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# "A STUDY ON PROBLEM SOLVING ABILITY OF HIGHER SECONDARY SCHOOL STUDENTS"

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**Abstract**

The purpose of the study is to analyse the problem solving ability of higher secondary school students of CBSE Board and ICSE Board of Mankapur City. The students of class XI and XII standard studying in higher secondary schools of Mankapur city constitute the population of the study. The sample consists of 200 students of Class XI and XII standard each from 2 different higher secondary schools of both CBSE board and ICSE board located in Mankapur City. The Problem Solving Ability Test (PSAT) developed by Dr. Sushma Talesara and Farzana Irfan was used for the study. The study reveals that there is no significant difference between the Male and Female Higher Secondary School Students on their Problem solving ability. It was found that there is a significant difference between the rural and urban higher secondary school students on their Problem Solving Ability The study also reveals that there is a positive relationship between problem solving ability of higher secondary Students.

**Keywords :** Problem Solving Ability, Social & Economic, Academic Achievement, Higher Secondary Students

## Introduction

Problem solving skills refers to our ability to solve problems in an effective and timely manner without any impediments. It involves being able to identify and define the problem, generating alternative solutions, evaluating and selecting the best alternative, and implementing the selected solution. According to Mayer and Wittrock (2006), problem solving is cognitive processing directed at achieving a goal when no solution method is obvious to the problem solver. This definition consists of four parts: first part, problem solving is cognitive i.e. problem solving occurs within the problem solver's cognitive system and can only be inferred from the problem solver's behaviour. Problem solving is a mental process and is a part of the larger problem process that includes problem finding and problem shaping. Considered the most complex of all intellectual functions, problem solving has been defined as higher-order cognitive process that requires the modulation and control of more routine or fundamental skills. Problem solving occurs when an organism or an artificial intelligence system needs to move from a given state to a desired goal state. Problem solving activities get students more involved in the process of learning and enhance the use of higher level thinking process. Problem solving involves the application of principles and facts to explain new phenomena or predict consequences from known conditions. The task of problem solving requires prediction, analysis of facts and principles to cause and effect relationship in physical phenomena.

Problem solving is the frame work or pattern within which creative thinking and reasoning takes place. It is the ability to think and reason on given levels of complexity. The state of tension created by unsatisfied wants and drives enable the individual to exercise his greatest effort and

to use his best language techniques, observations, predictions and interferences to control the difficulties that hinder the progress towards his goal of wants and satisfaction. Problem solving ability plays an important role in the academic achievement of students. It has also a great influence on the academic achievement of students.

Academic achievement or academic performance is the extent to which a student, teacher or institution has attained their short or long-term educational goals. In the present study the marks obtained in the half yearly examination were considered as academic achievement of higher secondary students. Academic Achievement is one of the most important aspects of a student entire school life. It shows the overall performance of how well the student has performed or how low the student has performed. Academic Achievement generally means that a performance outcome that an individual has accomplished specific goals through the different activities in school. School activities may be scholastic and co-scholastic areas.

**1.1 What is Problem Solving ?**

According to Dewey, learning is to think and, upon its intellectual side, education is the formation of careful and thorough habits of thinking. A major emphasis of progressive education is the insistence that pupils be asked to think, in other words that pupils be taught to solve problems. There are many definitions on Problem Solving:

**1.1.1** "Problem Solving is a form of learning in which the appropriate response must be discovered.": Gates and others.

**1.1.2** "Problem Solving is the framework or pattern within which creative thinking and reasoning takes place." B.F.Skinner. In problem solving, there are five phases of Reflective thought:

a) Suggestion of possible solutions
b) Intellectualisation of the problems to be solved
c) Using of one suggestion after the other as a leading idea or hypothesis
d) Reasoning or assumptions
e) Testing the hypothesis by overt activity.

Problem solving is a test that has been designed to assess how quickly and accurately an individual can solve new problems. Such problem solving tests can contain both verbal and numerical tests. Problem solving is a basic skill needed by today's learners. Guided by recent research in problem solving, changing professional standards, new workplace demands, and recent changes in learning theory, educators and trainers are revising curricula to include integrated learning environments which encourage learners to use higher order thinking skills, and in particular, problem solving skills.

Problem solving is complex skill. It involves critical thinking, decision making, creativity and information processing. Effective problem solver uses systematic approach that allows them to breakdown difficult problems in smaller and manageable parts.

Though Problem solving occupies an important place in the field of education, yet there is a lack of study to ascertain the problem solving ability in higher secondary school students. The problem among the students can arise from different forms and categories which are to be dealt accordingly.

**1.2 Need and Justification of the Study**

Problem solving is a process of overcoming difficulties that appears to interface with the attainment of a goal. Simple problems can be well solved by instructive and habitual behaviour. More difficult problems require a series of attempts, until the successful solutions is reached, a Mathematical problem like any problem in life is defined as a problem because it causes is much difficulty in attaining a solution. The beliefs of mathematics students, parents, policy makers and the general public about the roles of problem solving in mathematics become prerequisite or co requisite to develop problem solving. Problem solving ability helps in solving the problem constructively. This skill assists in resolving a conflict, reaching a solution and settles an issue. It develops the ability to get out of difficult situation and achieve the goal without using anger, coercion, defiance and aggressive behaviour. Problem solving is a process that provides an opportunity for a positive act. It enables a student to solve the problem by adopting creative and critical thinking.

A premise of the demands-control-support model (DCSM; Karasek & Theorell, 1990) is that job control and workplace social support are beneficial for well-being because workers can actively use job control and social support to solve problems. There are few studies that directly assess this premise and no studies that examine the antecedents of using job control or social support to solve problems. The present study is the first to examine reciprocal relationships between actively using control and support to solve problems . The present study is concerned with Student's of Higher Secondary Schools. Specifically, the present study contributes to debates concerning the emergent processes through which' skills and abilities of Students are involved in whether there are different consequences acting individually or collaboratively (Leana, Appelbaum, & Sevchuk, 2009), and daily antecedents and consequences of dynamic aspects of job design (Grant & Parker, 2009; Semmer, Grebner, & Elfering, 2004).

Problem solving is process of overcoming difficulties that appears to interface with attainment of goal. Simple problem can be well solved by instructive and habitual behaviour. Problem solving skill helps one to find candidates who are cognitively equipped to handle anything in their jobs thrown to them. Problem solver can observe, judge, and act quickly when difficulties rise when they inevitably do. It helps the students to face complex interpersonal and academic problem, When students problem solving consistently, they can develop better social and situational awareness. They will also learn to mange time properly and develop patience. Students who learn to solve problems from childhood are curious, resourceful and determined. Students who learn problem solving skills have often deeper understanding of casualty. This is the need of the time when one can become a good observer, a good judge, time saver who can and handle problems and difficulties with patience.

Problem solving ability is a vital force, which is in combination with mental setup and interest towards a fruitful education. The problem is the actual evidences of life that everybody in the world has tactlessly, problems are not always insulated. They tend to be like onions where difficulties disappear one after another. In short, they always face difficulties, complications chase people every day and night, even youngsters have their own problems they face in the classroom and at home. Children can deal with any type of difficulty in their own way. Some of the methods they use can be very systematic, while others are much lower. In many cases, the methods that children use to solve their difficulties are at best elementary for children; this can mean a lot of things. If children do not solve their problems, they may feel disappointed and frustrated. On the other hand, children who solve problems can feel very safe and courageous. Problem solving helps the individual develop a stronger and more cohesive sense of self among students. In this way the current research mainly focus on various problem solving abilities of higher secondary students. Hence the present problem is need of the hour.

## 2. Review Of Literature

**Diener et al., (1985)**. shows the Satisfaction With Life Scale (SWLS) was developed to assess satisfaction with the respondent's life as a whole. The scale does not assess satisfaction with life domains such as health or finances but allows subjects to integrate and weight these domains in whatever way they choose. Normative data are presented for the scale, which shows good convergent validity with other scales and with other types of assessments of subjective well-being. Life satisfaction as assessed by the SWLS shows a degree of temporal stability (e.g., 54 for 4 years), yet the SWLS has shown sufficient sensitivity to be potentially valuable to detect change in life satisfaction during the course of clinical intervention. Further, the scale shows discriminant validity from emotional well-being measures. The SWLS is recommended as a complement to scales that focus on psychopathology or emotional well-being because it assesses an individuals' conscious evaluative judgment of his or her life by using the person's own criteria.

**Ryff, C. D. (1989)**. Oriented reigning measures of problem solving ability have little theoretical grounding, despite an extensive literature on the contours of positive functioning. Aspects of well-being derived from this literature (i.e., self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth) were operationalized. Three hundred and twenty-one men and women, divided among young, middle-aged, and older adults, rated themselves on these measures along with six instruments prominent in earlier studies (i.e., affect balance, life satisfaction, self-esteem, morale, locus of control, depression). Results revealed that positive relations with others, autonomy, purpose in life, and personal growth were not strongly tied to prior assessment indexes, thereby supporting the claim that key aspects of positive functioning have not been represented in the empirical arena. Furthermore, age profiles revealed a more differentiated pattern of problem solving than is evident in prior research.

**Seligman & Csikszentmihalyi, (2000)** suggested a science of positive subjective experience, positive individual traits, and positive institutions promises to improve quality of life and prevent the pathologies that arise when life is barren and meaningless. The exclusive focus on pathology that has dominated so much of our discipline results in a model of the human being lacking the positive features that make life worth living. Hope, wisdom, creativity, future mindedness, courage, spirituality, responsibility, and perseverance are ignored or explained as transformations of more authentic negative impulses. The authors outline a framework for a science of positive psychology, point to gaps in our knowledge, and predict that the next century will see a science and profession that will come to understand and build the factors that allow individuals, communities, and societies to flourish.

**Park & Peterson, (2006)** stated Problem solving ability referring to an person's subjective experience It is a multi-faceted construct that goes beyond just the absence of mental ailment and encompasses a person's overall sense of happiness, contentment, and fulfilment in life.

**Marjorie Montague, Craig Enders and Samantha Dietz (2011)** The purpose of the study was to improve mathematical problem solving for middle school students with learning disabilities by implementing a research-based instructional program in inclusive general education math classes. A total of 40 middle schools in a large urban district were matched on state assessment performance level (low, medium, and high performing) and socioeconomic status. One school from each pair was randomly assigned to the intervention condition, and one eighth grade math teacher participated at each school (n = 40). Because of attrition at the outset, 24 schools completed the study (8 interventions, 16 comparisons). The intervention, a research-based cognitive strategy instructional program, was implemented for 7 months, and periodic progress monitoring was conducted. A cluster-randomized design was used, and the data were consistent with a three-level model in which repeated measures were nested within students and students were nested within schools. The results indicated that students who received the intervention (n = 319) showed significantly greater growth in math problem solving over the school year than students in the comparison group (n = 460) who received typical classroom instruction. Moreover, the intervention effects did not differ for students with learning disabilities, low-achieving students, and average-achieving students. Thus, the findings were positive and support the efficacy of the intervention when implemented by general education math teachers in inclusive classrooms.

**M. Manjula & P.N. Nataraj (2012)** conducted the study on the topic titled as "A Study of Problem Solving Ability among the Matriculation School Students" The present investigation focuses on the study of problem solving ability among the matriculation school students of Cuddalore district. Normative survey method has been used to collect data. By using random sampling technique 644 IX standard matriculation school students have been chosen and involved in this study. The collected data has been studied and subjected to statistical analysis. The results revealed that (i) the problem solving ability of students is low in matriculation schools at Cuddalore district. (ii) This investigation also reveals that there is no significant difference in respect of the sub samples, type of family, mother's education, father's occupation and mother's occupation, while in respect of gender, locality, fathers" education and parental monthly income there is significant difference on their problem solving ability.

**Bilal Adel Al-khatib (2012)** the purpose of this study is to investigate the effect of using brainstorm strategy in developing creative problem solving skills among female students in princess Alia University College. The sample of the study consisted of (98) female students. The sample was distributed into two classes, the first represents the experimental group totalling (47) students taught through brainstorming strategy within the course of developing thinking skills in the academic year 2010/2011, and the second represents the control group totalling (51) students. The instruments of this study were a program to use brainstorming strategy and Torrance creative thinking test. Both validity and reliability were checked by the researcher. The findings of the study showed that there are statistical significant differences at the level of ($\alpha$ = 0.05) between the experimental group and the control group in the total score and the sub scores of the creative thinking in the favour of the experimental group indicating the effectiveness of using brainstorming strategy in developing creative thinking skills. The researcher recommended the use of this strategy in universities as well as conducting more studies regarding its effect by using other samples in different environments.

**Adebola s. Ifamuyiwa, mstan, sakiru i. Ajilogba (2012)** in This study, which adopted a pre-test, post-test, control group quasi-experimental design involving a 2 x 2 factorial matrix, investigated the effect of Oyedeji Problem-Solving Model on secondary school students achievement and retention in Further Mathematics. The moderating effect of gender on the dependent measures was also investigated. Eighty senior secondary two (SS2) students from two purposely selected schools participated in the study. Three instruments namely; Teachers Instructional

Guide, Further Mathematics Achievement Test (FMAT) (r = 0.76) and Student Retention Test (r = 0.75) were developed, validated and used to collect data to test the six null hypotheses raised to guide the study. Data collected were analyzed using analysis of covariance (ANCOVA) at the .05 level of significance. Findings showed that problem-solving strategy had significant main effect on students' achievement and retention in Further Mathematics. This showed with evidence that problem-solving instructional strategy is more effective in enhancing students' achievement and retention in Further Mathematics than the conventional teaching method. Thus, Mathematics and Further Mathematics teachers are advised to use Oyedeji problem-solving strategy to teach their students Mathematics and Further Mathematics.

**M. F. Salman, J. O. Ayinla, C. O. Adeniyi, L.O. Ogundele, S. K. Ameen (2012)** examined the effects of problem-solving instructional strategy on Senior Secondary School students‟ attitude towards Mathematics in Ondo, Nigeria. The target population for the study was Senior Secondary Two (SS II) students in Ondo, Nigeria. Purposive sampling technique was employed to select 173 SS II students for the study. A quasi-experimental, nonrandomized, non-equivalent, pre-test, post-test control group involving a 2 x 3 factorial design was employed for the study. The dependent variable was students‟ attitude to Mathematics. The independent variables were the problem solving instructional strategy and the scoring levels. The test scores were analyzed using mean scores, standard deviations, t-test and Analysis of variance on the two null hypotheses formulated. An alpha level of 0.05 was used to determine the significant level. Findings from this study showed that the experimental group significantly performed better in Mathematics than the control group. Based on this finding, it is recommended among others that teachers of Mathematics should adopt the use of problem-solving instructional strategy in teaching Mathematics at all levels of education.

**Nirupma Thakur (2013)** the present investigation focuses on the study of problem solving ability among the undergraduate mathematical gifted students of Jabalpur, Madhya Pradesh. Normative survey method used to collect data. By using random sampling technique, 40 mathematical gifted students (20 boys and 20 girls), studying in different Government and Private Colleges selected. The collected data has been studied and subjected to statistical analysis. The results revealed that (i) the problem solving ability of mathematical gifted students are high in colleges at Jabalpur. (ii) This investigation also reveals that there is significant difference in respect of the sub samples, gender, mother's education, category of educational institutions, while in respect of fathers" education there is no significant difference on their problem solving ability.

**İlker Ozmutlu (2014)** conducted his study on the topic titled as "Investigation of problem solving ability of students in school of physical education and sports (Kafka's University Sample)" The aim of this research is to examine the problem solving abilities of School of Physical Education and Sports students. To achieve this aim, in the academic year 2013 – 2014, a research group did a study of 433 students of the School of Physical Education and Sports, Kafka's University. This sample consisted of 184 female and 249 male students. Within the research model in this study, the Problem Solving Inventory (PSI) was used to measure the students' problem solving abilities. The scale was developed by Heppner and Peterson (1982) and its Turkish version was prepared by Şahin and Heppner (1993). The SPSS 14.0 packaged software was used for data analysis and interpretation. The only sample Kolmogorov-Smirnov Test was used to determine if the data is normally distributed and it was determined that they are not distributed normally and then instead of the t test, the Mann-Whitney U test and instead of one way ANOVA test, the Kruskal-Wallis Test was used, and also frequency test was used. This study showed that the students of the School of Physical Education and Sports have problem-solving abilities, and there are no t test factors in terms of gender, department, type of learning and type of school they graduated from. However, there is a significant difference between the class factor and problem solving abilities.

**Sunday Bankole Adeyemi (2014)** conducted his study on the topic titled as "effect of gender on secondary school students' achievement in map work" This study is carried out to investigate the effects of gender on Secondary School Students' achievement in map work. One hundred and sixty four subjects randomly drawn from SSII geography students in Ilesa East and West Local Government Council areas of Osun State, Nigeria, took part in the study. Four types of instruments (one stimulus and three testing instruments) were used to collect relevant data for the study. Data were subjected to both parametric and non-parametric analysis, using mean scores, standard deviation, analysis of covariance (ANCOVA) and multiple classification analysis (MCA). Results showed significant-main effect of gender $F(1,163) = 3.671$; $P<0.05$) in Declarative Knowledge Achievement Test (DKTAT). Gender is also found to have significant main effect in Procedural Knowledge Achievement Test (PKTAT) ($F(1,163) = 3.937$; $P<0.05$). The result is however not significant in map reading and interpretation Achievement Test (MARIAT) ($F(1,163) = 0.0566$; $P> 0.05$). This implies that while the hypothesis is rejected for both post-test DKAT and PKAT means scores, it is not rejected for post-test MARIAT mean scores, it was therefore concluded that geography is not gender sensitive as we were made to believe over ages, i.e. gender has no effect on students' achievement in geography in general, and map work in particular where differences

were found in favour of the female students. Suggestions were finally made on how to encourage the female students to show more interest in the study of geography in general.

**Rani, K. V. (2017)** conducted study on reasoning ability is the 'problem solving skills' or 'analytical ability' or 'deductive and inductive reasoning'. Academic achievement is the total score one achieved at school, college, or university from class, laboratory, library, or field work. The objectives of the study were to explore the relationship between reasoning ability and academic achievement among secondary school students in Trivandrum district. Study also evaluated the difference in the mean scores of reasoning ability and academic achievement.

**Veerasamy, Ashok Kumar (2019)** reported on the relationship between students' perceived problem-solving skills and academic performance in introductory programming, in formative and summative programming assessment tasks. We found that the more effective problem solvers achieved better final exam scores. There was no significant difference in formative assessment performances between effective and poor problem solvers. It is also possible to categorize students on the basis of problem-solving skills, in order to exploit opportunities to improve learning around constructivist learning theory. Finally, our study identified transferability skills and the study may be extended to identify the impact of problem solving transfer skills on student problem solving for programming.

**Kumar, M.(2020)** conducted study on Problem-solving ability is a mental process that is the conducting part of the larger problem process that includes problem finding, shaping, and reaching towards a final goal. There is a need for the development of the same among school students who will become the future citizens of the country. This paper presents our attempt to study problem-solving ability and creativity among higher secondary students in Nagapattinam District. The results of the study indicate that the level of problem-solving ability among the higher secondary students is high. The results of the study indicate that the level of creativity among the higher secondary students is moderate. There is no correlation between creativity and problem-solving ability among the higher secondary students, there is no significant difference between boys and girls concerning their problem-solving ability, and there is no significant difference between higher secondary boys and girls in their creativity.

**Zulkarnain (2021)** investigated the common problems faced by most students in learning mathematics include their inability to answer problem-solving questions and low mathematical self-efficacy. Search, Solve, Create and Share (SSCS) is a teaching model that provides opportunities for students to enhance their problem-solving skills and self-efficacy. This quasi-experimental study was conducted to determine the effects of the SSCS teaching model on high school students' ability and self-efficacy in solving mathematical problems. A total of 129 high school students were involved in this study and categorised into two groups: 69 and 60 students in the treatment and control groups, respectively. The one-way analysis of covariance test was used with the SPSS 25.0 software to answer the research questions. Results show a significant difference in mathematical problem-solving ability and self-efficacy between students who experienced the SSCS teaching models and students who were taught by using conventional methods. The former has a better problem-solving ability and self-efficacy than the latter. This study supports the adoption of the SSCS teaching model by teachers as an alternative teaching method for improving students' problem-solving ability and self-efficacy.

**Hypotheses of the study.**

1. There will be a slight difference between problem solving ability among the students of CBSE board & ICSE board of Mankapur city.

2. There will be a significant difference between problem solving ability among the boys of CBSE board & ICSE board of Mankapur city.

3. There is a significance difference between problem solving ability among the boys of CBSE & ICSE Board of higher secondary school of Mankapur. .

4. There is a major significance difference between problem solving ability among the girls of CBSE & ICSE Board of higher secondary school of Mankapur..

**Delimitations of the Study**

The present study was delimited in the following aspects:

1. The study was limited only to Senior Secondary Schools of Mankapur.

2. The study was confined to students studying in $11^{th}$ & $12^{th}$ class only.

3. The study was limited only C.B.S.E. & ICSE Board of Mankapur.

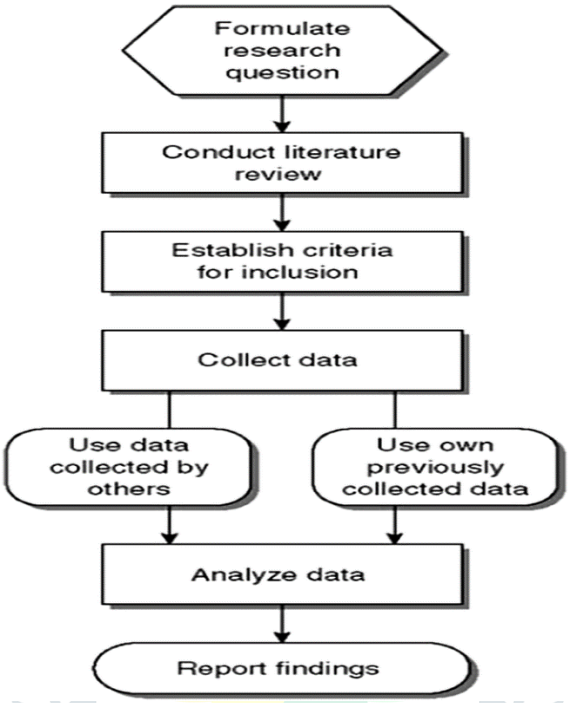
**3. Research Methodology**

The present study was primarily designed for problem solving ability for Academic Achievement of the Higher Secondary School Students (CBSE & ICSE). The study has been conducted by involving descriptive survey method of research. The random sampling techniques were adopted for the present study.

**3.1 Research Method**

(a) Descriptive survey research (quantitative research *method)*

**3.2 Research Design**




Flow chart of Description survey research for CBSE and ICSE students

**3.3 Population**

A population refer to any collection of specified groups of human beings that are of non-human entities such as objects, education institutions, time, units, geographical areas, prices of commodities or salary drown by individuals. Some statisticians call it the universe.

The target population for the study of Higer secondary School Students (ICSE board & CBSE board) students on Mankapur City. The population of 100 students (ICSE board) and 100 Students ( CBSE board) of Mankapur City were randomly selected by the researcher.

**3.4 Locale of the study**

**The present study is conducted among the Higher Secondary Students of CBSE and ICSE borad of Mankapur City, District Gonda.**

**Mankapur** is a town and a nagar panchayat in Gonda district in the Indian state of Uttar Pradesh. It is a constituency of Uttar Pradesh Legislative Assembly currently headed by BJP. It borders Gonda to the West, Rehra bazar to the North, Maskanwa to the East and Nawabganj to the South.

The city had an average literacy rate of 77 percent, which exceeded the national average of 67.5 percent. Male literacy was higher than female literacy, with 86 percent to 75 percent.

**Sample Procedure**

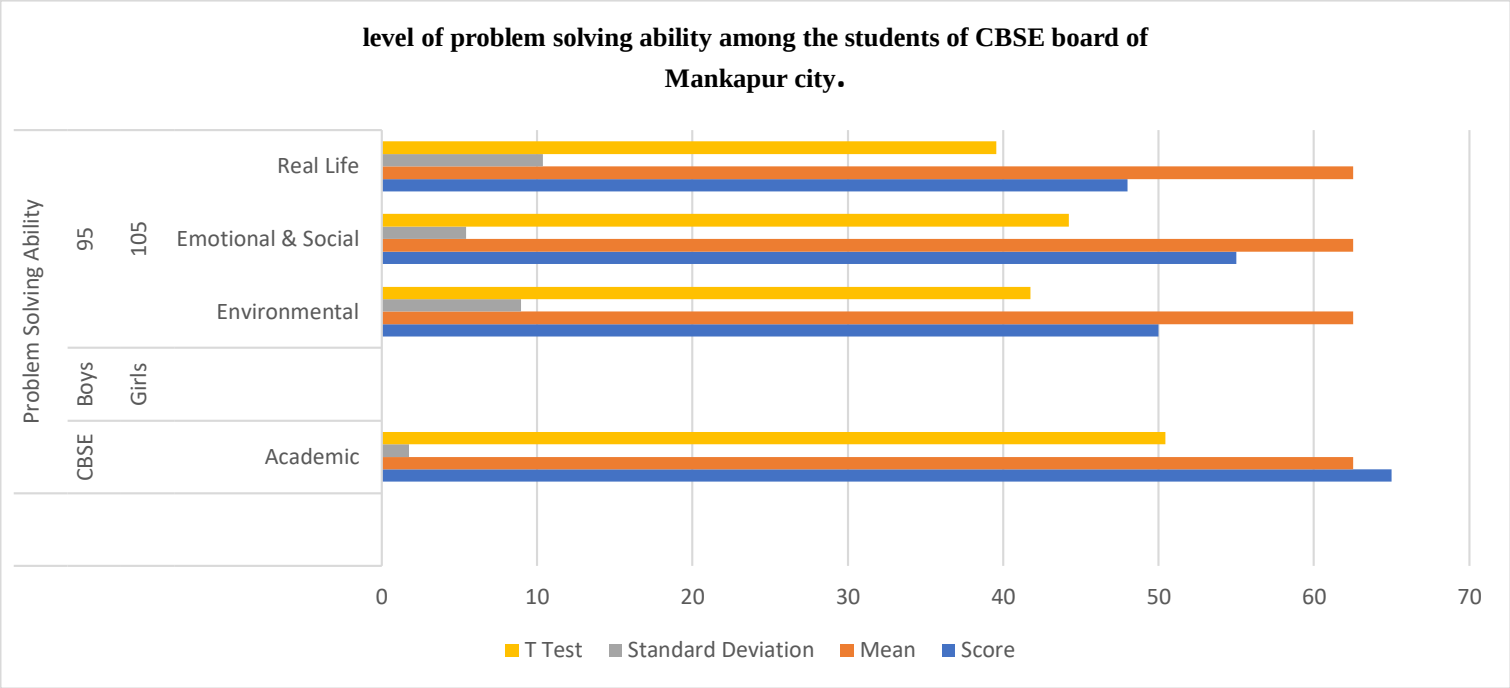
A sampling procedure defines the rules that specify how the system calculates the sample size and it contains information about the valuation of an inspection characteristic during results recording (attributive, variable, manual, etc.).

Sampling procedures are usually used at characteristic level of a task list or material specification. You can however determine the sample size, without reference to task lists. To do this, you define a sampling procedure for the inspection type in the inspection setup (Quality Management view of the material master), or in Customizing .

**Sample selected for this study were 100 boys and 100 girls of higher secondary school of CBSE board and ICSE board respectively.**

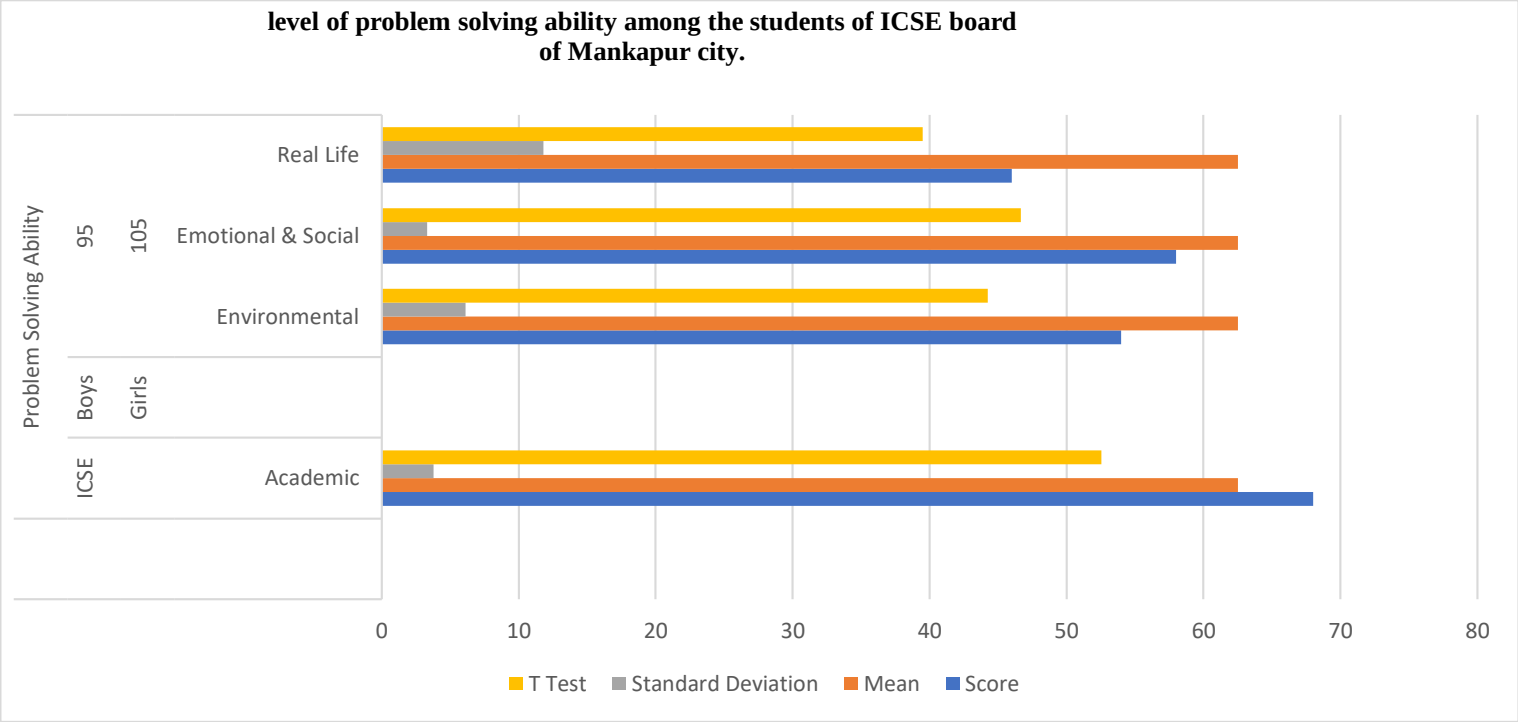
**4. Results and Discussion**

**Objective 1. "**To find out the level of problem solving ability among the students of CBSE board of Mankapur city.




From the above graph we inferred that the level of Problem solving ability is found to be Moderate among the students (Boys and Girls) of CBSE board of Mankapur City

**Objective 2. "**To find out the level of problem solving ability among the students of ICSE board of Mankapur city.

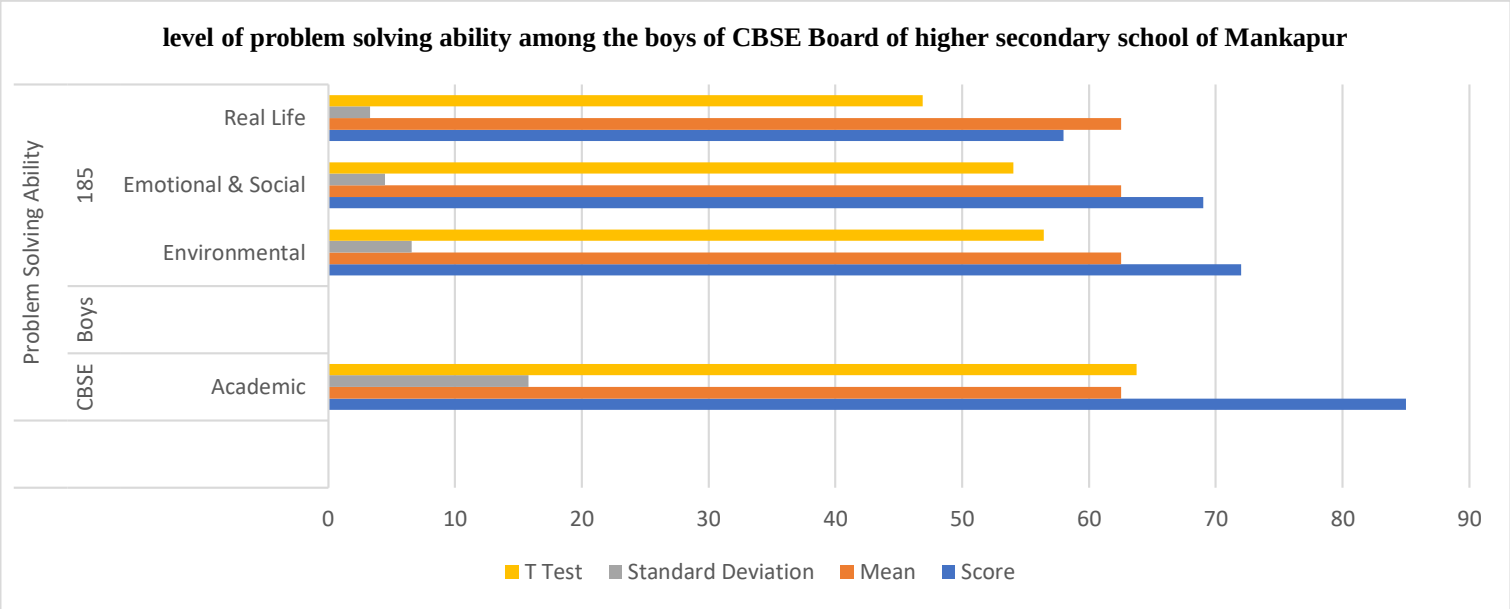



From the above graph we inferred that the level of Problem solving ability is found to be Moderate among the students (Boys and Girls) of ICSE board of Mankapur City.

**Hypothesis 1**

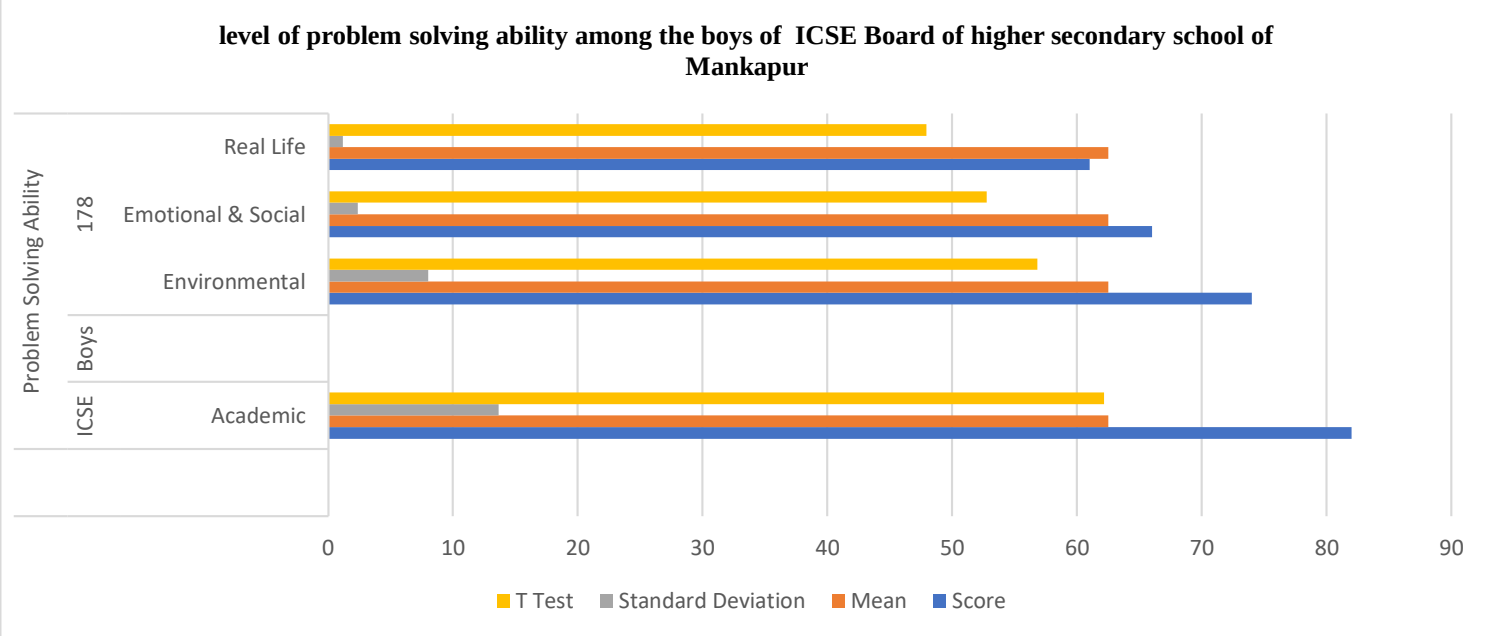
There will be a slight difference between problem solving ability among the students of CBSE board & ICSE board of Mankapur city.

**Objective 3 "**To compare the level of problem solving ability among the boys of CBSE Board of higher secondary school of Mankapur."




From the above graph we inferred that the level of Problem solving ability is found to be Moderate among the students (Boys) of CBSE board of Mankapur City.

**Objective 3 Contd.. "**To compare the level of problem solving ability among the boys of ICSE Board of higher secondary school of Mankapur.

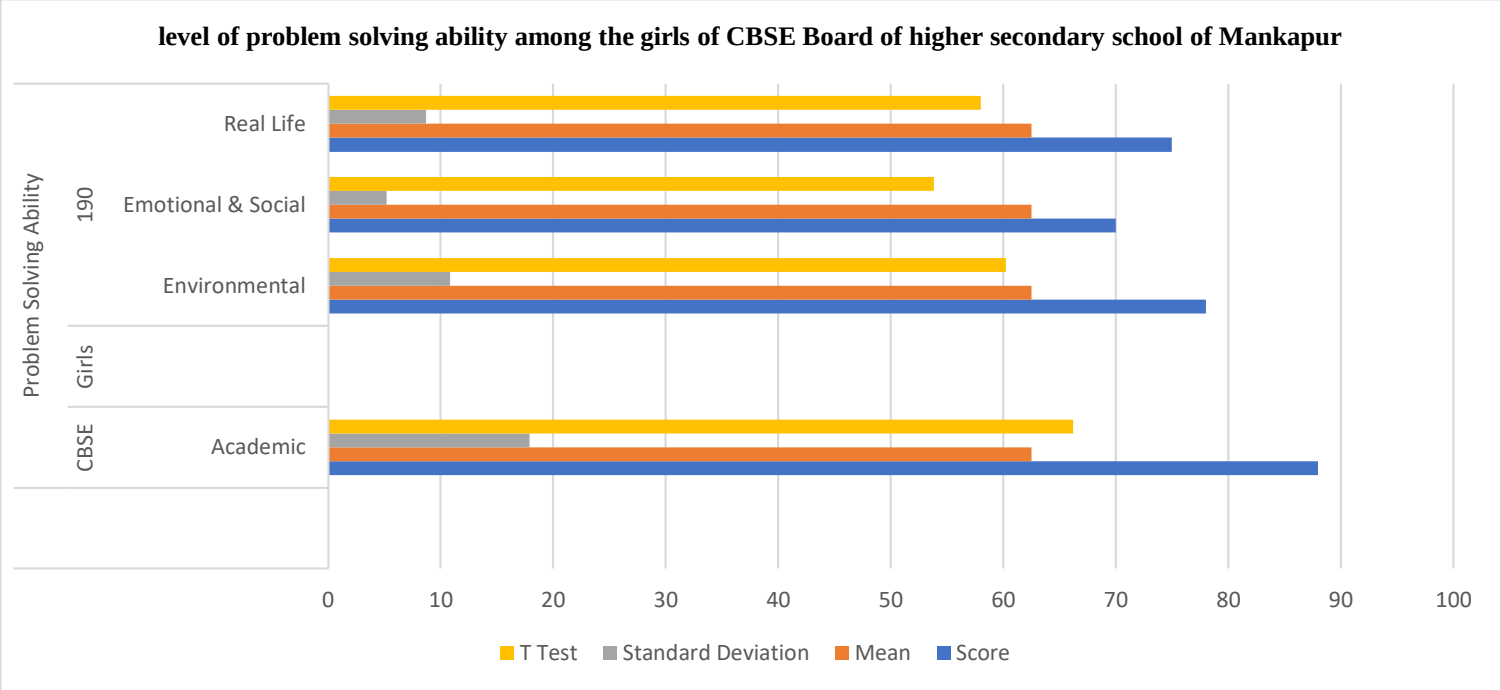



From the above graph we inferred that the level of Problem solving ability is found to be High among the students (Boys) of ICSE board of Mankapur City

**Hypothesis 2**

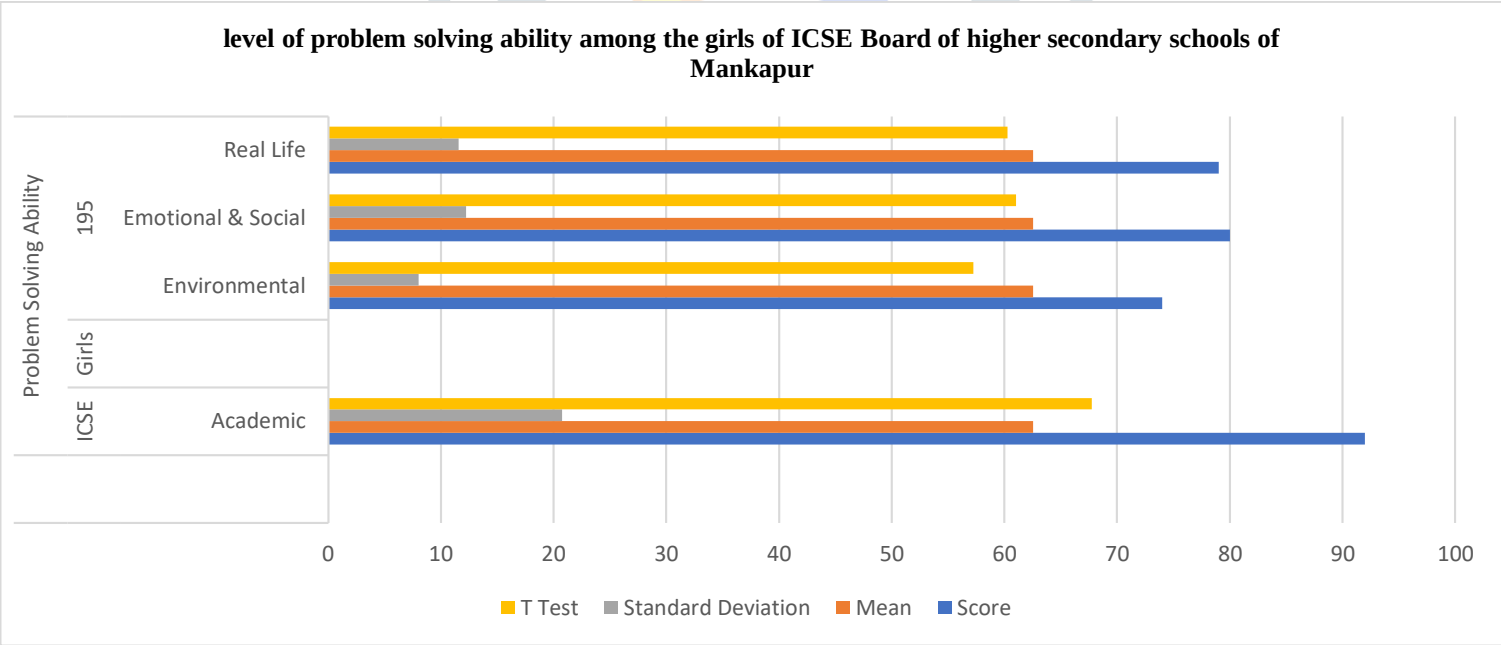
There will be a significant difference between problem solving ability among the boys of CBSE board & ICSE board of Mankapur city.

**Objective 4 "**To compare the level of problem solving ability among the girls of CBSE Board of higher secondary school of Mankapur.




From the above graph we inferred that the level of Problem solving ability is found to be High among the students (Girls) of CBSE board of Mankapur City

**Objective 4 Contd. "**To compare the level of problem solving ability among the girls of ICSE Board of higher secondary schools of Mankapur.




From the above graph we inferred that the level of Problem solving ability is found to be High among the students (Girls) of ICSE board of Mankapur City

**Summery and Conclusion**

**5. Summery**

Discussion on the findings related to overall Problem Solving Ability of Higher secondary Students of CBSE Borad and ICSE Board : The findings showed that majority of Higher secondary students had moderate Problem Solving Ability.

The present study found that majority of Higher secondary School Students had moderate Problem Solving Ability This findings were in consonance with the findings of Dawngliani et.al (2020). They also found that Problem Solving Ability among Students of Government School of Mankapur city were under the level of low ability in which signifies that the majority of the students had a very low Problem Solving Ability None of the students were at the level of very high and high ability. It was also found in the present study that none of the students scored very high or high in Problem Solving Ability

According to the findings of the present study, it was depicted that Higher secondary School Students need to develop and enhance their problem-solving skills. There might be a variety of explanations for both Higher secondary students had moderate Problem Solving Ability. According to the 2011 census, it was stated these areas were one of the most remote localities in Mankapur, with the lowest literacy rate. Children's schooling was hampered by their home environment. Some parents were uneducated and impoverished. They were unable to meet their children's educational demands. As a result, children were unmotivated to excel in school. The scarcity of teacher was another problem. As previously stated, every topic could not be adequately handled due to the lack of teachers. Students become inept at addressing issues and challenges in their academic and real life. In addition to that one of the possible reason of extremely low Problem Solving Ability and psychological well being among Higher secondary School Students would be still practicing of rote memorization as the basic method of teaching rather than comprehension. In order to improve Problem Solving Ability of the students, school authorities need to take steps to diagnose the crucial difficulty areas in basic education. For this purpose, the high school teachers are required to be trained for making use of diagnostic and criterion based evaluation procedures to make teaching-learning process more effective as well as child centre learning to enhance the level of Problem Solving Ability. Teaching methodology and strategies may need to be reviewed to surge Problem Solving Ability. It is the obligation of the teachers to detect such students who have low Problem Solving abilities and try to adjust their learning and thinking power through various audio-visual aids.

This finding showed that there is a major significant difference between Higher secondary Students School Students od CBSE Board and ICSE Board in regards to their Problem Solving Ability.

It was observed from the present finding that area of studies did not influence on the ability of the students. But it has been stated earlier, the students of both Autonomous District Council had low Problem Solving Ability ,it is required to assess their academic performance carefully, better to provide more resources, use suitable teaching strategy to elevate their Problem Solving Ability. Students from these two Autonomous District Councils lagged behind in every spheres in comparing to other Secondary School Students in Mankapur. To improve their Problem Solving Ability, a better atmosphere, better facilities, and greater parental support would also be required. Furthermore, teachers' passion, commitment, and quality of teaching would be crucial for encouraging and enhancing the students' rational thinking and creativity. Community involvement would also be helpful for the institution and the students, community participation like organising awareness on mental health, providing career guidance, frequent medical check- up, free tuition for economic backward children would be boost a heathy learning environment of among the student and this will encourage them to face any challenges related to their academics and every day's life. In addition to that the School Education Department of Mankapur and the District Council Authority are required to pay more attention to this area and provide more funds as well. So there could be more opportunity for the student to enhance not only their learning skills but also their problem solving skills. More initiative from higher authority is highly suggested to promote quality education to this area.

**5.1 Conclusion**

Problem Solving is a skill which comprises logical inquiry of the facts and drawing conclusions in consistent with the data and evidences. Problem-solving is an individual phenomenon that requires the use of higher-order cognitive abilities, is a constant and persistent struggle on both conscious and unconscious levels in order to be successful. Some people can manage a situation, while others cannot.

Problem solving is the process of determining solutions to problems through an ordered cognitive process. It is a driving force to improve or maintain one's talents in all actions where a high standard of excellence is upheld. Achievement is a responsibility-oriented activity that allows people' performance to be evaluated based on externally or internally set standards, which forces the individual to compete with others or with the standard. Achievement Motivation is the inner force that help a person to achieve certain task, and it is defined by desire, a high level of energy, the need for independence, and the satisfaction that comes from exceeding one's own expectations, problem-solving strategies for resolving and overcoming problems that appear to be impeding the accomplishment of a solution. On the other hand Achievement motivation is basically the tendency or inner desire or feeling of a person to accomplish something important and exclusive to attain a spirits of self-

accomplishment and contentment. In respect to problem solving ability between higher secondary students of CBSE and ICSE Board, they do not differ significantly, it signifies that area of studies do not influence on their problem solving ability of both students. Gender do not influence problem solving ability among higher secondary students of CBSE and ICSE Board, whereas a significant difference was found between problem solving ability of male and female students of higher secondary students of CBSE and ICSE Board. As a result, improved problem-solving abilities are necessary and vital for students. It can also be said that problem solving and academic achievement motivation are interrelated. It was mostly believed that those who had better problem solving would have better academic achievement motivation. Having better problem solving skills with motivation are necessary for students' achievement. Without motivation, there may not be curiosity to create ideas. So, motivation makes them more progressive towards achieving certain skills too.

**5.3 Variables**

Separate Variables were used , for Problem Solving Ability Test used for ICSE board Students and CBSE board Students of Mankapur district and have been kept under consideration under the present study which includes

a) Academic
b) Environmental
c) Emotional and Social
d) Real Life

**5.4 Statistical Techniques Used**

The following statistical techniques to be used for analyze the data:

(a) Mean

(b) Standard Deviation.

5.5 **Mean**

The mean is the average of a data set. The mean is the parameter that measure the central location of the distribution of a random variable and is an important statistic that is widely reported in scientific literature.

The formula for Mean is as stated below

**Mean of Grouped Data:**

$$\bar{x} = \frac{\sum fx}{n}$$

where: $\bar{x}$ = mean
$f$ = frequency of each class
$x$ = mid-interval value of each class
$n$ = total frequency
$\sum fx$ = sum of the producst of mid − interval values and their corresponding frequency

**Standard Deviation**.

The standard deviation (SD) (represented by the Greek letter sigma, o) is a measure that is used to quantify the amount of variation or dispersion of a set of data values. A standard deviation close to 0 indicates that the data points tend to be very close to the mean (also called the expected value) of the set, while a high standard deviation indicates that the data points are spread out over a wider range of values. The standard

deviation of a random variable, statistical population, data set, or probability distribution is the square root of its variance. It is expressed in the same units as the data.

$$SD = \sqrt{\frac{\sum (x_i - \bar{x})^2}{N}}$$

**Where:**

$SD$ = Population Standard Deviation

$\sum$ means "the sum of"

$N$ = Population size

$x_i$ = Each value from the population

$\bar{x}$ = The population Mean

**Tools used**

The following research tool was used for the present study.

(a) The Problem Solving Ability Test (PSAT) developed by Sushma Talesara and Farzana Irfan was used for the study.

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