

Decision Making and Self Confidence on Problem Solving Ability among Higher Secondary Students Studying Mathematics

T. Srimadevi, Dr. K.Saraladevi,

PhD Research Scholar, Meston College of Education, Royapettah, Chennai, India

Associate Professor, Department of Physical Science, Meston College of Education, Chennai, India

ABSTRACT: The purpose of the study was to investigate the relationship between self-confidence and decision-making. Decision-making is an integral part of everyday life and level of self-confidence is related the time it takes to make a decision. Decisions can be objective or subjective. As self-confidence is an integral part of personality it will influence decision-making ability. The students studying in XI standard were chosen as the sample. Self Confidence Questionnaire by (Dr. Ken Humbly Alice Muir 1994) and Decision making Questions by (Greene et al 1997) were used to collect data. Results were statistically analyzed through Mean, Standard deviation, Correlation coefficient, Multiple Regression and critical ratio in this study. It was identified that decision making and self confidence have an impact on problem solving ability among mathematics achievers.

KEYWORDS: Decision making, Self Confidence and Problem Solving Ability.

I. INTRODUCTION

: A considerable part of the role and functions of citizens in democratic societies consists of critical thinking, discussion of opinions, problem solving, and decision-making skills. In order to be functional, trained citizens of the 21st century must be able to find logical solutions to the problems they face and they also must be able to give effective decisions. The skills of decision-making and problem solving are not only the results of development and socialization, but also inevitable processes that go on throughout the life of an individual. Modern education systems aim to develop the competency to approach problems with responsibility and make the right decision about the solutions. A school, which is an institution of socialization, is the best place where the new generations can be taught the skills of problem solving and effective decision-making. Schvaneveldt and Adams (1983), this is a period of development, but it is a period with limited experiences in terms of cognitive processes of decision-making and problem solving skills. During childhood, almost all decisions are given for them by adults. In the second decade of life, it is believed that they are either not ready or too inexperienced to carry such responsibility. It is believed that adolescents need to be protected and that they need to be kept under control in cognitive processes such as decision-making. They are especially not encouraged to give important decisions about their lives. Studies on decision-making and problem solving have reported that such skills develop based on age and that some cognitive processes can be learned. The processes of decision-making and problem solving appear conceptually similar, and both processes have been characterized as complex processes in which an individual identifies and evaluates several alternative courses of action and selects an alternative for the purpose of implementation (Phillips, Paziienza and Ferrin, 1984). D'Zurilla and Nezu (1987) regard decision making as a stage of problem solving process. They point out that solving problems consists of the following stages: 1. Facing the problem, 2. Identifying the problem, 3. Generating alternatives for the solution, 4. Making decisions considering the possible consequences of the alternative courses of action, and 5. Implementing the decisions and evaluating the possible consequences. The aim in making decisions is to evaluate the solutions that could be realized and to attain positive results by implementing them. Janis and Mann (1977) state that there is a set of processes that follow each other in decision-making and that effective decisions are the results of such processes. These are as

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Vol. 5, Issue 3, March 2016

follow: 1. Identifying problems, 2. Generating alternatives, 3. Considering the possible consequences of every decision, 4. Gathering information so as to be able to evaluate the alternatives better, 5. Evaluating the data that relate to the alternatives, 6. Identifying the suitable alternative 7. Implementing the decision given and evaluating the consequences by making the necessary plans. When an individual considers the above mentioned processes in the process of making a decision, Janis and Mann (1977) state that this behavior is a vigilant information processing. They point out that the stress experienced in decision-making process directly influences the decision-making behavior and that there is an increase in stress when the possible risks are considered after the decision given.

SEVEN-STEP PROBLEM-SOLVING, DECISION-MAKING PROCESS

Having a logical thought process helps ensure that you will not neglect key factors that could influence the problem, and ultimately your decision. In fact, you should always apply a clear, logical thought process to *all* leadership situations that you encounter. The seven-step process is an excellent tool that can guide you in solving problems and making those sound and timely decisions. The seven steps are: 1. Identify (recognize/define) the problem. 2. Gather information (facts/assumptions). 3. Develop courses of action (solutions). 4. Analyze and compare courses of action (alternatives/solutions). 5. Make a decision; select the best course of action (solution). 6. Make a plan. 7. Implement the plan (assess the results).

Self-confidence is a very large area where a lot of studies and work has been made and where there are a lot of theories and methods on how to affect the self-confidence of a person. The definition of self-confidence according to Wikipedia online encyclopaedia: "The socio-psychological concept of self-confidence relates to self-assuredness in one's personal judgement, ability, power, etc., sometimes manifested excessively." The definition according to Webster's online dictionary: "Self-confidence is confidence in oneself, i.e. in one's abilities and worth, including the ability to cope with one's limitations and problems." A person with good self-confidence often has: " a pleasant demeanour " a cheerful outlook on life " a satisfaction with one's personal life.

II. SAMPLE

A convenient random sampling technique was adapted for the selection of sample the school selected for this study namely boys aided school. Then random convenient sampling technique was adopted to select the sample. 50 mathematics students were taken for the study. The students studying in XI standard were chosen as the sample.

III. STATEMENT OF THE PROBLEM

Decision Making and Self Confidence on Problem Solving Ability among Higher Secondary Students Studying Mathematics were chosen for the study.

IV. OBJECTIVES OF THE STUDY

To carry out the study in a systematic way following objectives were formulated:

1. To study the contribution of predicted variable (Problem solving ability) on criterion variable (Decision making and Self Confidence) of higher secondary students studying Mathematics.
2. To explore the contribution of predicted variable (Problem solving ability) on criterion variable (Decision making and Self Confidence) of higher secondary students studying Mathematics.
3. To find out the significant relationship between Problem solving Ability and Decision Making among higher secondary students studying Mathematics.
4. To find out the significant relationship between Problem solving Ability and Self Confidence among higher secondary students studying Mathematics.

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 3, March 2016

5. To find out the significant relationship between Decision making and Self Confidence among higher secondary students studying Mathematics.

V. HYPOTHESES

1. There is no significant relationship between Problem Solving Ability and Decision Making from the total sample
2. There is no significant relationship between Problem Solving Ability and Self Confidence from the total sample
3. There is no significant relationship between Decision Making and Self Confidence from the total sample

VI. DELIMITATIONS OF THE STUDY

- * The study was restricted to Higher Secondary School Students.
- * A Sample size was 50 Higher Secondary School Students

VII. RESEARCH TOOLS SELECTED FOR THE PRESENT STUDY

The following tools have been used by the investigator to carry out this study.
 Problem solving ability scale by (McMillan&Sschumacher 2006).
 Decision Making by (Greene et al. 1997).
 Self Confidence by (Ken Humbly Alice Muir 1994).

Hypothesis-1
Table-1

Correlation of problem solving ability with decision making

Variable	Gender	N	Correlation	t test	L.S
Problem solving ability with Decision Making	Boys	50	0.708	6.95	0.001

From the table 1 and also from figure A it is understood that the calculated correlation coefficient values are significantly greater than that the table correlation coefficient values. Hence the hypothesis is rejected and proved that there is significant relationship between problem solving ability with Decision Making in the total sample.

Hypothesis-2
Table-2

Correlation of problem solving ability with self confidence

Variable	Gender	N	Correlation	t test	L.S
Problem solving ability with Self Confidence	Boys	50	0.522	4.24	0.001

From the table 2 and also from figure A it is understood that the calculated correlation coefficient values are significantly greater than that the table correlation coefficient values. Hence the hypothesis is rejected and proved that there is significant relationship between problems solving ability with self confidence in the total sample.

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 3, March 2016

Hypothesis-3

Table-3

Correlation of Decision Making with Self Confidence

Variable	Gender	N	Correlation	t test	L.S
Decision Making with Self Confidence	Boys	50	0.82	9.932	0.001

From the table 3 and also from figure A it is understood that the calculated correlation coefficient values are significantly greater than that the table correlation coefficient values. Hence the hypothesis is rejected and proved that there is significant relationship between decision making with self confidence in the total sample.

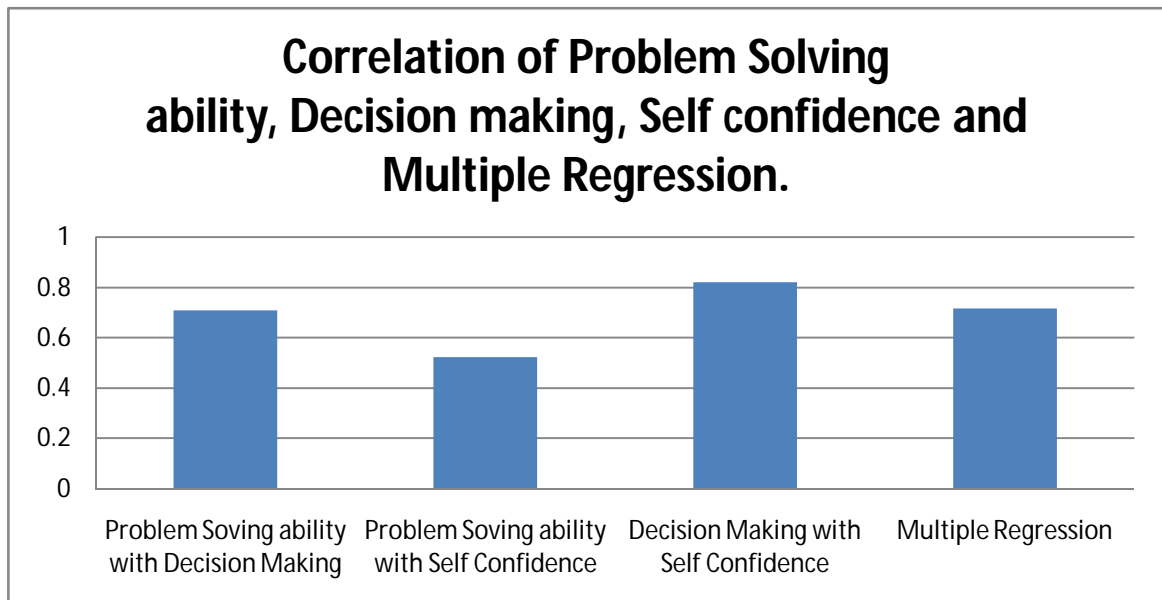
Multiple Regression Analysis

Table 4

Multiple Regression Analysis of Problem solving Ability, Self-efficacy and Perception.

Variable	Gender	N	Multiple Regression Analysis	LS
Problem solving Ability, Decision Making and Self Confidence	Boys	50	0.714	0.001

From the table 4 and also from figure A it is understood that the Multiple Regression Analysis values are significantly greater than that the table Regression values. Hence the hypothesis is rejected and proved that there is significant relationship between Problem Solving Ability, Decision Making and Self Confidence in the total sample.



VIII. EVIDENCE AND DISCUSSION

Present investigation is supported by the following studies:

A significant difference was observed between male and female adolescents. In terms of decisional self-esteem and stress, it was observed that male adolescents had more self-esteem and that they experienced less stress in decision making than female adolescents. Female adolescents are less self-esteemed in decision-making and they feel more

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 5, Issue 3, March 2016

stressful. This finding confirms that O'Hare and Beutells (1987). significant difference exist between male and female teachers on self- Self-Esteem and Decision Making Styles esteem ($t= 2.30$) which is significant at 0.05 level. This result is consistent with the findings of Leon Mann, et al (1989) and Cheryl Armond, et al (1991). Davey et al (1996)'s revealed that the main finding of the study was that the problem-solving confidence manipulation (practice) has a significant effect on challenge: subjects who experienced the confidence-reducing procedure emitted significantly more catastrophic steps than subjects who experienced the confidence-enhancing manipulation (practices). It suggests that changes in problem solving confidence can have a causal effect on catastrophic worry; this reflects an increasing in how unsuitable potential outcomes of this worry that is conceived and the amount of time that subject is willing to spend ruminating on a particular worry. Otacıoğlu (2008) showed the importance of self confidence and problem-solving skills in music education by a significant relation between two dimensions. As the result of Kruskal Wallis-H conducted to determine if the participating students' self-confidence scores differed significantly on the independent variables, it was found in there was no statistically significant difference in term of age, not demanding to become a teacher and admission at will. The difference between groups according to communicating well with peers and belief for becoming a good teacher were significant. There was significant effect of gender on self confidence when pre self confidence was taken as covariate. Further, the mean score of males on self confidence is less than that of females. It reflects that male student teachers were more self confident than female counterparts. Ziegler et al. (2000) also reported that girls expressed significantly lower levels of self-confidence regarding chemistry than boys. Similarly Kalaian et al. (1994) reported gender differences among secondary teacher candidates across three categories of criterion measures i.e. self-confidence in teaching, anticipated sources of professional knowledge, and educational orientations and beliefs.

VIII. EDUCATIONAL IMPLICATION

- Self-confidence is the sum and substance of one's feelings and thoughts about who we are and as such is of great importance.
- Self-confidence is the foundation that we build the rest of us on.
- Self-confidence, or one's sense of worth, is often fragile and sensitive to events that happen on a day-to-day basis.
- Self-confidence is critical for individuals to think about and be able to take advantage of strengths and for learning from mistakes (metacognition).
- Healthy self-confidence is an essential component for learning. Regardless of age, the self-esteem of a learner facilitates or inhibits learning.

Learning is growth - intellectual, physical, psychological, social, spiritual and combinations of those. In every aspect of this learning process there is the potential to damage, maintain or increase self-confidence. Self-confidence in most students 'mirrors' the appraisals of others, in particular parents and teachers. Teachers views clearly affect learners achievements. Positive appraisals over an extended time tend to increase the level of learning. Prolonged or consistent negative appraisals tend to lower learning achievement. Students tend to perform in accordance with teacher expectations and treatment - self-fulfilling prophecy.

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Vol. 5, Issue 3, March 2016

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