. To keep the age of the students in mind, while framing the statements.  
7. To make concrete statements.  
8. Improve the language of the statements.  
9. To do pre- pilot testing of the inventory.  
10. During the pre- pilot testing, the responses of the students should be checked and changed.  
11. To note down the time taken for completing the inventory by the students.  
12. To remove the ambiguous words from the statements.
After evaluation by the experts, the researcher made necessary corrections in mental health inventory. Thus corrections were made in some of the statements while 3 statements were removed. Hence out of 126 statements 123 statements were left which was used for pre-pilot testing.

3.7.4 Pre-pilot test of the inventory

In order to make the test more accurate and effective, pre-pilot testing should be undertaken before the pilot testing. Following are the advantages of Pre-pilot testing:

1. Weak and faulty items can be known.
2. Reactions of the respondents can be known.
3. The time taken to complete the test can be recorded.
4. The difficulty faced by the respondents can be known.
5. The ineffective alternatives can be noted down.
6. Ambiguity of the questions can be known.
7. The language difficulty faced by the respondents can be known.
8. The items which are very easy or very difficult can be known and removed before pilot testing.
9. By observing the mental status of the respondents while answering the test, necessary modifications can be made before the pilot testing.
10. To arrange the statements in proper sequence.

Keeping all the above advantages of pre-pilot testing in mind, the test of 123 items was constructed and the pre-pilot test was administered on 100 students of standard IX. The researcher personally conducted the test so as to note down the difficulties faced by the respondents. Moreover the average time taken to complete the test was also noted down. This stage gave confidence to the constructor of the test.

3.7.4.1 Analysis of Pre-pilot test

After the test was over the sheets were collected and evaluated as per the 5 point rating scale. The items, in which the students faced the problem, were noted during the test and were
removed. The language of some of the items was changed and made easy for them to understand. Thus necessary modifications were made and out of 123 statements 19 statements were removed. The new inventory was prepared which had 104 items left. The test was then used for the pilot testing which was the second stage. The inventory used for the piloting (with 104 items) is attached in Appendix III.

3.7.5 Pilot Testing

The new test having 104 items was used to conduct pilot test. The test had 67 positive statements and 37 negative statements.

The objective of the pilot testing is as under:

1. To decide the difficulty value of the items of the test.
2. To find out the discriminating value of the items of the test.
3. To decide the time taken to complete the test.
4. To analyze the alternatives of the test.
5. To assess the effectiveness of the instructions given to the group regarding the test.
6. To estimate the evenness of the scores of the test for the population.

After completing the pilot testing on 350 students of standard IX from three different schools, the students’ mental health inventory scores were calculated. The total scores were arranged to carry out the next step of item analysis.

3.7.5.1 Sample for pilot test

The sample for pilot test was collected from the following schools:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of School</th>
<th>No. of Boys</th>
<th>No. of Girls</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ASIA English School</td>
<td>58</td>
<td>59</td>
<td>117</td>
</tr>
<tr>
<td>2</td>
<td>St. Blaze School</td>
<td>60</td>
<td>57</td>
<td>117</td>
</tr>
</tbody>
</table>
### 3.8 Item Analysis

Item analysis determines the effectiveness of the different items included in the test. After an item is written, reviewed, carefully edited and tried out, it is subjected to “item analysis” which shows how effectively a given test item functions within the total test. It is a technique of determining whether an item was too easy or too difficult and to what extent it was able to discriminate between high and low achievers of the test.

In this process the responses of the respondents to each item is examined. It helped the researcher to know how the selected items worked with the chosen sample. She could also make out which item was easy and which one was too difficult and respondents fail to give their response to that particular item. This step helped the researcher to revise and select the items for preparing the final test. This stage also increased the reliability and the validity of the test.

There are various procedures to carry out item analysis. Following steps were under taken by the researcher to carry out the item analysis:

1. The scores of 350 students were arranged in descending order. i.e. highest to lowest.

2. After arranging the scores of 350 students, 27% of the scores of the highest scores and 27% of the scores of the lower scores were taken. It came to 85 students out of 350 students in each group. Hence two groups were formed. The highest 85 students scores constituted the higher group (UG) and the same way the lowest 85 scores formed the lower group (LG).

3. The scores of each individual of the higher group and the lower group for each item were placed vertically. And t-test was applied to each item of higher group and the lower group.

\[
t = \frac{\bar{X}_1 - \bar{X}_2}{Se_m}
\]

Where, \(\bar{X}_1\) = Mean of first group

\(\bar{X}_2\) = Mean of second group
$S_{Em} = \text{Standard error of mean}$

4. The items which were significant at 0.05 (1.96) level of significance were selected for the construction of the final tool.

The table 3.2 shows the calculation of t value of each item for each respondent in the higher and lower group.

<table>
<thead>
<tr>
<th>Item No. Selected</th>
<th>Higher Group</th>
<th>Lower Group</th>
<th>t-Value</th>
<th>Significant (*** or not significant(*))</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>324</td>
<td>267</td>
<td>0.003</td>
<td>*</td>
</tr>
<tr>
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3.9 Final Mental Health Inventory

After pilot testing and item analysis on the basis of ‘t’ value, the items significant at 0.05 level of significance were selected for the final test. Out of 104, 24 statements were not significant so were removed and 80 statements were found significant at 0.05 level. Thus 80 items were selected for the final inventory. Out of these 80 items 55 were positive statements and 25 were negative statements. Positive statements were given the scores as 5, 4, 3, 2, 1 and negative statements were given the scores as 1, 2, 3, 4, 5. Therefore the highest score on the inventory is 400 and the lowest score is 80. The time limit to respond the statements of the mental health inventory was 30 minutes and 10 minutes for giving the instructions, so total 40 minutes was considered. Mental health inventory used for pilot test (with 104 items) is attached in the Appendix III. Also the final Inventory prepared after item analysis (with 80 items) is attached in the Appendix IV.

3.10 Interpretation of scores of mental health inventory

On the basis of scoring pattern the inventory has highest score 400 and the lowest score 80, researcher has interpreted the scores of mental health inventory as shown in table 3.3

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Table 3.3

Interpretation of Mental Health Scores
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Pie Chart representation of Mental health Scores

![Pie Chart](image)

**Final Format of Mental Health Inventory**

After constructing the final inventory the format was decided:

Page 1: Introduction

Page 2: Information to be collected from the students and instruction about how to respond the inventory.

Page 3: 80 statements of the inventory
3.11 Conclusion

In this chapter the researcher has explained the details about the research design which includes population, sample, sampling technique, research method and tool selection which gives the detailed information of the construction and standardization of the mental health inventory. Furthermore, this chapter also contains detailed procedure of item analysis and making the required changes accordingly, the researcher has prepared the final inventory, after standardization of the inventory the researcher will run the inventory to collect the data. Standardization of the mental health inventory is introduced in the next chapter.
References