A STUDY OF PROBLEM SOLVING ABILITY, TRAIT EMOTIONAL INTELLIGENCE, AND MATHEMATICS ACHIEVEMENT OF CLASS VIII STUDENTS OF BHOPAL

A Dissertation
Submitted
to
Barakatullah University, Bhopal
in partial fulfillment for the requirement of
MASTER OF EDUCATION
Regional Institute of Education, Bhopal
2011-2012

Supervisor
Dr. N. C. Ojha
Asst. Professor

Investigator
Sanghapal R. Zodape

REGIONAL INSTITUTE OF EDUCATION
(A Constituent Unit of National Council of Education Research and Training, New Delhi)
SHYAMLA HILLS, BHOPAL(M.P.)

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DECLARATION

I do hereby declare that the dissertation entitled ***"A study of Problem Solving Ability, Trait Emotional Intelligence and Mathematics Achievement of Class VIII Students of Bhopal"***, has been carried out by me during the academic year 2011-12 in partial fulfillment of the requirement for the Master of Education (RIE) degree of Barakatullah University, Bhopal.

This study has been conducted under the guidance and supervision of Dr. N. C. Ojha, Asst Professor, Deptt. of Education, Regional Institute of Education, Bhopal.

I also declare, that this dissertation has not been submitted before either by any other for the award of any other degree or diploma in any University.

Place: Bhopal

Date: 13.04.2012

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CERTIFICATE

This is to certify that Mr. Sanghapal R. Zodape has worked on dissertation entitled ***"A Study of Problem Solving Ability, Trait Emotional Intelligence and Mathematics Achievement of Class VIII Students of Bhopal"*** *under my supervision for the session 2011-2012.*

It is his genuine work and I consider it worthy of submission for the award of the degree.

Date: 13-04-2012

Place Bhopal

(Dr. N. C. Ojha)

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Date 13.04.2012

Place: : Bhopal

(Sanghapal R. Zodape)

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INTRODUCTION

1.0.0 INTRODUCTION

The development of reading, writing, and formal mathematics allowed the codification of math knowledge, formal instruction in mathematics, and began a steady accumulation of mathematical knowledge. The instructional and assessment focus tends to be on basic skills and on solving relatively simple problems using the basic skills.

According to National Curriculum Framework (2005) developing children's abilities for Mathematisation is the main goal of Mathematics education. The narrow aim of school Mathematics is to develop 'useful' capabilities, particularly those relating to numeracy. The higher aim is to develop the child's resources to think and reason mathematically to pursue assumptions to their logical conclusion and to handle abstraction. It includes a way of doing things, and the ability and the attitude to formulate and solve problems.

This call for a curriculum that is ambivious, coherent and teaches important principles of Mathematics. It should be ambitious in the sense that it seems to achieve the higher aim. It should be coherent in the sense that the variety of methods and skills available piece meal

(in Arithmetic, Algebra, Geometry) coheres into an ability to address problems that come from other domain such as science and social studies in high school. It should be important in the sense that students feel the need to solve such problems, that teachers and students find it worth their time and energy to address these problems.

Many general tactics problem solving can be taught progressively during the different stages of schools, abstraction quantification, analogy, case analysis, reduction to simpler situation, even guess-and-verify exercises are useful in many problem solving contexts.

1.1.0 PROBLEM SOLVING ABILITY

Problem solving is a mental process and is part of a larger problem process that includes problem finding and problem shaping considered the most complex of all intellectual functions (Wikipedia).

As the emphasis has shifted from teaching problem solving to teaching *via* problem solving (Lester, Masingila, Mau, Lambdin, dos Santon and Raymond, 1994), many writers have attempted to clarify what is meant by a problem-solving approach to teaching mathematics. The focus is on teaching mathematical topics through problem-solving contexts and enquiry-oriented environments which are characterised by the teacher 'helping students construct a deep understanding of mathematical ideas and processes by engaging them in doing mathematics: creating, conjecturing, exploring, testing; and verifying'

The Problem Solving process consists of a sequence of sections that fit together depending on the type of problem to be solved. These are:

Problem Definition.

Problem Analysis.

Generating possible Solutions.

Analyzing the Solutions.

Selecting the best Solution(s).

Planning the next course of action (Next Steps)

The process is only a guide for problem solving. It is useful to have a structure to follow to make sure that nothing is overlooked. Nothing here is likely to be brand new to anyone, but it is the pure acknowledgement and reminding of the process that can help the problems to be solved.

1.1.1 Problem Definition

The normal process for solving a problem will initially involve defining the problem you want to solve. You need to decide what you want achieve and write it down. Often people keep the problem in their head as a vague idea and can so often get lost in what they are trying to solve that no solution seems to fit. Merely writing down the problem forces you to think about what you are actually trying to solve and how much you want to achieve. The first part of the process not only involves writing down the problem to solve, but also checking that you are answering the right problem. It is a check-step to ensure that you do not answer a side issue or only solve the part of the problem that is most easy to solve. People often use the most immediate solution to the first problem definition that they find

without spending time checking the problem is the right one to answer.

1.1.2 Problem Analysis

The next step in the process is often to check where we are, what is the current situation and what is involved in making it a problem. For example, what are the benefits of the current product/service/process? And why did we decide to make it like that? Understanding where the problem is coming from, how it fits in with current developments and what the current environment is, is crucial when working out whether a solution will actually work or not. Similarly you must have a set of criteria by which to evaluate any new solutions or you will not know whether the idea is workable or not. This section of the problem solving process ensures that time is spent in stepping back and assessing the current situation and what actually needs to be changed.

After this investigation, it is often good to go back one step to reconfirm that your problem definition is still valid. Frequently after the investigation people discover that the problem they really want to answer is very different from their original interpretation of it.

1.1.3 Generating possible Solutions

When you have discovered the real problem that you want to solve and have investigated the climate into which the solution must fit, the next stage is to generate a number of possible solutions. At this stage you should concentrate on generating many solutions and should not

evaluate them at all. Very often an idea, which would have been discarded immediately, when evaluated properly, can be developed into a superb solution. At this stage, you should not pre-judge any potential solutions but should treat each idea as a new idea in its own right and worthy of consideration.

1.1.4 Analyzing the Solutions

This section of the problem solving process is where you investigate the various factors about each of the potential solutions. You note down the good and bad points and other things which are relevant to each solution. Even at this stage you are not evaluating the solution because if you do so then you could decide not to write down the valid good points about it because overall you think it will not work. However you might discover that by writing down its advantages that it has a totally unique advantage. Only by discovering this might you choose to put the effort in to develop the idea so that it will work.

1.1.5 Selecting the best Solution(s)

This is the section where you look through the various influencing factors for each possible solution and decide which solutions to keep and which to disregard. You look at the solution as a whole and use your judgment as to whether to use the solution or not. In Innovation Toolbox, you can vote using either a Yes/No/Interesting process or on a sliding scale depending on how good the idea is. Sometimes pure facts and figures dictate which ideas will work and which will not. In other situations, it will be purely feelings and intuition that

decides. Remember that intuition is really a lifetimes experience and judgment compressed into a single decision.

By voting for the solutions you will end up with a shortlist of potential solutions. You may want to increase the depth in the analysis of each idea and vote again on that shortlist to further refine your shortlist.

You will then end up with one, many or no viable solutions. In the case where you have no solutions that work, you will need to repeat the generation of solutions section to discover more potential solutions. Alternatively you might consider re-evaluating the problem again as sometimes you may not find a solution because the problem definition is not well defined or self-contradictory.

1.1.6 Planning the next course of action (Next Steps)

This section of the process is where you write down what you are going to do next. Now that you have a potential solution or solutions you need to decide how you will make the solution happen. This will involve people doing various things at various times in the future and then confirming that they have been carried out as planned. This stage ensures that the valuable thinking that has gone into solving the problem becomes reality. This series of Next Steps is the logical step to physically solving the problem.

1.1.7 The Role of Problem Solving in Teaching Mathematics as a Process

Problem solving is an important component of mathematics education because it is the single vehicle which seems to be able to achieve at school level all three of the values of mathematics listed at the outset of this article: functional, logical and aesthetic. Let us consider how problem solving is a useful medium for each of these.

It has already been pointed out that mathematics is an essential discipline because of its practical role to the individual and society. Through a problem-solving approach, this aspect of mathematics can be developed. Presenting a problem and developing the skills needed to solve that problem is more motivational than teaching the skills without a context. Such motivation gives problem solving special value as a vehicle for learning new concepts and skills or the reinforcement of skills already acquired (Stanic and Kilpatrick, 1989, NCTM, 1989). Approaching mathematics through problem solving can create a context which simulates real life and therefore justifies the mathematics rather than treating it as an end in itself. The National Council of Teachers of Mathematics (NCTM, 1980) recommended that problem solving be the focus of mathematics teaching because, they say, it encompasses skills and functions which are an important part of everyday life. Furthermore it can help people to adapt to changes and unexpected problems in their careers and other aspects of their lives. More recently the Council endorsed this recommendation (NCTM, 1989) with the statement that problem solving should underly all aspects of mathematics teaching in order

to give students experience of the power of mathematics in the world around them. They see problem solving as a vehicle for students to construct, evaluate and refine their own theories about mathematics and the theories of others.

According to Resnick (1987) a problem-solving approach contributes to the practical use of mathematics by helping people to develop the facility to be adaptable when, for instance, technology breaks down. It can thus also help people to transfer into new work environments at this time when most are likely to be faced with several career changes during a working lifetime (NCTM, 1989). Resnick expressed the belief that 'school should focus its efforts on preparing people to be good adaptive learners, so that they can perform effectively when situations are unpredictable and task demands change' (p.18). Cockcroft (1982) also advocated problem solving as a means of developing mathematical thinking as a tool for daily living, saying that problem-solving ability lies 'at the heart of mathematics' because it is the means by which mathematics can be applied to a variety of unfamiliar situations.

Problem solving is, however, more than a vehicle for teaching and reinforcing mathematical knowledge and helping to meet everyday challenges. It is also a skill which can enhance logical reasoning. Individuals can no longer function optimally in society by just knowing the rules to follow to obtain a correct answer. They also need to be able to decide through a process of logical deduction what algorithm, if any, a situation requires, and sometimes need to be able

to develop their own rules in a situation where an algorithm cannot be directly applied. For these reasons problem solving can be developed as a valuable skill in itself, a way of thinking (NCTM, 1989), rather than just as the means to an end of finding the correct answer.

Many writers have emphasised the importance of problem solving as a means of developing the logical thinking aspect of mathematics. 'If education fails to contribute to the development of the intelligence, it is obviously incomplete. Yet intelligence is essentially the ability to solve problems: everyday problems, personal problems ... '(Polya, 1980,). Modern definitions of intelligence (Gardner, 1985) talk about practical intelligence which enables 'the individual to resolve genuine problems or difficulties that he or she encounters' (p.60) and also encourages the individual to find or create problems 'thereby laying the groundwork for the acquisition of new knowledge' (p.85). As was pointed out earlier, standard mathematics, with the emphasis on the acquisition of knowledge, does not necessarily cater for these needs. Resnick (1987) described the discrepancies which exist between the algorithmic approaches taught in schools and the 'invented' strategies which most people use in the workforce in order to solve practical problems which do not always fit neatly into a taught algorithm. As she says, most people have developed 'rules of thumb' for calculating, for example, quantities, discounts or the amount of change they should give, and these rarely involve standard algorithms. Training in problem-solving techniques equips people more readily with the ability to adapt to such situations.

In the past decade, it has been suggested that problem-solving techniques can be made available most effectively through making problem solving the focus of the mathematics curriculum. Although mathematical problems have traditionally been a part of the mathematics curriculum, it has been only comparatively recently that problem solving has come to be regarded as an important medium for teaching and learning mathematics (Stanic and Kilpatrick, 1989). In the past problem solving had a place in the mathematics classroom, but it was usually used in a token way as a starting point to obtain a single correct answer, usually by following a single 'correct' procedure. More recently, however, professional organisations such as the National Council of Teachers of Mathematics (NCTM, 1980 and 1989) have recommended that the mathematics curriculum should be organized around problem solving

One of the aims of teaching through problem solving is to encourage students to refine and build onto their own processes over a period of time as their experiences allow them to discard some ideas and become aware of further possibilities (Carpenter, 1989). As well as developing knowledge, the students are also developing an understanding of when it is appropriate to use particular strategies. Through using this approach the emphasis is on making the students more responsible for their own learning rather than letting them feel that the algorithms they use are the inventions of some external and unknown 'expert'. There is considerable importance placed on exploratory activities, observation and discovery, and trial and error. Students need to develop their own theories, test them, test the

theories of others, discard them if they are not consistent, and try something else (NCTM, 1989). Students can become even more involved in problem solving by formulating and solving their own problems, or by rewriting problems in their own words in order to facilitate understanding. It is of particular importance to note that they are encouraged to discuss the processes which they are undertaking, in order to improve understanding, gain new insights into the problem and communicate their ideas (Thompson, 1985, Stacey and Groves, 1985).

1.2.0 OPERATIONAL DEFINITION OF PROBLEM SOLVING

Problem Solving is the framework or pattern within which creative thinking and reasoning takes place. It is the ability to think and reason on given levels of complexity.

1.3.0 EMOTIONAL INTELLIGENCE (EI)

It is the ability to identify, assess, and control the emotions of oneself, of others, and of groups. Various models and definitions have been proposed of which the ability and trait EI models are the most widely accepted in the scientific literature

Substantial disagreement exists regarding the definition of EI, with respect to both terminology and operationalizations. Currently, there are three main models of EI:

- Ability EI model
- Mixed models of EI (usually subsumed under trait EI)
- Trait EI model

1.4.0 TRAIT EMOTIONAL INTELLIGENCE

Soviet-born British psychologist Konstantin Vasily Petrides ("K. V. Petrides") proposed a conceptual distinction between the ability based model and a trait based model of EI and has been developing the latter over many years in numerous scientific publications[1] Trait EI is "a constellation of emotional self-perceptions located at the lower levels of personality." In lay terms, trait EI refers to an individual's self-perceptions of their emotional abilities. This definition of EI encompasses behavioral dispositions and self perceived abilities and is measured by self report, as opposed to the ability based model which refers to actual abilities, which have proven highly resistant to scientific measurement. Trait EI should be investigated within a personality framework. An alternative label for the same construct is trait emotional self-efficacy.

Trait Emotional Intelligence refers to individuals emotion –related self perception (Petrides, Furnham and Movroveli , 2007)

Trait EI concerns a constellation of emotion related self-perception and dispositions. It has been found that individual with high- Trait EI area faster at recognizing emotional expressions, like satisfaction, coping styles and truancy.

Trait Emotional Intelligence is a distinct personality construct that is located at the lower levels of the major personality taxonomies. Therefore Trait EI effects on performance related outcomes will resemble those of other established personality dimensions. One of

the basic postulates of the Trait EI theory is that any observed associations between Trait EI and cognitive ability proxies will be small or non-significant. Trait EI seems to be generally unrelated to verbal and non-verbal ability, but some academic performance that appear to be group and subject specific.

There are 15 facets of Trait Emotional Intelligence as given below

Facets

1-Adaptability

Flexible and willing to adapt to new conditions.

2-Assertiveness

Forthright, frank, and willing to stand up for their rights.

3-Emotion perception (self and others)

Clear about their own and other people's feelings.

4-Emotion expression

Capable of communicating their feelings to others.

5-Emotion management (others)

Capable of influencing other people's feelings.

6-Emotion regulation

Capable of controlling their emotions.

7-Impulsiveness (low)

Reflective and less likely to give in to their urges.

8-Relationships

Capable of having fulfilling personal relationships.

9-Self-esteem

Successful and self-confident.

10-Self-motivation

Driven and unlikely to give up in the face of adversity.

11-Social awareness

Accomplished networkers with excellent social skills.

12-Stress management

Capable of withstanding pressure and regulating stress.

13-Trait empathy

Capable of taking someone else's perspective.

14-Trait happiness

Cheerful and satisfied with their lives.

15-Trait optimism

Confident and likely to "look on the bright side" of life.

1.5.0 NEED AND JUSTIFICATION/RATIONALE OF THE STUDY

The teaching of Mathematics should enhance the child's resources to think and reason, to visualize and handle abstractions, to formulate and solve problems. This broad spectrum of aims can be covered by teaching relevant and important Mathematics embedded in the child's experience. Succeeding in Mathematics should be seen as the right of every child. For this, widening its scope and relating it to their subjects is essential.

Kaur and Sharma (2011), Harish (2011), Prakash and Sharma (2010), NCERT(2008) and Kaur, Manasi(2012) in their studies found that Gender did not influence the Problem Solving Ability and Mathematics Achievement of the students.

Mavrovelli et. al.(2009), Mavrovelli et. al.(2008),Stella Mavrovelli& Maria Jose Sanchez-Ruiz(2010) in their studies found that Gender influences the Trait Emotional Intelligence and Mathematics achievement

From the above studies it is not easy to generalize that whether Gender influences the Mathematics achievement or not .Also we know that Problem Solving Ability and Trait Emotional Intelligence are the main factors which help in Mathematics Achievement.

It is reveal to me that whether gender influences the Problem solving ability, Trait Emotional intelligence and Mathematics achievement. In accordance to Gender the investigator also introduces one more variable i.e. Parental Profession.

1.6.0 STATEMENT OF THE PROBLEM

So, the study is worded as follows:

A STUDY OF PROBLEM SOLVING ABILITY, TRAIT EMOTIONAL INTELLIGENCE AND MATHEMATICS ACHIEVEMENT OF CLASS VIII STUDENTS OF BHOPAL.

1.7.0 OBJECTIVE OF THE STUDY

The objective of the study was as follows:

To study the influence of Gender and Parental Profession and their interaction on Problem Solving, Trait Emotional Intelligence and Mathematics Achievement of class VIII students by taking their half-yearly Achievement scores of Mathematics as Co-variance, separately.

1.8.0 HYPOTHESES OF THE STUDY

1) There is no significant influence of Gender on Problem Solving Ability of class VIII students when their half-yearly Achievement scores of Mathematics as co-variate
2) There is no significant influence of Parental Profession on Problem Solving Ability of class VIII students when their half-yearly Achievement scores of Mathematics as co-variate
3) There is no significant interaction of Gender and Parental Profession on Problem Solving Ability of class VIII students when their half-yearly Achievement scores of Mathematics as co-variate
4) There is no significant interaction of Gender on Trait Emotional Intelligence of class VIII students when their half-yearly Achievement scores of Mathematics as co-variate
5) There is no significant interaction of Parental Profession on Trait Emotional Intelligence of class VIII students when their half-yearly Achievement scores of Mathematics as co-variate

6) There is no significant interaction of Gender and Parental Profession on Trait Emotional Intelligence of class VIII students when their half-yearly Achievement scores of Mathematics as co-variate

7) There is no significant interaction of Gender on Mathematics Achievement of class VIII students when their half-yearly Achievement scores of Mathematics as co-variate

8) There is no significant interaction of Parental Profession on Mathematics Achievement of class VIII students when their half-yearly Achievement scores of Mathematics as co-variate.

9) There is no significant interaction of Gender and Parental Profession on Mathematics Achievement of class VIII students when their half-yearly Achievement scores of Mathematics as co-variate

1.9.0 DELIMITATION OF THE STUDY

The present study was conducted under the following constraints.

1) The study is conducted in Bhopal city, only

2) Data were collected from the three schools situated in the Bhopal city.

3) Both the C.B.S.S.E. and M.P. Board syllabus were followed in the schools selected for the study.

4) The medium of instruction was English.

CHAPTER-II

REVIEW OF RELATED LITERATURE

CHAPTER II

REVIEW OF RELATED LITERATURE

2.1.0 INTRODUCTION

The review of related literature is an important part of research and is also carried out in educational research. The review of the literature in educational research provides us with the means of getting to the particular field of knowledge until researcher learn what remains still to be studied, he/she cannot develop a research project that will contribute to furthering knowledge in that field. Thus, the literature in any field forms the foundation upon which all future research work must be built.

As in this study, an attempt has been made to investigate the influence of Gender and Parental Profession and their interaction on Problem Solving Ability, Trait Emotional Intelligence and Mathematics Achievement of class VIII students of Bhopal, The researches related directly or indirectly to it were reviewed.

Introduction, rationale of the study, objectives, hypothesis along with the delimitation of the study is presented in the chapter I. In this chapter, the researches related to the different variables of the present study are presented under different captions.

2.2.0 RESEARCHES RELATED TO PRESENT STUDY

The researches related to the various aspects and variables of the study are presented, below, under different captions.

2.2.1 Researches related to Problem Solving Ability

F.Ahmadi, F. Hamidi et.al. (2010)conducted a study to find the effectiveness of Problem Solving Method in Dynamics and Academic Achievement of high school students. The main objective was to study the effectiveness of problem solving method in academic achievement of high school students. The finding was there is a significant difference between two methods of learning. Further, the evaluation of their attitude about Problem Solving method has been showed that a significant percentage of participants in experimental group were interested to continue that method in other physical topics.

Wemms, Koone et al. (2010) The role of Dehydroepiandrosterone(DHEA) in relation to Problem solving and Academic achievement.The objective was to assess the relationship between DHEA and coping Mechanism in college students. Finding was successfully coping with challenging tasks is a function of behavior flexibility and physiological neuropritation. When presented with challenging tasks individuals who vary their behavior response to fit the tasks demands have the lowest probability of failing the task

Ali, Akhter et al (2011) studied the impact of motivation on students academic achievement in Mathematics in problem based learning environment. The main objective was to examine the impact of motivation in problem based learning environment on the academic achievement of high achievers and low achievers in the subject of

Mathematics and the major findings were : 1- There was a significant difference in achievement of Mathematics students taught and motivated using problem solving method and those taught with routine method 2- Low achievement in authentic learning style has significant superiority over low achievers learning Mathematics by traditional method.3- High achievers when they are taught Mathematics by Problem solving method learn more. Problem solving is more effective method of introduction for creation of interest and motivation in mathematics as compared to routine.

There is a significant difference between two methods of learning (F.Ahmadi, F. Hamidi et.al., 2010). Finding showed that successfully coping with challenging tasks was a function of behavior flexibility and physiological neuro-pritation. When presented with challenging tasks individuals who vary their behavior response to fit the tasks demands have the lowest probability of failing the task (Wemms, Koone et al., 2010). There was a significant difference in achievement of Mathematics students taught and motivated using problem solving method and those taught with routine method 2- Low achievement in authentic learning style has significant superiority over low achievers learning Mathematics by traditional method.3- High achievers when they are taught Mathematics by Problem solving method learn more. Problem solving is more effective method of introduction for creation of interest and motivation in mathematics as compared to routine (Ali, Akhter et. al., 2011)

From the above studies it is found that There was a significant difference in achievement of Mathematics students taught and motivated using problem solving method and those taught with routine method. Students when taught Mathematics by Problem solving method learn more. Problem solving is more effective method of introduction for creation of interest and motivation in mathematics as compared to routine. Therefore problem solving method is an effective method for learning Mathematics D-368

2.2.2 Researches related to Trait Emotional Intelligence

Allport and Odbert(1936) Carried out a study to find the relationship between academic achievement and psychometric intelligence and found that the relationship is generally not as strong as the correlation obtained between academic achievement and psychometric intelligence. This is because personality and intelligence are different entities and any association between them or proxies will generally be weak or inconsistent across samples and variables.

Oconor and Little (2003) carried out a study to find the relationship between trait emotional intelligence and academic achievement. To measure the trait emotional intelligence used the Mayers Salovery Caruso trait Emotional Intelligence Test (MSCEIT) on the sample of 37 females and 53 males. The major findings of the study were: 1- Total Trait emotional intelligence score correlated with academic achievement. 2- The interpersonal and stress management dimensions of EQ-I correlated with academic achievement. 3- The ability emotional intelligence total score did not correlate with academic

achievement. 4- Only the understanding emotions dimensions of the MSCEIT correlated with academic achievement

Parker et al. (2004) carried out a study to find the relationship between trait emotional intelligence and academic achievement. The sample of the study was comprised of 363 females and 304 males. The major findings were: 1- Trait Emotional Intelligence correlated with academic achievement.2- High academic achievement students scored higher on the interpersonal, adaptability and stress management dimensions than the other two groups. 3- Average academic achievement students also scored higher on the previous subscales compared to low academic achievement students.

Parker, Feldt, Hogan& Majeski(2004) Influence of trait emotional intelligence on academic achievement. The major findings of the study were: 1- Successful students scored higher on adaptability and stress management compared to unsuccessful group. 2- Successful post-secondary students scored higher than the unsuccessful students on interpersonal abilities. 3- Total Trait emotional intelligence score did not predict academic achievement although the interpersonal stress management and adaptability subscales were significant predictor of academic achievements. 4- The previous subscales were better predictor of first year university academic achievement than high school area achievement.

Petrides, Chamorro-premuzic et al. (2005) Conducted a study on individual differences in the school setting has always been of great importance to educators theorists and researchers alike. The major

findings of the study were: 1- Trait Emotional Intelligence moderated the relationship between cognitive ability and academic achievement. 2- Trait Emotional Intelligence moderated the effect of IQ on English and overall performance. 3- High trait Emotional Intelligence was associated with better academic achievement across a range of low IQ scores, but the relationship reversed at IQ scores of about +1SD.

Mavrovelli et al. (2008) to study the trait emotional intelligence in accordance to gender. The main finding of the study was Trait Emotional Intelligence is higher in girls than boys in both elementary and secondary school children, however by and large, results are still inconclusive in both children and adult samples.

Song et al. (2009) the main findings were: 1- Academic achievement correlated with Ability Emotional Intelligence show incremental validity over general mental abilities in predicting academic achievement. 2- Ability Emotional Intelligence showed incremental validity in predicting course grade after controlling for General mental abilities and several other variables.

From the above studies it is concluded that Trait Emotional Intelligence is correlated with the academic achievement

2.2.3 Studies related to Trait Emotional Intelligence, Gender and Mathematics Achievement

Marrovelli, Petrides et al (2009) carried out a study to find the relationship between trait emotional intelligence and academic achievement and found that Trait Emotional Intelligence seems to be generally unrelated to verbal and non-verbal ability, but some significant correlation can be observed between trait and academic

performance that appear to be group and subject specific. Trait Emotional Intelligence scores correlated positively with spelling scores only. Gender specific analyses revealed that Trait Emotional Intelligence was unrelated to English, science and reading scores, but was moderately related to Math's and spelling scores in boys only with the exception of spelling. These correlations lost their significance when controlling for verbal intelligence.

Stella Mavrovelli and Maira Jose Sanchez-Ruiz (2010) influence of Trait Emotional Intelligence on academic achievement and school behavior. The objectives of the study were: 1-To study the influence of gender on trait emotional intelligence. 2- To study the effect of trait emotional intelligence on academic achievement. The major findings were: 1- An independent samples test showed that there were significant Gender differences with girls scoring higher than boys.2- All correlations between Trait Emotional Intelligence and Math, reading and writing were non-significant.

From the above related literature it is concluded that Trait Emotional Intelligence influences the Mathematics achievement. It is also found that there were significant Gender differences with girls scoring higher than boys.

2.2.4 Studies related to Mathematics Achievement and Gender

Fennema and Sherman (1977) carried out a study to find the effect of gender on mathematics achievement and demonstrated that sex differences in Mathematics achievement were reduced when number of Mathematical courses is controlled

IEA Survey Stainer (1980) carried out a study to find the effect of gender on mathematics achievement and found that girl's performance was better than boys with respect to measure of length, Area, Volume and application of number and ratio.

Carpenter (1983) carried out a study to find the effect of gender on mathematics achievement and the finding was male's performance was better than females through ages 9 to 13, the overall performance of males and females was not significantly different.

Dutta (2003) conducted a study to find the effect of gender on mathematics achievement and the finding was that in rural areas, the performance of boys was better than girls. Further, when he compared overall performance (both urban and rural) again boys surpassed girls in Mathematics achievement

NCERT survey (2008) in survey found that urban girls scored significantly better than urban boys' study by midterm National survey on learning achievement of class V children conducted by NCERT (2008) did not find significant difference between boys and girls with respect to baseline achievement.

Prakash, Sharma (2010) Conducted a study to find the influence of Gender and Area on MLL attainment in Mathematics among V standard students. The sample of the study was consisted of 1457 students (704 male & 753 female).

The hypothesis was there is no significant difference between male and female students in MLL attainment scores in Mathematics of schools of Shimoga district. And the finding was there were no

significant differences between male and female students in all competencies and total scores except the competency of fundamental operation in Mathematics.

Kaur, Sharma (2011) Conducted a research to study the effect of Abacus Techniques on achievement in Mathematics at elementary stage. on the sample of 120 students (60 boys & 60 girls) of grade V.The hypothesis of the study was, There is no significant effect of Gender, Intelligence and there interaction on achievement in Mathematics of students of experimental group.And found that Gender do not differ significantly.The achievement scores of boys and girls of different schools of experimental group show that Gender has no significant effect on the achievement in Mathematics of students.

Harish G. C. (2011) conducted a study to find the impact of integrated critical thinking skills on achievement in Mathematics of secondary school students.The sample of the study was comprised of 140 students (90 boys &50 girls).The major objective of the study was to find out the differences in the critical thinking skills and achievement scores based on gender. And, the major finding of the study was that the boys and girls did not differ in their achievement in Mathematics.

From the above studies it is not easy to conclude that whether Gender influences the Mathematics or not. The studies done by NCERT survey (2008), Sharma (2010), Kaur and Sharma (2011), Harish (2011) found that Gender does not influence the Mathematics Achievement, but, the studies carried out by Fennema and

Sherman(1977), IEA Survey Stainer (1980), Carpenter (1983), Dutta (2003) found that there is a significant influence of Gender on Mathematics Achievement.

2.2.5 Study related to Problem Solving Ability, Mathematics Achievement and Gender

Kaur and Manasi (2012) to study Mathematics Achievement of VIIIth class students in relation to their Problem solving Ability. The sample of the study was comprised of 200 students (100 boys & 100 girls) studying in class VIII. The major objectives of the study were: 1- To study the Mathematics achievement of VIIIth class students with regard to gender differences. 2- To study the Mathematics achievement of VIIIth class students with regard to their Problem solving ability. 3- To study the interaction between the type of school and Gender on Mathematics achievement of VIIIth class students. 4- To study the interaction between the type of school and Problem solving ability on Mathematics achievement of VIIIth class students. 5- To study the interaction between Problem solving ability and Gender on Mathematics achievement of VIIIth class students. 6- To study the interaction between Problem solving ability, Gender and type of school on Mathematics achievement of VIIIth class students.

And the major findings of the study were: 1- There exist no differentials in Mathematics achievement of VIIIth class boys and girls. 2- There exist differences in the Mathematics achievement of VIIIth class students with high and low grade of problem solving ability. 3- Gender and school have no interactional effect on Mathematics achievement of VIIIth class students.4- Problem solving

ability and type of school has interactional effect on Mathematics achievement of VIIIth class students.5- There are no interactional effects of problem solving ability and Gender on Mathematics achievement of VIIIth class students. 6- There are no interactional effects of problem solving ability, Type of school and Gender on Mathematics achievement of VIIIth class students.

From the above study it is found that Gender cannot influence tha Mathematics achievement. It is also found that there was no interactional effect of Problem Solving Ability and Gender on Mathematics achievement.

2.3.0 TO SUM-UP

From the above studies it is found that there was a significant difference in achievement of Mathematics students taught and motivated using problem solving method and those taught with routine method. Students when taught Mathematics by Problem solving method learn more. Problem solving is more effective method of introduction for creation of interest and motivation in mathematics as compared to routine. Therefore problem solving method is an effective method for learning Mathematics.It is also found that Trait Emotional Intelligence influences the Mathematics achievement. It is also found that there were significant Gender differences with girls scoring higher than boys.

AlsoTrait Emotional Intelligence is correlated with the academic achievement.

it is not easy to conclude that whether Gender influences the Mathematics or not. The studies done by NCERT survey (2008), Sharma (2010), Kaur and Sharma (2011), Harish (2011) found that Gender does not influence the Mathematics Achievement, but, the studies carried out by Fennema and Sherman (1977), IEA Survey Stainer (1980), Carpenter (1983), Dutta (2003) found that there is a significant influence of Gender on Mathematics Achievement.

From the study carried out by Kaur andManasi (2012) found that Gender cannot influence the Mathematics achievement. It is also found that there was no interactional effect of Problem Solving Ability and Gender on Mathematics achievement.

From the above studies it can be easily concluded that Problem Solving Ability is the important factor which helps in Mathematics achievement. The person who have the good problem solving ability, achieve more in mathematics.

It is also concluded that trait emotional intelligence is a factor which can influence mathematics achievement as well as academic achievement.

From the above studies it is not easy to generalize whether Gender influences the Mathematics achievement or not.

CHAPTER-III

METHODOLOGY

CHAPTER - III

METHODOLOGY

3.1.0 INTRODUCTION

The purpose of the educational research cannot be completed without detailed design of investigation .Research mythology involves a systematic procedure which starts from identification of the problem to analyzing the obtained data.

The previous two chapters have described the overall approach to the problem. This chapter is concerned with the details of the techniques adopted in this study. The sample, its selection, tools and their description, data collection and statistical techniques used for analyzing the data.

3.2.0 SAMPLE

Data collection is an important part of the research. Data is collected from a selected sample and the sample is the representation of population. According to Borg and Gall (1983)

"The larger group we wish to learn is called population, whereas the smaller group we actually study is called sample". Thus, sample is a small proportion of the population selected for observation and analysis by observing the characteristics of the

sample. One can make certain inference about the characteristics of the population from which it is drawn.

Random sampling was employed for the present study. It included only three schools of Bhopal. Ninety-three students were taken from class VIII from the schools. The description of the sample for the study is given in the table.

Table - 3.1: School-wise and Gender-wise Distribution of Sample

Name of school	No. of students(Boys)	No. of students(girls)	Total
Anand Vihar School	24	18	42
Kopal Public Hr.Sec.School	14	12	26
Rosel Public Hr.Sec.School	12	13	25
Total	50	43	93

3.3.0 VARIABLES

According to Borg and Gall (1983), "a variable can be thought of as a qualitative expression of construct variables usually take for scores on a measuring instrument.

Independent Variables

The independent variables are the conditions or characteristics that the researcher deliberately manipulates and control to determine the events in which researcher is interested and its relationship to an observed phenomenon.

Dependent Variables

The dependent variable is that factor which is observed and measured to determine the effect of independent variable that is,

the factor that appears, disappears or varies, as the experimenter introduces, removes or varies the independent variable.

The study has concerned following variables

1) Independent variables which are Gender and Parental Profession

2) Dependent variables which are Problem Solving Ability, Trait Emotional Intelligence and Mathematics Achievement

3) Co-variate which is half yearly Achievement Scores of Mathematics

3.4.0 TOOLS

A researcher requires many data-gathering tools or techniques. Each tool is suitable for the collection of certain type of information. One has to select from the available tools these which will provide data he seeks for testing hypothesis.

For various purposes of the study, following tools were used.

3.4.1 Problem Solving Ability Test

To test the Problem Solving Ability the Problem Solving Ability Test used which is developed by L.N.Dubey in (2008) .This test is consisted of 20 multiple type questions .Each question having four options, each question have one mark and the time given for the test is 40 minutes. The reliability of the test is

Spearman-Brown formula 0.78

(Split-half method)

Kudar-Richardson formula 0.76

(Rational equivalence method)

And, the coefficient of validity was calculated by correlating the scores with the following tests

Group intelligence Test (R.K.Tandon) 0.68

Test of Reasoning Ability 0.85

3.4.2 Trait Emotional Intelligence Questionnaire (SF)

Trait Emotional Intelligence Questionnaire Short Form (SF) was developed by Petrides (2006), London Psychometric Laboratory, University College London. This test was a simplified version of the adult short form of Trait Emotional Intelligence Questionnaire .This questionnaire contains 30 short statements, two for each of the 15 trait EI facets. The internal reliability of the scale is 0.80

3.4.3 Mathematics Achievement Test

This test was of 50 marks developed by the investigator. The test consisted of 18 objective type questions each having four options carry one mark to each question and 16 descriptive type question each question carry 2 marks.

3.5.0 PROCEDURE OF DATA COLLECTION

The researcher personally met the principal of the schools and gets acquainted with the teacher's concerned and established rapport with the students. The significance of the test and necessary instruction were given to them. The students were made clear that this test is designed to help them and is not for grade and the whole process had nothing to with their school achievement.

The atmosphere created at the beginning and during the test situation and the rapport achieved between taster and taste throughout the examination are of importance in respect to both the qualitative and quantitative results obtained.

Data was collected with the help of tools describe. For measuring Problem Solving Ability the standardized test developed by Dubey( ) was used. For measuring Trait Emotional Intelligence the standardized test developed by Petrides (2006) was used. Details of the tool were described in the caption under tools. Mathematics Achievement Test was developed by the investigator following the procedure of standardisation.

For standardization of the Mathematics Achievement Test 10 teacher's different schools were consulted by the researcher. The suggested different measures for the standardization and their valuable recommendations were incorporated.

3.6.0 STATISTICAL TECHNIQUES FOR THE ANALYSIS OF DATA

In the present study, data were analysed with the help of 2X2 Factorial Design ANCOVA of Unequal Cell Size.

CHAPTER-IV

DATA ANALYSIS & INTERPRETATION

CHAPTER- IV

DATA ANALYSIS AND INTERPRETATION

4.0.0 INTRODUCTION

This chapter deals with the presentation of data and their analysis to draw the result. It also deals with the testing of hypothesis. The objective-wise result also form the part of this chapter which are presented under different headings

4.1.0 INFLUENCE OF GENDER ON PROBLEM SOLVING ABILITY

One part of the objective was to study influence of Gender on Problem Solving Ability. The data was collected with the help of the Problem Solving Ability Test developed by Dubey(2008). The collected data were analyzed with the help of 2 X 2 Factorial Design ANCOVA of Unequal Cell Size. The results are presented in table 4.1.

Table 4.1: F-values for Problem Solving Ability

Sources of variance	df	SSx	MSSy.x	F value
Gender	1	0.29	0.29	0.059
Parental Profession	1	17.43	17.43	3.57
Gender x Parental Profession	1	6.83	6.83	1.39
Error	88	429.55	4.88	

Table 4.2: Gender-wise and Parental Profession-wise Mean and Standard Deviation for Problem Solving Ability

Gender/Profession	Service			Business		
	N	Mean	SD	N	Mean	SD
Boys	35	5.06	2.29	15	4.47	2.67
Girls	26	5.69	2.56	17	4.47	1.88

Table 4.1 indicates that the F-value of Problem Solving Ability for Gender is 0.059 with df equal to 1/88. This value is not significant at 0.05 level. Thus, it can be said that there was no significant influence of Gender on the Problem Solving Ability of students of class VIII. Thu,s the null hypothesis namely, "there is no significant influence of Gender on Problem Solving Ability of class VIII students when their half yearly Achievement scores of Mathematics were taken as co-variate" is not rejected.

Table 4.2, also, indicates that, boys and girls belongs to the service as parental profession have slightly high Problem Solving Ability(5.06 &5.69) as compared to the boys and girls from business parental profession(4.47)

Finding: Gender did not influence the Problem Solving Ability of the students of class VIII.

4.2.0 INFLUENCE OF PARENTAL PROFESSION ON PROBLEM SOLVING ABILITY

One part of the objective was to study influence of Parental Profession on Problem Solving Ability. The data was collected with the help of the Problem Solving Ability Test developed by Dubey (2008). The collected data were analyzed with the help of 2 X 2 Factorial Design

ANCOVA of Unequal Cell Size. The results are presented in table 4.1.

Table 4.1 indicates that the F-value of Problem Solving Ability for Parental Profession is 3.57 with df equal to 1/88. This value is not significant at 0.05 level. Thus it can be said that there was no significant influence of Parental Profession on the Problem Solving Ability of students of class VIII. Thus the null hypothesis, namely, "there is no significant influence of Parental Profession on Problem Solving Ability of class VIII students when their half yearly achievement scores of Mathematics were taken as co-variate" is not rejected.

Table 4.2 also indicates that, boys and girls belongs to the service as parental profession have slightly high Problem Solving Ability (5.06 & 5.69)as compared to the boys and girls belongs to business as parental profession (4.47)

Finding: Parental Profession did not influence the Problem Solving Ability of the students of class VIII.

4.3.0 INTERACTION OF GENDER AND PARENTAL PROFESSION ON PROBLEM SOLVING ABILITY

One part of the objective was to study the interaction of Gender and Parental Profession on Problem Solving Ability. The data was collected with the help of the Problem Solving Ability Test developed by Dubey (2008). The collected data were analyzed with the help of 2

X 2 Factorial Design ANCOVA of Unequal Cell Size. The results are presented in table 4.1.

Table 4.1 indicates that the F-value of Problem Solving Ability for Gender and Parental Profession is 1.39 with df equal to 1/88. This value is not significant at 0.05 level. Thus it can be said that there was no significant interaction of Gender and Parental Profession on the Problem Solving Ability of students of class VIII. Thus the null hypothesis, namely, "there is no significant interaction of Gender and Parental Profession on Problem Solving Ability of class VIII students when their half yearly achievement scores of Mathematics were taken as co-variate" is not rejected.

Table 4.2also indicates that boys and girls belongs to the service as parental profession have slightly high Problem Solving Ability (5.06 & 5.69)as compared to the boys and girls belongs to business as parental profession(4.47)

Finding: There was no interaction of Gender and Parental Profession on the Problem Solving Ability of the students of class VIII.

4.4.0 INFLUENCE OF GENDER ON TRAIT EMOTIONAL INTELLIGENCE

One part of the objective was to study influence of Gender on Trait Emotional Intelligence. The data was collected with the help of the Trait Emotional Intelligence Questionnaire (SF) developed by Petrides (2006). The collected data were analyzed with the help of 2 X

2 Factorial Design ANCOVA of Unequal Cell Size. The results are presented in table 4.3.

Table 4.3: F-values for Trait Emotional Intelligence

Sources of variance	df	SSx	MSSy.x	F value
Gender	1	21.81	21.81	0.191
Parental Profession	1	99.43	99.43	0.872
Gender x Parental Profession	1	366.58	366.58	3.213
Error	88	10038.86	114.08	

Table 4.4: Gender-wise and Parental Profession-wise Mean and Standard Deviation for Trait Emotional Intelligence

Gender/Profession	Service			Business		
	N	Mean	SD	N	Mean	SD
Boys	35	127.77	9.28	15	126.27	11.91
Girls	26	127.69	13.13	17	130.53	8.30

Table 4.3 indicates that the F-value of Trait Emotional Intelligence for Gender is 0.191 with df equal to 1/88. This value is not significant at 0.05 level. Thus it can be said that there was no significant influence of Gender on the Trait Emotional Intelligence of students of class VIII. Thus the null hypothesis, namely, "there is no significant influence of Gender on Trait Emotional Intelligence of class VIII students when their half yearly achievement scores of Mathematics were taken as co-variate" is not rejected.

Table 4.4also indicates that the mean Trait Emotional Intelligence of boys belongs to both services and business as Parental Profession is

almost same (127.77 &127.69) but it is slightly more in girls belongs to business as parental profession (130.53) and slightly less in girls belongs to service as parental profession (126.27).

Findings: Gender did not influence the Trait Emotional Intelligence of the students of class VIII.

4.5.0 INFLUENCE OF PARENTAL PROFESSION ON TRAIT EMOTIONAL INTELLIGENCE

One part of the objective was to study influence of Parental Profession on Trait Emotional Intelligence. The data was collected with the help of the Trait Emotional Intelligence Questionnaire (SF) developed by Petrides (2006). The collected data were analyzed with the help of 2 X 2 Factorial Design ANCOVA of Unequal Cell Size. The results are presented in table 4.3.

Table 4.3 indicates that the F-value of Trait Emotional Intelligence for Parental Profession is 0.872 with df equal to 1/88. This value is not significant at 0.05 level. Thus it can be said that there was no significant influence of Parental Profession on Trait Emotional Intelligence of students of class VIII. Thus the null hypothesis, namely, "there is no significant influence of Parental Profession on Trait Emotional Intelligence of class VIII students when their half yearly achievement scores of Mathematics were taken as co-variate" is not rejected.

Table 4.4also indicates that the mean Trait Emotional Intelligence of boys belongs to both services and business as parental profession is

almost same (127.77&127.69) but it is slightly more in girls belongs to business as parental profession (130.53) and slightly less in girls belongs to service as Parental Profession (126.27).

Finding: Parental Profession did not influence the Trait Emotional Intelligence of the students of class VIII.

4.6.0 INTERACTION OF GENDER AND PARENTAL PROFESSION ON TRAIT EMOTIONAL INTELLIGENCE

One part of the objective was to study the interaction of Gender and Parental Profession on Trait Emotional Intelligence. The data was collected with the help of the Trait Emotional Intelligence Questionnaire (SF) developed by Petrides (2006). The collected data were analyzed with the help of 2 X 2 Factorial Design ANCOVA of Unequal Cell Size. The results are presented in table 4.3.

Table 4.3 indicates that the F-value of Trait Emotional Intelligence for Gender and Parental Profession is 3.213 with df equal to 1/88. This value is not significant at 0.05 level. Thus it can be said that there was no significant interaction of Gender and Parental Profession on the Trait Emotional Intelligence of students of class VIII. Thus the null hypothesis, namely, "there is no significant interaction of Gender and Parental Profession on Trait Emotional Intelligence of class VIII students when their half yearly achievement scores of Mathematics were taken as co-variate" is not rejected.

Table 4.4also indicates that the mean Trait Emotional Intelligence of boys belongs to both services and business as parental profession is

almost same (127.77&127.69) but it is slightly more in girls belongs to business as parental profession (130.53) and slightly less in girls belongs to service as parental profession (126.27).

Finding: There was no interaction of Gender and Parental Profession on the Trait Emotional Intelligence of the students of class VIII.

4.7.0 INFLUENCE OF GENDER ON ACHIEVEMENT IN MATHEMATICS

One part of the objective was to study influence of Gender on Mathematics Achievement. The data was collected with the help of the Mathematics Achievement developed by investigator. The collected data were analyzed with the help of 2 X 2 Factorial Design ANCOVA of Unequal Cell Size. The results are presented in table 4.5.

Table - 4.5: F-values for Mathematics Achievement

Sources of variance	df	SSx	MSSy.x	F value
Gender	1	76.603	76.60	1.952
Parental Profession	1	36.00	36.00	0.918
Gender x Parental Profession	1	7.67	7.67	0.195
Error	88	3452.78	39.24	

Table - 4.6: Gender-wise and Parental Profession-wise Mean and Standard Deviation for Mathematics Achievement

Gender/Profession	Service			Business		
	N	Mean	SD	N	Mean	SD
Boys	35	16.26	9.65	15	13.27	11.04
Girls	26	18.23	9.77	17	18.76	8.01

Table 4.5 indicates that the F-value of Mathematics Achievement for Gender is 1.952 with df equal to 1/88. This value is not significant at 0.05 level. Thus it can be said that there was no significant influence of Gender on the Mathematics Achievement of students of class VIII. Thus the null hypothesis, namely, "there is no significant influence of Gender on Mathematics Achievement of class VIII students when their half yearly achievement scores of Mathematics were taken as co-variate" is not rejected.

Table 4.6also indicates that Mathematics Achievement of girls belongs to both service and business as parental profession is almost same (18.23&18.76) but boys belongs to both service and business as Parental Profession have slightly less Mathematics Achievement (16.26&13.27) as compared to girls.

Finding: Gender did not influence the Mathematics Achievement of the students of class VIII.

4.8.0 INFLUENCE OF PARENTAL PROFESSION ON ACHIEVEMENT IN MATHEMATICS

One part of the objective was to study influence of Parental Profession on Mathematics Achievement. The data was collected with the help of the Mathematics Achievement developed by investigator. The collected data were analyzed with the help of 2 X 2 Factorial Design ANCOVA of Unequal Cell Size. The results are presented in table 4.5.

Table 4.5 indicates that the F-value of Mathematics Achievement for Parental Profession is 0.918 with df equal to 1/88. This value is not significant at 0.05 level. Thus it can be said that there was no significant influence of Parental Profession on the Mathematics Achievement of students of class VIII. Thus the null hypothesis, namely, "there is no significant influence of Parental Profession on Mathematics Achievement of class VIII students when their half yearly achievement scores of Mathematics were taken as co-variate" is not rejected.

Table 4.6also indicates that Mathematics Achievement of girls belongs to both service and business parental profession is almost same (18.23&18.76) but boys belongs to both service and business as Parental Profession have slightly less mathematics achievement (16.26&13.27) as compared to girls.

Finding: Parental Profession did not influence the Mathematics Achievement of the students of class VIII.

4.9.0 INTERACTION OF GENDER AND PARENTAL PROFESSION ON ACHIEVEMENT IN MATHEMATICS

One part of the objective was to study interaction of Gender and Parental Profession on Mathematics Achievement. The data was collected with the help of the Mathematics Achievement developed by investigator. The collected data were analyzed with the help of 2 X 2 Factorial Design ANCOVA of Unequal Cell Size. The results are presented in table 4.5.

Table 4.5 indicates that the F-value of Mathematics Achievement for Gender and Parental Profession is 0.195 with df equal to 1/88. This value is not significant at 0.05 level. Thus it can be said that there was no significant interaction of Gender and Parental Profession on the Mathematics Achievement of students of class VIII. Thus the null hypothesis, namely, "there is no significant interaction of Gender and Parental Profession on Mathematics Achievement of class VIII students when their half yearly achievement scores of Mathematics were taken as co-variate" is not rejected.

Table 4.6also indicates that Mathematics Achievement of girls belongs to both service and business parental profession is almost same (18.23&18.76) but boys belongs to both service and business as Parental Profession have slightly less mathematics achievement (16.26&13.27) as compared to girls.

Finding: There was no interaction of Gender and Parental Profession on the Mathematics achievement of the students of class VIII.

CHAPTER-V

DISCUSSIONS, SUMMARY, CONCLUSION AND IMPLICATIONS

CHAPTER – V

DISCUSSIONS, SUMMARY, CONCLUSIONS AND IMPLICATIONS

5.0.0 INTRODUCTION

The present study was planned to investigate the influence of Gender and Parental Profession and their interaction on Problem solving Ability, Trait Emotional Intelligence and Mathematics Achievement of class VIII students. In this chapter, discussion on the findings, summary and conclusion is presented on the basis of the interpretation of the data given in the chapter IV.

5.1.0 FINDINGS

The following findings flow from the interpretation of data presented in the previous chapter

The following findings flow from the interaction of data presented in the previous chapter

- Gender did not influence the Problem Solving Ability of the students of class VIII
- Parental Profession did not influence the Problem Solving Ability of the students of class VIII

- There was no interaction of Gender and Parental Profession on the Problem Solving Ability of the students of class VIII
- Gender did not influence the Trait Emotional Intelligence of the students of class VIII
- Parental Profession did not influence the Trait Emotional Intelligence of the students of class VIII
- There was no interaction of Gender and Parental Profession on the Trait Emotional Intelligence of the students of class VIII
- Gender did not influence the Mathematics Achievement of the students of class VIII
- Parental Profession did not influence the Mathematics Achievement of the students of class VIII
- There was no interaction of Gender and Parental Profession on the Mathematics Achievement of the students of class VIII

The discussions related to each of these findings are presented under different captions, below.

5.2.0 INFLUENCE OF GENDER ON PROBLEM SOLVING ABILITY

The results showed that Gender did not influence the Problem Solving Ability of the students of class VIII. This finding is supported by Kaur and Manasi (2012). Therefore, it can be said that the problem solving ability is independent of the Gender. Problem solving ability depends upon the individuals' exposure to the related problem as well as the mental ability. In the present study, the students belonged to the different parental profession.

They have their different exposure and different mental abilities. But, in the present study, individuals' different mental abilities were not studied. Now, the parents are providing equal opportunities to both boys and girls. They are nourishing their wards without any gender differentiation, largely. Therefore, the result of the present study might be attributed to this factor.

5.3.0 INFLUENCE OF PARENTAL PROFESSION ON PROBLEM SOLVING ABILITY

The result showed that Parental Profession did not influence the Problem Solving Ability of the students of class VIII.Therefore it can be said that Problem Solving Ability is independent of parental profession. Problem Solving Ability depends upon the individuals' exposure to the related problem as well as the mental ability. In the present study, the students belonged to the different parental profession. They have their different exposure and different mental abilities. Now the days every parent wants their child's better schooling by ignoring their profession. Therefore, the result of the present study might be attributed to this factor.

5.4.0 INTERACTION OF GENDER AND PARENTAL PROFESSION ON PROBLEM SOLVING ABILITY

The result showed that there was no interaction of Gender and Parental Profession on the Problem Solving Ability of the students of class VIII. Problem solving ability depends upon the individuals' exposure to the related problem as well as the mental ability. In the present study, the students belonged to the different parental profession. They have their different exposure and different mental abilities. Now, the parents are providing equal

opportunities to both boys and girls. They are nourishing their wards without any gender differentiation. Gender has no impact upon the Problem Solving Ability of the students of class VIII and also the Parental profession has no impact upon the Problem Solving Ability of the students of class VIII. Therefore, the result of the present study shows no interactional effect of Gender and Parental Profession on Problem Solving Ability.

5.5.0 INFLUENCE OF GENDER ON TRAIT EMOTIONAL INTELLIGENCE

The result showed that Gender did not influence the Trait Emotional Intelligence of the students of class VIII. This finding is in contrast to the findings of Marrovelli, Petrides et al (2009), Stella Mavrovelli and Maira Jose Sanchez-Ruiz (2010). They found that Gender influence the Trait Emotional Intelligence. In the present study, only the wards of service class and business class were taken as sample. So, the result might be due to the profession of the parents. If the wards of other parents would have been in to taken in to consideration, then the result would have been different. Moreover, emotion is an affective domain component. Social circumstances/conditions sometimes influence the emotions of the individual. Therefore, Gender differential did not in the present study. Other factors that influence the Trait Emotional Intelligence were not studied in the present study.

5.6.0 INFLUENCE OF PARENTAL PROFESSION ON TRAIT EMOTIONAL INTELLIGENCE

The result showed that Parental Profession did not influence the Trait Emotional Intelligence of the students of class VIII. Now, the days the parents as well as teachers are giving more stress on the

self expression of the students. This change in attitude of teachers and parents might be the cause of the present finding. Now we are living in a globalised world. Children are exposed to the varieties of situations either in the schools or at home. They are experiencing varieties of emotional situations in their day-to-day life. As elementary education, in India, also considered as one of the fundamental rights of the citizens, so government as well as the parents is much concerned about the education of the children. Parents are taking steps to develop the balanced personality their wards, irrespective of their profession. These factors might be the causes of the present finding.

5.7.0 INTERACTION OF GENDER AND PARENTAL PROFESSION ON TRAIT EMOTIONAL INTELLIGENCE

There was no interactional effect of Gender and Parental Profession on the Trait Emotional Intelligence of the students of class VIII. Emotion is an affective domain component. Social circumstances/conditions sometimes influence the emotions of the individual. Now are the days parents and teachers are giving more stress on the self expression of the students irrespective of Gender of the student. Due to this change in attitude the result showed no interaction of Gender and Parental Profession on Trait Emotional Intelligence. Gender has no impact upon the Trait Emotional Intelligence of the students of class VIII and also the Parental profession has no impact upon the Trait Emotional Intelligence of the students of class VIII. Therefore, there was no significant interactional effect of gender and parental profession on trait emotional intelligence

5.8.0 INFLUENCE OF GENDER ON ACHIEVEMENT IN MATHEMATICS

The result showed that Gender did not influence the Mathematics Achievement of the students of class VIII.This finding is supported by Prakash, Sharma (2010), Kaur, Sharma(2011), Harish G. C. (2011), Kaur, Manasi (2012). Therefore, it can be said that the Mathematics Achievement is independent of the Gender. Mathematics Achievement depends upon the individuals' mental ability. Now, the parents and teachers are providing equal opportunities to both boys and girls. They are nourishing their wards without any gender differentiation, largely. Therefore, the result of the present study might be attributed to this factor.

5.9.0 INFLUENCE OF PARENTAL PROFESSION ON ACHIEVEMENT IN MATHEMATICS

Parental Profession did not influence the Mathematics Achievement of the students of class VIII. Now, the parents are sending their children's in the better schools by ignoring their income and profession. Mathematics Achievement is depend on the mental ability of the children. Therefore, the result of the present study might be attributed to this factor. Other factors that influence the Mathematics Achievement were not studied in the present study.

5.10.0 INTERACTION OF GENDER AND PARENTAL PROFESSION ON ACHIEVEMENT IN MATHEMATICS

The result showed that there was no interaction of Gender and Parental Profession on the Mathematics achievement of the students of class VIII. The Mathematics achievement depends on

the individual's mental ability. Now, the days in which the teacher as well as the parents has the feeling of gender equality. Parents are giving the opportunity to their children's ignoring their profession. This change in attitude of teachers and parents might be the cause of the finding.

Now the days in which through media attempt are made to promote the feeling of equality among boys and girls. Teacher as well as parents has no feeling of difference of boy and girl. Also all the parents are aware about the importance of education so they are making the efforts to educate their children's ignoring their income or profession. This change in attitude of parents and teachers might be the cause of lack of sex difference and lack of parental profession in the present study.

5.11.0 SUMMARY

Summary of the study is given under the following captions

5.11.1 Background of the Study

Developing children's abilities for Mathematisation is the main goal of Mathematics education. The narrow aim of school Mathematics is o develop 'useful' capabilities, particularly those relating to numeracy. The higher aim is to develop the child's resources to think and reason mathematically to pursue assumptions to their logical conclusion and to handle abstraction. It includes a way of doing things, and the ability and the attitude to formulate and solve problems.

Many general tactics problem solving can be taught progressively during the different stages of schools, abstraction quantification,

analogy, case analysis, reduction to simpler situation, even guess-and-verify exercises are useful in many problem solving contexts.

Trait Emotional Entelligence(EI)

Trait Emotional Intelligence refers to individuals emotion –related self perception (Petrides, Furnham and Movroveli , 2007)

Problem Solving

Problem solving is a mental process and is part of a larger problem process that includes problem finding and problem shaping considered the most complex of all intellectual functions (Wikipedia)

Problem Solving is the framework or pattern within which creative thinking and reasoning takes place. It is the ability to think and reason on given levels of complexity.

5.11.2 Need of the study

The teaching of Mathematics should enhance the child's resources to think and reason, to visualize and handle abstractions, to formulate and solve problems. This broad spectrum of aims can be covered by teaching relevant and important Mathematics embedded in the child's experience. Succeeding in Mathematics should be seen as the right of every child. For this, widening its scope and relating it to their subjects is essential.

Kaura and Sharma (2011),Harish (2011), Sharma (2010), NCERT (2008), Kaur and Manasi (2012) in their studies found that Gender did not influence the Problem Solving Ability and Mathematics Achievement of the students.

Mavrovelli et. al.(2009), Mavrovelli et. al. (2008), Stella Mavrovelli& Maria Jose Sanchez-Ruiz (2010) in their studies found that Gender influences the Trait Emotional Intelligence and Mathematics achievement

From the above studies, it is not easy to generalize whether Gender influences the Mathematics achievement or not. Also, we know that Problem Solving Ability and Trait Emotional Intelligence are the main factors which help in Mathematics Achievement.

It is revealed to that whether gender influences the Problem solving ability, Trait EI and Mathematics achievement. In accordance to Gender the investigator also introduces one more variable i.e. Parental Profession.

5.11.3 Statement of the problem

The statement of the problem was worded as follows:

A STUDY OF PROBLEM SOLVING ABILITY, TRAIT EMOTIONAL INTELLIGENCE AND MATHEMATICS ACHIEVEMENT OF CLASS VIII STUDENTS BHOPAL

5.11.4 Objective of the study

To study the influence of Gender and Parental Profession and their interaction on Problem Solving, trait Emotional Intelligence and Mathematics Achievement of class VIII students by taking their half yearly achievement scores of Mathematics as Co-variance, separately.

5.11.5 Hypothesis of the study

1) There is no significant influence of Gender on Problem Solving Ability of class VIII students when their half-yearly Achievement scores of Mathematics are taken as co-variate
2) There is no significant influence of Parental Profession on Problem Solving Ability of class VIII students when their half-yearly Achievement scores of Mathematics are taken as co-variate.
3) There is no significant interaction of Gender and Parental Profession on Problem Solving Ability of class VIII students when their half-yearly Achievement scores of Mathematics are taken as co-variate.
4) There is no significant interaction of Gender on Trait Emotional Intelligence of class VIII students when their half-yearly Achievement scores of Mathematics are taken as co-variate.
5) There is no significant interaction of Parental Profession on Trait Emotional Intelligence of class VIII students when their half-yearly Achievement scores of Mathematics are taken as co-variate.
6) There is no significant interaction of Gender and Parental Profession on Trait Emotional Intelligence of class VIII students when their half-yearly Achievement scores of Mathematics are taken as co-variate.

7) There is no significant interaction of Gender on Mathematics Achievement of class VIII students when their half-yearly Achievement scores of Mathematics are taken as co-variate.

8) There is no significant interaction of Parental Profession on Mathematics Achievement of class VIII students when their half-yearly Achievement scores of Mathematics are taken as co-variate.

9) There is no significant interaction of Gender and Parental Profession on Mathematics Achievement of class VIII students when their half-yearly Achievement scores of Mathematics are taken as co-variate.

5.11.6 Sample

Random sampling technique was employed for the study. 93 students studying in class VIII in three schools of Bhopal were selected.

5.11.7 Variables

Independent variables which are Gender and Parental Profession

Dependent variables which are Problem Solving Ability, Trait Emotional Intelligence and Mathematics Achievement

5.11.8 Tools

In the present study the tools used are

Problem Solving Ability Test developed by L.N. Dubey.

Trait Emotional Intelligence Questionnaire developed by Petrides London Psychometric Laboratory, University College London. Mathematics Achievement Test developed by the investigator.

5.11.9 Statistical Technique

ANCOVA Technique was used for the analysis of data.

5.12.0 FINDINGS

- Gender did not influence the Problem Solving Ability of the students of class VIII
- Parental Profession did not influence the Problem Solving Ability of the students of class VIII
- There was no interaction of Gender and Parental Profession on the Problem Solving Ability of the students of class VIII
- Gender did not influence the Trait Emotional Intelligence of the students of class VIII
- Parental Profession did not influence the Trait Emotional Intelligence of the students of class VIII
- There was no interaction of Gender and Parental Profession on the Trait Emotional Intelligence of the students of class VIII
- Gender did not influence the Mathematics Achievement of the students of class VIII
- Parental Profession did not influence the Mathematics Achievement of the students of class VIII

- There was no interaction of Gender and Parental Profession on the Mathematics Achievement of the students of class VIII

5.12.1 Delimitations of the study

The present study was conducted under the following constraints.

1) The study is conducted in Bhopal city, only

2) Data were collected from the three schools situated in the Bhopal city.

3) Both the C.B.S.S.E. and M.P.Board syllabus were followed in the schools selected for the study.

4) The medium of instruction was English.

5.12.2 Implications

Role of the teacher

1. In a school, it is teachers' duty to give the equality with respect to gender in the classroom as well as outside the classroom.
2. Its teacher's duty to give the freedom of self expression to the students within as well as outside the classroom
3. Home atmosphere exercises a good amount of influence over the emotional character of children. Therefore, teachers should seem active cooperation of the parents in making the atmosphere of the homes suitable for proper emotional development.

4. With the help of positive methods of controlling and training the emotions, the emotional tension present in the minds of the children should be removed and the creation of undesirable complexes may be avoided.
5. The Teachers need to understand when behavior is normal and when it is a symptom of something wrong.

Role of Parents

1. Parents and elder members of the family have to give the equal importance to their children's ignoring gender
2. Parents and the elder member of the family should exhibit better examples of emotional expression before their children.
3. Parent should refrain from any act or behaviour which can bring undesirable influence on the emotional development of the children.

Role of the Curriculum Developers

1. The curriculum developer should make the gender friendly curriculum at all the stages.
2. The curriculum developer make the curriculum in such a way that the stress should be given to the self expression of the students.

5.12.3 Suggestions for further study

Looking to the constraints under which the study was conducted, the findings do not warrant wide generalization. It is therefore, felt that replication of this study on a larger sample, is requisite to arrive at precise results. However, studies may be undertaken on

1) The study can be undertaken with a large sample for precise result

2) Rural environment can be consolidated with urban one for a wider scope.
3) Other personality factors can be considers.
4) The findings can be validated with other subjects as well.
5) Different grade levels can be selected.

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APPENDICES

Consumable Booklet
of
P S A T-D
(English Version)

L. N. Dubey *(Jabalpur)*

Please fill up the following informations :–

Name.....

Age..... **Class**..... **Dated**.....

School/College.....

INSTRUCTIONS

In this test, some problem-related statements alongwith their four possible answers are given. You have to write the serial number of correct answer in the box given against that statement. To complete this a time of 40 minutes is given.

Example—3 persons are available for 3 posts. One post is to be assigned to each person. In how many ways the post can be assigned to them ?

(1) 6 (2) 3 (3) 4 (4) 8 [2]

3 persons can be assigned 3 vacant posts in 3 ways only, therefore the correct answer of the above statement is 3, whose answer is the serial 2, so 2 is written in the brackets of answer. You have to solve all the answers similarly. Remember you have to write correct answer in the space for answer.

(Do not turn the page until you are told to do so.)

Estd. 1971 ©:(0562) 2464926

NATIONAL PSYCHOLOGICAL CORPORATION

4/230, KACHERI GHAT, AGRA–282 004

Sr. No.	STATEMENTS	RESPONSE

1. **Rajeev has 35 notes of 100 rupees denomination in serial. If 12965 is the number of first note, what will be number of last note ?**

   (1) 13999 (2) 13000 (3) 12999 (4) 13001

2. **There are four married sons of an husband and wife in a family. Each son has 4 children. Then how many members are there in the family ?**

   (1) 16 (2) 20 (3) 24 (4) 26

3. **Wirte two such numbers which are having their total as 30 and difference as 20 ?**

   (1) 15 : 15 (2) 28 : 10 (3) 25 : 5 (4) 28 : 2

4. **One person is 4 years elder than her wife. His wife is 10 times older than her daughter. Her daughter will be of 6 years old after 2 years, then what is the present age of the person ?**

   (1) 40 years (2) 44 years (3) 48 years (4) 42 years

5. **There are two taps in a tank. One tap fills that tank in 10 hours and the other tap empties it in 8 hours. If both the taps are opened simultaneously, then in how many hours the tank will be filled completely ?**

   (1) In 10 hours (2) In 13 hours (3) In 18 hours (4) Will never fill

6. **A soldier from his camp goes 6 km. straight in the north. Then after going 6 km. straight in the east goes 5 km. in the south. From there turning to right goes 5 km. Now how many km. away he is from his camp ?**

   (1) 21 km. (2) 16 km. (3) 1 km. (4) 11 km.

7. **There is a difference of 40 between 6 times and 8 times of a number then what is that number ?**

   (1) 240 (2) 320 (3) 40 (4) 20

8. **Smt. Shakuntla said to her daughter Sudha that I were of your age when you were born. If the present age of Smt. Shakuntla is 40 years, what would have been the age of Sudha 4 years before ?**

   (1) 14 years (2) 16 years (3) 20 years (4) 24 years

Sr. No.	STATEMENTS	RESPONSE

9. **Adding twice of any number in that number and substracting half of that number comes50, then what will be that number ?**

(1) 50 (2) 40 (3) 30 (4) 20

10. **A fish is 20 inch long. Its length of head is equal to that of tall. The length of the tail would have been equal to its body if the length of the head had been twice. What will be the length of the body of the fish ?**

(1) 6 inches (2) 8 inches (3) 30 inches (4) 12 inches

11. **Age of Madhu is 18 years. She was twice the age of Sharad before 6 years when she was of the age of marriage then what was the age of Sharad at that time ?**

(1) 6 years (2) 10 years (3) 12 years (4) 14 years

12. **The cost of white-washing of four walls of the room comes to Rs. 10/-. What will be the cost of white-washing a room of exactly twice the length, breadth and height of this room ?**

(1) Rs. 20/– (2) Rs. 40/– (3) Rs. 80/– (4) 120/–

13. **A number with itself is added. Same number is substracted from the total, then the remainder is multiplied with the same number. If the product is 100 what will be that number ?**

(1) 100 (2) 50 (3) 20 (4) 10

14. **'A' gains 10% more profit than 'B' then what percent of loss occurs to 'B' than 'A' ?**

(1) 10% loss (2) Neither proft nor loss (3) $9\frac{1}{11}$% loss (4) can not say

15. **A six digit number is formed by repeating three digit number. For example 538538 or 235235. By which number this so formed number can be divided completely ?**

(1) 8 (2) 11 (3) 14 (4) 18

16. **A student of psychology had to obtain 20% marks for passing. He got 20 marks and he failed by 20 marks then how many marks he obtained in that paper ?**

(1) 50 (2) 100 (3) 200 (4) 400

Sr. No.	STATEMENTS	RESPONSE

17. **Think of a number. After dividing it by 4 add 9 in the quotient. If answer comes 15, that number will be ?**

(1) 20 (2) 24 (3) 36 (4) 48

18. **A milk seller has one litre water in different bottles. He exchanged half of the quantity among two of the bottles. He did so three times. Then tell what is the ratio of milk and water ?**

(1) 75 : 25 (2) 50 : 50 (3) $\frac{1}{3} : \frac{2}{3}$ (4) 25 : 75

19. **Kalpana, Sadhana, Rahul and Ashish has to deliver speech in the class. In how many ways teacher can arrange their turn ?**

(1) 4 (2) 8 (3) 12 (4) 16

20. **Every person shook hands with each other after the end of the party. How many persons were there in the party if 28 times in all hands were shaken ?**

(1) 14 (2) 18 (3) 8 (4) 10

Score	Category

class : →

ame of the school : →

Adolescent TEIQue-SF

Instructions: Please answer by putting a circle around the number that best shows how much you agree or disagree with each sentence below. If you strongly disagree with a sentence, circle a number close to 1. If you strongly agree with a sentence, circle a number close to 7. If you're not too sure if you agree or disagree, circle a number close to 4. Work quickly, but carefully. There are no right or wrong answers.

	Disagree						Agree
1. It's easy for me to talk about my feelings to other people.	1	2	3	4	5	6	7
2. I often find it hard to see things from someone else's point of view.	1	2	3	4	5	6	7
3. I'm a very motivated person.	1	2	3	4	5	6	7
4. I find it hard to control my feelings.	1	2	3	4	5	6	7
5. My life is not enjoyable.	1	2	3	4	5	6	7
6. I'm good at getting along with my classmates.	1	2	3	4	5	6	7
7. I change my mind often.	1	2	3	4	5	6	7
8. I find it hard to know exactly what emotion I'm feeling.	1	2	3	4	5	6	7
9. I'm comfortable with the way I look.	1	2	3	4	5	6	7
10. I find it hard to stand up for my rights.	1	2	3	4	5	6	7
11. I can make other people feel better when I want to.	1	2	3	4	5	6	7
12. Sometimes, I think my whole life is going to be miserable.	1	2	3	4	5	6	7
13. Sometimes, others complain that I treat them badly.	1	2	3	4	5	6	7
14. I find it hard to cope when things change in my life.	1	2	3	4	5	6	7
15. I'm able to deal with stress.	1	2	3	4	5	6	7
16. I don't know how to show the people close to me that I care about them.	1	2	3	4	5	6	7
17. I'm able to "get into someone's shoes" and feel their emotions.	1	2	3	4	5	6	7
18. I find it hard to keep myself motivated.	1	2	3	4	5	6	7
19. I can control my anger when I want to.	1	2	3	4	5	6	7
20. I'm happy with my life.	1	2	3	4	5	6	7
21. I would describe myself as a good negotiator.	1	2	3	4	5	6	7
22. Sometimes, I get involved in things I later wish I could get out of.	1	2	3	4	5	6	7
23. I pay a lot of attention to my feelings.	1	2	3	4	5	6	7
24. I feel good about myself.	1	2	3	4	5	6	7
25. I tend to "back down" even if I know I'm right.	1	2	3	4	5	6	7
26. I'm unable to change the way other people feel.	1	2	3	4	5	6	7
27. I believe that things will work out fine in my life.	1	2	3	4	5	6	7
28. Sometimes, I wish I had a better relationship with my parents.	1	2	3	4	5	6	7
29. I'm able cope well in new environments.	1	2	3	4	5	6	7
30. I try to control my thoughts and not worry too much about things.	1	2	3	4	5	6	7

MATHEMATICS ACHIEVEMENT TEST

NAME: MAX. MARKS : 50

CLASS : VIII TIME DURATION: 60 MIN

Q 1) Choose the correct option in the following. Each question carries one mark 9

i) The square root of 4489 is

a) 65 b) 57 c) 67 d) 63

ii) The square root of 3481 is

a) 49 b) 43 c) 59 d) 53

iii)The square root of 7921 is

a) 83 b) 89 c) 93 d) 99

iv)The square root of 1369 is

a) 33 b) 37 c) 43 d) 47

v)The square root of 3136 is

a) 54 b) 56 c) 64 d) 66

vi) The cube root of 512 is

a) 7 b) 8 c) 9 d) 10

vii)The cube root of 10648 is

a) 12 b) 22 c) 32 d) 42

viii)The cube root of 64 is

a) 4 b) 8 c) 12 d) 32

ix)The cube root of 27000 is

a) 20 b) 25 c) 30 d) 35

Q 2) Choose the correct option in the following. Each question carries one mark 6

i) The additive inverse of -5/9 is

a) 5/9 b) 9/5 c) -5/9 d) -9/5

ii) The additive inverse of 2/-5 is

a) 2/5 b) 5/2 c) -2/5 d) 2/-5

iii) The additive inverse of 19/-6 is

a) 19/6 b) 6/19 c) -19/6 d) 19/-6

iv) The multiplicative inverse of -13/19 is

a) 13/19 b) 19/13 c) -13/19 d) 13/-19

v) The multiplicative inverse of -5/8 is

a) 5/8 b) 8/5 c) -5/8 d) -8/5

vi) The multiplicative inverse of -3/7 is

a) 3/7 b) 7/3 c) -3/7 d) -7/3

Q 3) solve the following equations. Each question carries one mark 3

i) $\frac{8x-3}{3x} = 2$ ii) $\frac{7y+4}{y+2} = -4/3$ iii) $\frac{3y+4}{2-6y} = -2/5$

Q4) Construct 4

i) Quadrilateral ABCD if,
AB=4.5cm, BC=5.5cm, CD=4cm, AD=6cm, AC=7cm

ii) Parallelogram MORE if,
OR=6cm, RE=4.5cm, EO=7.5cm

Q5 A) calculate the amount and compound interest on 4

i)Rs 10,800 for 3 years at 12.5% per annum compounded annually

ii)Rs 62,500 for 1.5 years at 8% per annum compounded half yearly.

B) simplify 6

i)$(X^2-5)(X+5)+25$

ii)$(t+s^3)(t^2-s)$

iii)$(a^2+5)(b^3+3)+5$

Q6 A) Express the following numbers in usual form 8

i) 3.02×10^{-6} ii)4.5×10^{4} iii) 5.8×10^{12} iv) 7.54×10^{-4}

B)Can a quadrilateral ABCD be a parallelogram if. 6

i)$\angle A+\angle D=180^{\circ}$

ii) AB=DC=8cm, AD=4cm and BC=4.4cm

iii) $\angle A=70^{\circ}$ and $\angle C=65^{\circ}$

Q6 i) Two adjacent angles of a parallelogram have equal measure. Find the measures of each of the angles of the parallelogram

ii) The measures of two adjacent angles of parallelogram are in the ratio 3:2 .Find the measure of each of the angles of the parallelogram.

BEST OF LUCK

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