CHAPTER – 1
STATEMENT OF THE PROBLEM AND
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CHAPTER – 1

STATEMENT OF THE PROBLEM AND DEFINITIONS OF KEYWORDS

1.1.0 Introduction

A man is superior then the other animals because he has the highest abilities and powers. There is a general belief that the man is intellectual and so on he is superior then the other animals, but in the present situation, the concept of intelligence is not widely accepted. Abilities are also considered more important than the intelligence. Numerical ability, Linguistic Ability, reasoning abilities, mathematical abilities, music abilities, kinesthetic ability etc. are included in these different abilities. Gilford has imagined 180 types of abilities in a man in his three dimensional model.

Reasoning ability is a unique ability of a man. Reasoning ability plays an important role in the process of problem solving. In a child, reasoning ability is seen after a certain age. Psychologists have also given different types of Reasoning Ability in which:

- Verbal Reasoning Ability
- Non-Verbal Reasoning Ability
- Numeric Reasoning Ability
- Mathematical Reasoning Ability
- Spatial Reasoning Ability are included.

Spatial reasoning is the ability of imagine figures in space i.e. architect makes imaginary model of a building. Special reasoning ability plays very important role in making this model. The huge buildings bridges etc., took place in the mind of an architect and then it got a real shape or form. Thus, this type of imagination is in mind for the Spatial reasoning ability.

In this time, everyone makes their own life themselves and in the field of education the direction is also decided by oneself only. Education is a very important in everyone’s life because it is tri polar that contributes knowledge, skills, interest and values in life. Education is very necessary for the all round
development of a child. Schools and colleges are established for the development of a man and society. There are students with different nature in schools and colleges.

**In this world each man is unique and incredible; man’s existence is never doubled or repeated.**

The students physical, mental, social status, intellectual developed and study habits also plays an important role in individual differences. All these together affect students achievement. The measurement of student’s progress is their educational achievement. We all accept educational achievement as the result of the students in the examinations.

All the students have great aspirations to have highest achievement in the entire subjects of schools have the desire to be the best in future but its not possible for all. All the students not have same or equal educational achievement although teachers efforts for the expected changes in the behavior of the students in schools. As the high achievement the students have also high abilities to get it. Here there are so many factors or a variables which effect on educational achievement of the students, intelligence and spatial reasoning plays important role. Because of this investigator takes this study about the Spatial reasoning ability of secondary schools students in context of their intelligence and educational achievement.

**1.2.0 Importance of the Study**

It very important to state that the utility or usability of the selected problem in the present time. It is very essential for the investigator to mention importance and utility of the conducted study. Importance of the study will be as below :

- Students intelligence and educational achievement can be identified.
- Relation between Spatial Reasoning, intelligence and educational achievement can be known.
- The Students can improve their educational achievement through self learning by knowing their weakness and drawbacks.
The teachers can also conduct diagnostic work by identifying students and their weakness in the study. Thus, it will be also useful in guidance.

Vocational guidance can also be given according to students spatial reasoning ability.

Students also able to improve their intelligence with the help of this study.

The students can take decision about which profession will suit them according to their ability.

Proper action plan can be conducted to increase spatial reasoning ability of the students whose spatial reasoning ability is low.

It will be also helpful in designing programme to guide students having low achievement on the bases of relation between educational achievement and intelligence of the students.

1.3.0 Statement of the Problem

The problem statement is as under:

A Study of Spatial Reasoning of Secondary School Students in Relation to Their Intelligence and Achievement

1.4.0 Definitions of the Keywords

Each word has its unique meaning. In research study it is necessary to mention meaning of every word so that the meaning of each term becomes clear and understanding of each term becomes easier. It is very necessary to define key words involved in the title to clarify it in any study. This study has some specific terms which need to be defined. The definitions of such words are given below:

It is very necessary to define key words involved in the title to clarify it in any study. This study has some specific terms which need to be defined. The definitions of such words are given below:
Secondary Schools

Theoretical meaning:
“Secondary school means the school which performs education work from std-8 to std-10 according to the educational trend of 10+2+3 stipulated in 1964-66 by Kothari Education Commission and which get grants from government and is recognized by the state education directorate or the officers selected for the purpose.”

According to dictionary (2007),
“Secondary school means school after primary education”

Operational Meaning:
In the present study, the students of standard-9th and standard-10th of central Gujarat schools have been selected under the study.

Spatial Reasoning

Theoretical meaning:
According to G. K. Bennet, H. G. Seashore and A.G.A. Weswman,
“The space relation test is a measure of ability to deal with concrete material through visualization there are many vocation in which one is required to imagine how a specified object would appear if rotated in a given way.”

Individual’s abilities of imagination of abstract figures in space means spatial reasoning

Operational Definitions
In the present study, spatial reasoning ability means the scores of secondary schools students in spatial reasoning ability test standardize by Dr. Hareshkumar V. Vadhel.

Intelligence

Theoretical meaning:
According to Lewis Terman,
“the person is as much intelligence as he has ability of abstract thinking.”
“intelligence means rational thinking” ⁵

**Operational Definition:**

In the present Study, mean scores of students achieved by secondary schools students on Verbal Non Verbal Intelligence Test prepared and standardized by Dr. K. G. Desai considered as intelligence.

◊ **Educational Achievement**

**Theoretical meaning:**

"Educational achievement can be defined as excellence in all academic disciplines in class as well as in extra curricular activities. It include excellence in sporting behavior, confidence, communication skills, punctuality, assetiiness arts clatyre and the like." ⁶

**Operational Definition:**

The success of the students in context to certain objectives in subject teaching means educational achievement.

Educational Achievement means marks obtained in class test or annual exam board exam or standardized test by students.

*In the present study, Educational achievement means the scores achieved in First Term Examination.*

**1.5.0 Variables of the Study**

The variables involved in this study are as follow:

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1.6.0 Objectives of the Study

Before conducting a research work its objectives are determined. Because it provides appropriate direction to an investigator about his work. Objective less process leads to wrong path. According to A.M. Patel\textsuperscript{12} writes,

\textit{“Objectives are such points that work is done in its directions or objectives is such a perfect change which can be achieved through work”}\textsuperscript{7}

The researcher has decided the following objectives.

1. To Study Spatial reasoning ability of secondary schools students.
2. To study and determine level of Intelligence of Secondary Schools Students.
3. To determine level of Educational Achievement of Secondary Schools Students.
4. To study of Spatial reasoning ability in context to level of Intelligence intelligence quotient of Secondary Schools Students.
5. To study of Spatial reasoning ability of students of High and low level intelligence quotient (IQ) in context to their gender.
6. To study of Spatial reasoning ability of students of High and low level intelligence quotient (IQ) in context to Standard.
7. To study of Spatial reasoning ability of students of High and low level intelligence quotient (IQ) in context to area.
8. To study of Spatial reasoning ability in context to level of educational achievement of Secondary Schools Students.
9. To study of Spatial reasoning ability of students of High and low level educational achievement (IQ) in context to their gender.
10. To study of Spatial reasoning ability of students of High and low level educational achievement in context to Standard.
11. To study of Spatial reasoning ability of students of High and low level educational achievement in context to area.
1.7.0 Hypothesis of the Study

After deciding the objectives and title of the research study, the researcher has created temporary answers or solutions with reference to the problems and that is known as hypothesis. Hypothesis is like a footpath and a scientific vision for problem solving. It is the search light for guidance and direction. Hypothesis is a key for examining and testing of problems which is inevitable in research work. Hypotheses are eyes of research problems. According to Best & Kahn (1989),

"The hypothesis focuses the investigation on a definite target and determines what observation or measures are to be used".

According to F.M. Kerlinger

“A hypothesis in a conjectural statement of the relation between two or more variables”.

Hypothesis of the present study were as follows:

Ho₁ There will be no significant difference between the mean scores of Spatial reasoning ability test of Students having High and low intelligence.

Ho₂ There will be no significant difference between the mean scores of Spatial reasoning ability test of boys and girls having High intelligence.

Ho₃ There will be no significant difference between the mean scores of Spatial reasoning ability test of boys and girls having Low intelligence.

Ho₄ There will be no significant difference between the mean scores of Spatial reasoning ability test of boys having high and Low intelligence.

Ho₅ There will be no significant difference between the mean scores of Spatial reasoning ability test of girls having high and Low intelligence.

Ho₆ There will be no significant difference between the mean scores of Spatial reasoning ability test of standard-9th students having high and Low intelligence.

Ho₇ There will be no significant difference between the mean scores of Spatial reasoning ability test of standard-10th students having high and Low intelligence.
Ho8  There will be no significant difference between the mean scores of Spatial reasoning ability test of students of Urban area having high and Low intelligence.

Ho9  There will be no significant difference between the mean scores of Spatial reasoning ability test of students of Rural area having high and Low intelligence.

Ho10 There will be no significant difference between the mean scores of Spatial reasoning ability test of Students having High and low Educational Achievement.

Ho11 There will be no significant difference between the mean scores of Spatial reasoning ability test of boys and girls having High Educational Achievement.

Ho12 There will be no significant difference between the mean scores of Spatial reasoning ability test of boys and girls having Low Educational Achievement.

Ho13 There will be no significant difference between the mean scores of Spatial reasoning ability test of boys having high and Low Educational Achievement.

Ho14 There will be no significant difference between the mean scores of Spatial reasoning ability test of girls having high and Low Educational Achievement.

Ho15 There will be no significant difference between the mean scores of Spatial reasoning ability test of standard-9th students having high and Low Educational Achievement.

Ho16 There will be no significant difference between the mean scores of Spatial reasoning ability test of standard-10th students having high and Low Educational Achievement.

Ho17 There will be no significant difference between the mean scores of Spatial reasoning ability test of students of Urban area having high and Low Educational Achievement.
Ho$_{18}$ There will be no significant difference between the mean scores of Spatial reasoning ability test of students of Rural area having high and Low Educational Achievement

1.8.0 Limitations of the Study

For conducting a research work, an investigator has to accept certain limitations, which relate to time, energy and sample selection of the inferences of a research are shown without knowing the limitations, the research becomes erroneous. The limitations of this study were as shown below:

1. This study is limited to the secondary school students of Gujarati medium of Central Gujarat region.
2. This study is limited to standard-9$^{th}$ and standard-10$^{th}$ of Secondary schools students for Academic year- 2013-14.
3. There so many achievement of the students but the present study is limited to educational achievement of the students.
4. Standardize Spatial reasoning ability Test and Verbal Non verbal Intelligence test were used or the present study. Thus, limitations of the tool will be limitations of the present study.

1.9.0 Planning of the Next Chapters

In any kind of a research, it very essential to give a brief summary of the details which are presented into chapter so that anybody studying the research report gets a fair idea about the research work.

In the report the chapters should be distributed in such a way that the details included becomes consistent. The report of the present study has been distributed into five chapters. The organization of the upcoming chapters is as given below.

CHAPTER - 2 REVIEWS OF RELATED LITRETURE

In this chapter there is a discussion about the meaning of the intelligence, types of intelligence, concept of intelligence and

In this chapter, the detail information regarding the researches done at Ph.D., M.Phil. M.Ed. and research paper's. Detail like Research objectives, population, Sample, method, research tool, method of study and findings were
discussed as well as how this research is differ from past researchers related to this research, will be given in detail.

CHAPTER – 3 RESEARCH DESIGN

In this chapter, a detailed discussion about different steps of the research like the population, selection of the sample, methodology of the research, research tool, methods of data-collection and analysis of the data collected are made.

CHAPTER - 4 ANALYSIS AND INTERPRETATIONS OF THE DATA

In this chapter, the details regarding the analysis and interpretation of the data collected are covered. The information will be analyzed keeping into consideration the objectives and hypothesis of this research. A detailed discussion regarding the analysis and interpretation of the data and norms of the spiritual intelligence scale.

CHAPTER - 5 RESEARCH SUMMARY, FINDING, CONCLUSION AND SUGGESTIONS

In this chapter, research the conclusions drawn at the end of the research are described. Findings, Necessary recommendations and suggestions for any further research in this field are also provided.
REFERENCES


