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3.00 METHODOLOGY

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CHAPTER 3

3.00 METHODOLOGY

3.01 Overview

This chapter deals with the methodology. It has eight sections. The first section is the overview. The second section defines the problem of the study. The third section explains the objectives. The fourth section depicts the significance of the hypotheses. The fifth section deals with the population and sample. The sixth section briefly states the instrumentation. The seventh section deals with the statistical techniques. The eighth section is the documentation.

Meaning of Research

Research is an essential and powerful tool in leading man towards progress. The term ‘Research’ consists of two words. ‘Re’ and ‘Search’ ‘Re’ means again and again and ‘search’ means to find out something new. Thus, research is a process of which a person observes the phenomena again and again, collects data and he draws some conclusions on the basis of data.\(^1\)

*John W. Best* has observed in his book ‘Research in Education’ as “The secret of our cultural development has been research, pushing back the areas of ignorance by discovering new truths, which is truly, lead to better ways of doing things and better products”. There is no alternative to truth and therefore to
research. Educational research is considered too be a ‘prominent key’, which is essential to the opening of new doors in education. Educational research must be squarely aimed at finding solutions to unsolved problems. Education within the last few decades has come to be regarded as an applied science, like medicine, engineering or industrial chemistry.

What is Research?

Research may be defined as the systematic and objective analysis and recording of controlled observations that may lead to the development of generalizations, principles, or theories, resulting in prediction and possible ultimate control of events.

Definitions of Research

Francis Bacon: “Research is a power of suspending judgment with patience, of meditating with pleasures of asserting with caution of correcting with readiness and of arranging thought with scrupulous plan”.

Webster’s New International Dictionary: “Research is a careful inquiry or examination in seeking facts or principles, a diligent investigation to ascertain something”.

Encyclopedia of Social Sciences: “Research is the manipulation of the things, concepts or symbols for the purpose of generalizing to extend, correct or verify knowledge, whether that knowledge aids in the practice of an art”.

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Redman and Mory: “Systematized effort to gain new knowledge”.

Characteristics of Research

(1) The ultimate goal is to discover cause-and-effect relationships between variables.²

(2) Research emphasizes the development of generalizations, principles, or theories that will be helpful in predicting future occurrences.

(3) Research is based upon observable experience or empirical evidence.

(4) Research demands accurate observation and description.

(5) Good research utilizes valid and reliable data gathering procedures.

(6) Research involves gathering new data from primary first hand sources or using existing data for a new purpose.

(7) Although research activity may at times be somewhat random and unsystematic, it is more often characterized by carefully designed procedures that apply rigorous analysis.

(8) Research requires expertise.

(9) Research strives to be objective and logical, applying every possible test to validate the procedures employed, the data collected and the conclusions reached.

(10) Research involves the quest for answers to unsolved problems.
Research is characterized by patient and unhurried activity.

Research is carefully recorded and reported.

Research sometimes requires courage.

Kinds of Research

1. Fundamental or Basic Research

   Research has drawn its pattern and spirit from the physical sciences and has represented a rigorous, structured type of analysis. We have presented the goal of research as the development of theories by the discovery of broad generalizations or principles. We have employed careful sampling procedures in order to extend the findings beyond the group or situations studied. So far, our discussion has shown little concern for the application of the findings to actual problems in the areas considered to be the concern of people other than the investigator. Such an approach, which often leads to knowledge for knowledge’s sake, is the approach of basic or fundamental research.3

2. Applied Research

   Applied research has most of the characteristics of fundamental research, including the use of sampling techniques and the subsequent improving product or process-testing theoretical concepts in actual problem situations. Most educational research is applied research, for its attempts to develop generalizations about teaching learning process and instructional materials.
Fundamental research in the behavioral sciences may be concerned with the development and listing of theories of behavior. Educational research is concerned with the development and testing of theories of how students behave in an educational setting.

3. Action Research

Since the late 1930s the fields of social psychology and education have shown great interest in what has been called action research. As education, this movement has had as its goal the involvement of both research specialist and classroom teacher in the study and application of research to educational problems in a particular classroom setting.

Active research is focused on immediate application, not on the development of theory or on general application. It has placed its emphasis on problem here and now in a local setting. Its findings are to be evaluated in terms of local applicability, not universal validity. Its purpose is to improve those who try to improve school practices to combine the research processes, habits of thinking, ability to work harmoniously with others and professional spirit.

Many observers have expressed action research as nothing more than the application of commonsense or good management. But whether or not it is worthy of the term research, it does apply scientific thinking and methods to real
life problems and represents great improvement over teacher's subjective judgements and decisions based upon folklore and limited personal experiences.

4. Descriptive Research

The term descriptive research has often been used incorrectly to describe three types of investigation that are basically different. Perhaps their superficial similarities have obscured their differences. Each of them employ the process of disciplined inquiry through the gathering and analysis of empirical data and each attempts to develop knowledge. To be done competently, each requires the expertise of the careful and systematic investigator.

Descriptive research, unlike assessment and evaluation, is concerned with all of the following; hypothesis formulation and testing, the analysis of the relationships between manipulated variables, and the development of generalization. It is this last characteristic that most distinguishes descriptive research from assessment and evaluation, while assessment and evaluation studies are other characteristics of descriptive research. Only descriptive research, of the three, has generalization as its goal.

Research method for present study

Research methods are of utmost importance in a research process. They describe the various steps of the plan of attack to be adopted in solving a research problem. A pre-planned and well described method will provide the
researcher a scientific and feasible plan for attacking and solving the problem under investigation. The survey method was used to investigate the intelligence, adjustment and values of the juvenile and normal secondary school students in Andhra Pradesh.

The descriptive or normative survey method of investigation is very common in educational research, which attempts to describe and interpret what exists at present in the form of conditions, practices, processes, trends, effects, attitudes, beliefs, etc.

In normative survey method, the 'normative' implies the determination of normal or typical conditions or practices at present time and the 'survey' indicates the gathering of the data regarding current conditions. The descriptive or normative survey method is an organized attempt to analyze, interpret and report the present status of a social institution, group or area. Survey studies collect information on what exists, on what we want, and on how to get there.

In the present study, survey method was used to collect data and report the intelligence, adjustment and values and their association in the juvenile and normal secondary school students.
3.02 The Problem of the Study

"Intelligence, adjustment and values of juvenile and normal secondary school students in Andhra Pradesh"

3.03 Objectives

1. To find out the difference in intelligence of juvenile children and normal children at secondary school level.

2. To compare the intelligence of juvenile and normal boys and girls at secondary school level.

3. To find out the difference in adjustment of juvenile children and normal children at secondary school level.

4. To compare adjustment of juvenile and normal boys and girls at secondary school level.

5. To find out the difference in values of juvenile children and normal children at secondary school level.

6. To compare the values of juvenile and normal boys and girls at secondary school level.

OPERATIONAL DEFINITIONS OF KEY TERMS

Intelligence: The ability to see the relationship between two aspects and find the problem solution.
**Adjustment:** Coping with self and environment.

**Values:** A value such as equality, control of emotions, humanistic and righteousness.

**Normals:** These who are under the care of parents and who are studying in Government secondary school.

**Juveniles:** A juvenile one who engaging in activities like begging, running away from home, running away from class, wandering in the streets, uncontrolled by the parents and teachers, orphans, street children, rag pickers, emotionally imbalanced, depressed, who are left of by parents.

**Variables taken for the study**

Variables are the conditions or characteristics that the experimenter manipulates, controls or observes. The independent variables are the conditions or characteristics that the experimenter manipulates or controls in his or her attempt to ascertain their relationship to observed phenomena.

The dependent variables are the conditions or characteristics that appear, disappear or change as the experimenter introduces, removes or changes independent variables.
Table 3.1 Showing variables of the present study

<table>
<thead>
<tr>
<th>S.No</th>
<th>Independent variable</th>
<th>Dependent variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Girls</td>
<td>Juvenile secondary</td>
</tr>
<tr>
<td>2</td>
<td>Boys</td>
<td>school students</td>
</tr>
<tr>
<td>3</td>
<td>Intelligence</td>
<td>and</td>
</tr>
<tr>
<td>4</td>
<td>Adjustment</td>
<td>Normal secondary</td>
</tr>
<tr>
<td>5</td>
<td>Values</td>
<td>school students</td>
</tr>
<tr>
<td>6</td>
<td>Andhra region</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Rayalaseema region</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Telangana region</td>
<td></td>
</tr>
</tbody>
</table>

3.04 Hypotheses

Hypotheses are the tentative conclusions intended for verification\(^4\). For the present study, four major hypotheses were formulated. Each one of the hypotheses had been studied in further detail by forming sub-hypotheses under each hypothesis. "A hypothesis is a tentative generalization, the validity of which remains to be seen. In its most elementary stage the hypothesis may be a hunch, guess, imaginative idea which becomes the basis for further investigation". Hypotheses are the tentative conclusions intended for verification.
The hypothesis can be stated in a number of forms which are:

1. Null form
2. Prediction form
3. Declarative form
4. Question form

For the present study hypothesis is presented in the null form. Four major hypotheses were formulated. Each one of the hypotheses had been studied in further detail by forming sub-hypotheses under each hypothesis.

INTELLIGENCE

Hypothesis 1
There is no significant difference between juvenile and normal students of secondary schools in their intelligence.

Hypothesis 1A
There is no significant difference between juvenile boys and normal boys of secondary schools in their intelligence.

Hypothesis 1B
There is no significant difference between juvenile girls and normal girls of secondary schools in their intelligence.
Hypothesis 1C
There is no significant impact of gender among juvenile students of secondary schools in their intelligence.

Hypothesis 1D
There is no significant impact of gender among normal students of secondary schools in their intelligence.

Hypothesis 1E
There is no significant difference between secondary school juvenile boys of Andhra and Rayalaseema regions in their intelligence.

Hypothesis 1F
There is no significant difference between secondary school juvenile boys of Andhra and Telangana regions in their intelligence.

Hypothesis 1G
There is no significant difference between secondary school juvenile boys of Telangana and Rayalaseema regions in their intelligence.

Hypothesis 1H
There is no significant difference between secondary school normal boys of Andhra and Rayalaseema regions in their intelligence.
Hypothesis II
There is no significant difference between secondary school normal boys of Andhra and Telangana regions in their intelligence.

Hypothesis 1J
There is no significant difference between secondary school normal boys of Rayalaseema and Telangana regions in their intelligence.

Hypothesis 1K
There is no significant difference between Andhra normal boys and Andhra juvenile boys of secondary schools in their intelligence.

Hypothesis 1L
There is no significant difference between Rayalaseema normal boys and Rayalaseema juvenile boys of secondary schools in their intelligence.

Hypothesis 1M
There is no significant difference between Telangana normal boys and Telangana juvenile boys of secondary schools in their intelligence.

ADJUSTMENT

Hypothesis 2
There is no significant difference between juvenile and normal students of secondary schools in their adjustment.
Hypothesis 2A
There is no significant difference between juvenile boys and normal boys of secondary schools in their adjustment.

Hypothesis 2B
There is no significant difference between juvenile girls and normal girls of secondary schools in their adjustment.

Hypothesis 2C
There is no significant impact of gender among juvenile students of secondary schools in their adjustment.

Hypothesis 2D
There is no significant impact of gender among normal students of secondary schools in their adjustment.

Hypothesis 2E
There is no significant difference between secondary school juvenile boys of Andhra and Rayalaseema regions in their adjustment.

Hypothesis 2F
There is no significant difference between secondary school juvenile boys of Andhra and Telangana regions in their adjustment.
Hypothesis 2G
There is no significant difference between secondary school juvenile boys of Telangana and Rayalaseema regions in their adjustment.

Hypothesis 2H
There is no significant difference between secondary school normal boys of Andhra and Rayalaseema regions in their adjustment.

Hypothesis 2I
There is no significant difference between secondary school normal boys of Andhra and Telangana regions in their adjustment.

Hypothesis 2J
There is no significant difference between secondary school normal boys of Rayalaseema and Telangana regions in their adjustment.

Hypothesis 2K
There is no significant difference between Andhra normal boys and Andhra juvenile boys of secondary schools in their adjustment.

Hypothesis 2L
There is no significant difference between Rayalaseema normal boys and Rayalaseema juvenile boys of secondary schools in their adjustment.
Hypothesis 2M
There is no significant difference between Telangana normal boys and Telangana juvenile boys of secondary schools in their adjustment.

VALUES

Hypothesis 3
There is no significant difference between juvenile and normal students of secondary schools in their values.

Hypothesis 3A
There is no significant difference between juvenile boys and normal boys of secondary schools in their values.

Hypothesis 3B
There is no significant difference between juvenile girls and normal girls of secondary schools in their values.

Hypothesis 3C
There is no significant impact of gender among juvenile students of secondary schools in their values.

Hypothesis 3D
There is no significant impact of gender among normal students of secondary schools in their values.
Hypothesis 3E
There is no significant difference between secondary school juvenile boys of Andhra and Rayalaseema regions in their values.

Hypothesis 3F
There is no significant difference between secondary school juvenile boys of Andhra and Telangana regions in their values.

Hypothesis 3G
There is no significant difference between secondary school juvenile boys of Telangana and Rayalaseema regions in their values.

Hypothesis 3H
There is no significant difference between secondary school normal boys of Andhra and Rayalaseema regions in their values.

Hypothesis 3I
There is no significant difference between secondary school normal boys of Andhra and Telangana regions in their values.

Hypothesis 3J
There is no significant difference between secondary school normal boys of Rayalaseema and Telangana regions in their values.
Hypothesis 3K
There is no significant difference between Andhra normal boys and Andhra juvenile boys of secondary schools in their values.

Hypothesis 3L
There is no significant difference between Rayalaseema normal boys and Rayalaseema juvenile boys of secondary schools in their values.

Hypothesis 3M
There is no significant difference between Telangana normal boys and Telangana juvenile boys of secondary schools in their values.

Hypothesis 4
There would be no significant association between intelligence, adjustment and values of total juvenile secondary school students.

Hypothesis 4A
There would be no significant association between intelligence, adjustment and values of total normal secondary school students.

Hypothesis 4B
There would be no significant association between intelligence, adjustment and values of juvenile secondary school girl students.
Hypothesis 4C
There would be no significant association between intelligence, adjustment and values of normal secondary school girl students.

Hypothesis 4D
There would be no significant association between intelligence, adjustment and values of juvenile secondary school students of Andhra region.

Hypothesis 4E
There would be no significant association between intelligence, adjustment and values of juvenile secondary school students of Rayalaseema region.

Hypothesis 4F
There would be no significant association between intelligence, adjustment and values of juvenile secondary school students of Telangana region.

Hypothesis 4G
There would be no significant association between intelligence, adjustment and values of normal secondary school students of Andhra region.

Hypothesis 4H
There would be no significant association between intelligence, adjustment and values of normal secondary school students of Rayalaseema region.
Hypothesis 41
There would be no significant association between intelligence, adjustment and values of normal secondary school students of Telangana region.

3.05 Population

By population we mean the aggregate or totality of objects or individuals regarding which inferences are to be made in sampling study. It means all those people or documents, etc., who are proposed to be covered under the scheme of study.

A population is any group of individuals that have one or more characteristics in common that are of interest to the researcher. Researcher has taken the juvenile and normal secondary school students in Andhra Pradesh as population.

In Andhra Pradesh there are 23 districts. Andhra Pradesh has three regions. They are Andhra, Rayalaseema and Telangana. The districts Srikakulam, Vizianagaram, Visakhapatnam, East Godavari, West Godavari, Krishna, Prakasam, Guntur and Nellore come under Andhra region.

Kurnool, Anantapuram, Kadapa and Chittor come under Rayalaseema region.
Rangareddy, Hyderabad, Nizamabad, Medak, Mehabubnagar, Nalagonda, Warangal, Khammam, Karimnagar and Adilabad come under Telangana region.

Table 3.2 Showing distribution of Juvenile Population

<table>
<thead>
<tr>
<th>S.No</th>
<th>Juvenile Home</th>
<th>Place</th>
<th>District</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Govt. Juvenile home</td>
<td>Visakhapatnam</td>
<td>Visakhapatnam</td>
</tr>
<tr>
<td>2</td>
<td>Govt. Juvenile home</td>
<td>Rajahmundry</td>
<td>East Godavari</td>
</tr>
<tr>
<td>3</td>
<td>Govt. Juvenile home</td>
<td>Eluru</td>
<td>West Godavari</td>
</tr>
<tr>
<td>4</td>
<td>Govt. Juvenile home</td>
<td>Vijayawada</td>
<td>Krishna</td>
</tr>
<tr>
<td>5</td>
<td>Govt. Juvenile home</td>
<td>Nellore</td>
<td>Nellore</td>
</tr>
<tr>
<td>6</td>
<td>Govt. Juvenile home</td>
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<td>Chittor</td>
</tr>
<tr>
<td>7</td>
<td>Govt. Juvenile home</td>
<td>Hyderabad</td>
<td>Hyderabad</td>
</tr>
<tr>
<td>8</td>
<td>Govt. Juvenile home</td>
<td>Warangal</td>
<td>Warangal</td>
</tr>
<tr>
<td>9</td>
<td>Govt. Juvenile home</td>
<td>Nizamabad</td>
<td>Nizamabad</td>
</tr>
<tr>
<td>10</td>
<td>Govt. Juvenile home</td>
<td>Kurnool</td>
<td>Kurnool</td>
</tr>
<tr>
<td>11</td>
<td>Govt. Juvenile home</td>
<td>Kadapa</td>
<td>Kadapa</td>
</tr>
<tr>
<td>12</td>
<td>Govt. Juvenile home</td>
<td>Anantapuram</td>
<td>Anantapuram</td>
</tr>
</tbody>
</table>
Table 3.3 Showing distribution of Normal Population

<table>
<thead>
<tr>
<th>S.No</th>
<th>Government Secondary School</th>
<th>Place</th>
<th>District</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Govt. High School</td>
<td>Visakhapatnam</td>
<td>Visakhapatnam</td>
</tr>
<tr>
<td>2</td>
<td>Govt. High School</td>
<td>Rajahmundry</td>
<td>East Godavari</td>
</tr>
<tr>
<td>3</td>
<td>Govt. High School</td>
<td>Eluru</td>
<td>West Godavari</td>
</tr>
<tr>
<td>4</td>
<td>Govt. High School</td>
<td>Vijayavada</td>
<td>Krishna</td>
</tr>
<tr>
<td>5</td>
<td>Govt. High School</td>
<td>Nellore</td>
<td>Nellore</td>
</tr>
<tr>
<td>6</td>
<td>Govt. High School</td>
<td>Tirupati</td>
<td>Chittor</td>
</tr>
<tr>
<td>7</td>
<td>Govt. High School</td>
<td>Hyderabad</td>
<td>Hyderabad</td>
</tr>
<tr>
<td>8</td>
<td>Govt. High School</td>
<td>Warangal</td>
<td>Warangal</td>
</tr>
<tr>
<td>9</td>
<td>Govt. High School</td>
<td>Nizamabad</td>
<td>Nizamabad</td>
</tr>
<tr>
<td>10</td>
<td>Govt. High School</td>
<td>Kurnool</td>
<td>Kurnool</td>
</tr>
<tr>
<td>11</td>
<td>Govt. High School</td>
<td>Kadapa</td>
<td>Kadapa</td>
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<tr>
<td>12</td>
<td>Govt. High School</td>
<td>Anantapuram</td>
<td>Anantapuram</td>
</tr>
</tbody>
</table>

**Sampling**

*W.G. Wechran* has said, "In every branch of science we lack the resources to study more than a fragment of the phenomena that might advance our knowledge".
Bloomers and Lindquist "A large majority of the research studies in Education and Psychology or for that matter, in many other fields, are of a type known as sampling studies—In such studies measurements or observations are made of a limited number of sample of individuals or objects in order that generalizations or inferences may be drawn about still larger groups or populations of the individuals or objects that these samples are supposed to represent". For the present study random sampling technique is used.

Sample

A Sample is a small portion of a population selected for observation and analysis. It is a collection consisting of a part or subset of the objects or individuals of population, which is selected for the express purpose of representing the population. The researcher has taken five hundred and fifty juvenile secondary school students and five hundred and fifty normal secondary school students, using random sampling technique. A total sample of eleven hundred is chosen for study.

Stratified Random Sampling

The population is divided into smaller homogeneous groups or strata by some characteristics and from each of them, small homogeneous groups are drawn at random, a predetermined number of units."
This technique required one to select units at random from each stratum in proportion to its actual size in the total population. First of all different variables involved in the study of the problem may be noted. The data should be clear-cut and free from overlapping.

Random sampling from a finite population refers to that method of sample selection, which gives each possible sample combination an equal probability of being picked up and each item in the entire population to have an equal chance of being included in the sample.

Design of the Sample

Juvenile and normal secondary school students (1100)

(Juvenile secondary school students) (Normal secondary school students)
(Boys 450+Girls 100) (Boys 450+ Girls 100)

Juvenile secondary school students (550)

Telangana Andhra Rayalaseema Girls from three regions
Boys Boys Boys
(150) (150) (150) (100)
Normal secondary school students (550)

Telangana  Andhra  Rayalaseema  Girls from three regions
Boys  Boys  Boys
(150)  (150)  (150)  (100)

Table 3.4 Showing Sample description

<table>
<thead>
<tr>
<th>S.No</th>
<th>Variable</th>
<th>Category</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Girls from three regions</td>
<td>Juvenile + Normal</td>
<td>100+100</td>
</tr>
<tr>
<td>2</td>
<td>Boys</td>
<td>Juvenile + Normal</td>
<td>450+450</td>
</tr>
<tr>
<td>3</td>
<td>Andhra region</td>
<td>Juvenile + Normal</td>
<td>150+150</td>
</tr>
<tr>
<td>4</td>
<td>Rayalaseema region</td>
<td>Juvenile + Normal</td>
<td>150+150</td>
</tr>
<tr>
<td>5</td>
<td>Telangana region</td>
<td>Juvenile + Normal</td>
<td>150+150</td>
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<tr>
<td></td>
<td>Total</td>
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<td>1100</td>
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</tbody>
</table>

Table 3.5 Showing the Juvenile girls samples

<table>
<thead>
<tr>
<th>S.No</th>
<th>School</th>
<th>Place</th>
<th>District</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Govt. Juvenile Home</td>
<td>Visakhapatnam</td>
<td>Visakhapatnam</td>
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</tr>
<tr>
<td>2</td>
<td>Govt. Juvenile Home</td>
<td>Tirupathi</td>
<td>Chitoor</td>
<td>30</td>
</tr>
<tr>
<td>3</td>
<td>Govt. Juvenile Home</td>
<td>Hyderabad</td>
<td>Hyderabad</td>
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</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td></td>
<td>100</td>
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</tbody>
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Table 3.6 Showing the Normal girls samples

<table>
<thead>
<tr>
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<th>School</th>
<th>Place</th>
<th>District</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Govt. High School</td>
<td>Visakhapatnam</td>
<td>Visakhapatnam</td>
<td>30</td>
</tr>
<tr>
<td>2</td>
<td>Govt. High School</td>
<td>Tirupathi</td>
<td>Chitoor</td>
<td>30</td>
</tr>
<tr>
<td>3</td>
<td>Govt. High School</td>
<td>Hyderabad</td>
<td>Hyderabad</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

Table 3.7 Showing distribution of Juvenile Sample

<table>
<thead>
<tr>
<th>S.No</th>
<th>Juvenile Home</th>
<th>Place</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
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<td>1</td>
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<td>2</td>
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<tr>
<td>3</td>
<td>Govt. Juvenile home</td>
<td>Eluru</td>
<td>40</td>
</tr>
<tr>
<td>4</td>
<td>Govt. Juvenile home</td>
<td>Vijayawada</td>
<td>45</td>
</tr>
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<td>Govt. Juvenile home</td>
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<tr>
<td>6</td>
<td>Govt. Juvenile home</td>
<td>Warangal</td>
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</tr>
<tr>
<td>7</td>
<td>Govt. Juvenile home</td>
<td>Nizamabad</td>
<td>40</td>
</tr>
<tr>
<td>8</td>
<td>Govt. Juvenile home</td>
<td>Kadapa</td>
<td>50</td>
</tr>
<tr>
<td>9</td>
<td>Govt. Juvenile home</td>
<td>Anantapuram</td>
<td>50</td>
</tr>
<tr>
<td>10</td>
<td>Govt. Juvenile home</td>
<td>Tirupati</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>450</td>
</tr>
</tbody>
</table>
3.06 Instrumentation

Selection of the tool

After a research design has been selected and it is decided who will be included in the study, the next step is to identify or develop suitable tools for the collection of the desired information. Tools are nothing but the instruments that help the researcher to gather data. Naturally, the type of information you gather
depends upon the kind of tools you have used for this purpose. The selection of a tool depends upon the objectives and design of the study and the type of tool for collecting information.

A research tool plays a major role in any worthwhile research as it is the sole factor in determining the sound data and in arriving at perfect conclusion about the problem or study in hand, which ultimately helps in providing suitable remedial measures to the problem concerned. Selection of the tool is a major task and one should take care in the selection of tools.

An Intelligence questionnaire developed by Dr. S.S. Jalota, Adjustment inventory developed by Prof. D.N. Srivastava and Dr. Govind Tiwari and Values Scale developed by Dr. Beena Shah was adapted for this study. The sample was drawn from Government juvenile homes and government secondary schools. Where in vernacular language “Telugu” is mostly used, the questionnaire was translated into Telugu language. The investigator in consultation with guide translated the questionnaire. It was initially tested on few sample subjects to see the suitability of the questionnaire to the secondary school children.

The following standardized tools are used for collection of data.

1. Intelligence Test - Dr. S.S. Jalota
2. Adjustment inventory - Prof. D.N. Srivastava and Dr. Govind Tiwari
3. Values scale - Dr. Beena Shah
Administration of the tool

Data was collected from 550 juvenile secondary school students at their juvenile homes and 550 normal secondary school students at their schools. The researcher went to the schools and took the permission from the headmasters and the students were given questionnaires. Sufficient time was given to fill each questionnaire and later the filled questionnaires were collected. The data was converted into scores by giving marks for each question.

Test of Intelligence is standardized by Dr. S.S. Jalota. Researcher used this test in this study to measure the intelligence of the students. This has been administered to 550 juvenile secondary school students and 550 normal secondary school students in the age group of 13-15 years. The test was conducted as per the instructions given in the intelligence test manual. This test consists of 60 items divided into five sets. Each set consists of 12 questions.

Adjustment inventory is standardized by Prof. D.N. Srivastava and Dr. Govind Tiwari, and this test researcher is used in this study to measure the adjustment of the students. This has been administered to 550 juvenile secondary school students and 550 normal secondary school students in the age group of 13-15 years. The test was conducted as per the instructions given in the intelligence test manual. This test consists of 80 items divided into four sets. Each set consists of 20 questions. The Prof. D. N. Srivastava and Dr. Govind
Tiwari adjustment inventory is used for comparative study of adjustment of juvenile secondary school students and normal secondary school students.

Values scale is standardized by Dr. Beena Shah. This scale was used by the researcher in this study to measure the values of the students. This has been administered to 550 juvenile secondary school students and 550 normal secondary school students in the age group of 13-15 years. The test was conducted as per the instructions given in the values scale manual. This test consists of 32 items divided into eight areas. Each area consists of 12 statements. Each area tests one value.

**Method of scoring**

In the questionnaire the students had to put a tick mark under the correct answer for each question. For each correct answer 'one' mark and wrong answer 'zero' mark was given. The total number of right or wrong answers was found. Then the results were converted into mean scores, standard deviation and correlation found by using formulae.

**3.07 Statistical techniques**

It is based on t-distribution and is considered an appropriate test for judging the significance between the means of two samples in case of small samples when population variance is not known. It can also be used for judging the
significance of the co-efficient of simple and partial co-relations. The relevant 
statistics is calculated from the sample’s data and then compared with its 
probable value based on t-distribution at a specified level of significance for 
concerning degrees of freedom for accepting or rejecting the null hypothesis.

In this calculation the researcher used this formula to find mean\(^5\).

\[
\text{Mean} = \frac{(\sum fx)}{N}
\]

\(f\) = frequency of the distribution.
\(X\) = mid value of the class interval.
\(N\) = Total frequency number.

Standard deviation is done using the formula.

\[
\text{S.D.} = \sqrt{\frac{(\sum fX^2) - (\sum fX)^2}{N(N_i^2)}}
\]

\(X\) = mid value of the Class interval.
\(X^2\) = Square of the mid value.
\(N\) = Total frequency number.
\(i\) = Size of the class interval.
Critical Ratio was found using the formula.

\[
C.R. = \frac{M_1 - M_2}{\sqrt{\frac{\sigma_1^2 + \sigma_2^2}{N_1 \cdot N_2}}}
\]

- \(\sigma_1^2, \sigma_2^2\) = the standard deviation of first and second samples.
- \(M_1, M_2\) = Mean of the two samples.
- \(N_1, N_2\) = Size of the two samples.

Correlation was found using the formula.

\[
r = \frac{N \sum XY - \sum X \sum Y}{\sqrt{\left[ \left( \left( \ sum X^2 \right) - \left( \left( \ sum X \right)^2 \right) \right) \left( \left( \sum Y^2 \right) - \left( \left( \sum Y \right)^2 \right) \right) \right)}}
\]

- \(N\) = Size of the sample
- \(X\) = Deviation of \(X\) from assumed mean
- \(Y\) = Deviation of \(Y\) from assumed mean
- \(\sum\) = Sum
- \(r\) = Pearson’s coefficient of correlation
3.08 Documentation


