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#### PERSONALITY TRAITS AND THEIR RELATIONSHIP WITH MATHEMATICAL PROBLEM SOLVING ABILITY OF PRE-UNIVERSITY SCIENCE STUDENTS

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#### Abstract

The term personality refers to the mode of adjustment, which the organism effects between its own egocentric drives and exigencies of the environment. A Primary goal of mathematics teaching and learning is to develop the ability to solve a wide variety of complex mathematical problems. The present study is to know the relationship between the personality traits and their relationship with mathematical problem solving ability of Pre – University science students. In the present investigation sample consist of 300 college going students. Findings reveals that there is a significant relationship between personality factors and mathematical problem solving ability of college going science students.

Keywords: Personality Traits, Mathematical Problem Solving Ability, Science Students, Gender.

#### **INTRODUCTION:**

Education is viewed as an instrument to develop the necessary cognitive, affective and co-native abilities among students. These abilities to face the realities in the present world. Education is to produce well balanced individual. All the powers and capacities of the student should be developed in a harmonious manner. Problem Solving Ability has special importance in the study of mathematics. The present society needs the student who can solve not only the mathematical problems but also the problems of other fields by applying the approaches that are used in solving complex problems. Hence an attempt to know the relationship between above said variables among college going students.

#### **GENESIS OF THE PROBLEM:**

Past decade of the gears data evident that Pre-University examination results indicate mathematics is one of the core subject in which number of students fail every year in comparison to other subjects. The reason of the failure may be various ways. From the parents attitude point of view parents wish to join their children's, it is a matter of prestige for them. Students should possess poor mathematical aptitude; this predicts failure in the mathematics subjects. In such a situation, this motivates the investigator to under took present study.

#### STATEMENT OF THE PROBLEM:

Problem of the present investigation is stated as follows "A Study of the Relationship between Personality Traits and Mathematical Problem Solving Ability of College going First Year Pre-University Science Students."

#### **OBJECTIVES OF THE STUDY:**

#### Present investigation is undertaken with the following broad Objectives.

1) To measure the personality traits of first year science students.

2) To measure the mathematical problem solving ability of first year science students.

3) To find out the relationship between personality traits and mathematical problem solving ability of first year science students.

4) To find out the relationship between different dimensions of personality and mathematical problem solving ability of first year science students.

#### HYPOTHESES OF THE STUDY:

#### The following hypothesis were formulated in the present investigation

1) There is no significant relationship between personality traits and mathematical problem solving ability of first year science students.

2) There is no significant difference in the mean scores of mathematical problem solving ability among high, moderate, low personality traits, groups among of first year science students.

3) There is no significant difference in the mean scores of mathematical problem solving ability of boys and girls of first year science students.

4) There is no significant relationship between different dimensions of personality traits and mathematical problem solving ability of first year science students.

#### **SCOPE OF THE STUDY:**

In the present study intends to study the relationship between personality traits and mathematical problem solving ability of college going first year science students of Hosapete taluk region.

#### Sample:

The Sample of the study is 300 i.e. 150 boys and 150 girls students studying in government and private rural and urban Pre-University college with combination of Physics, Chemistry, Mathematics and Biology only.

#### **Review of Related Literature**

The investigator reviewed studies related to personality traits and mathematical problem solving ability conducted in India and abroad.

#### Variables of the Study

1) Personality traits is considered as independent variable

2) Mathematical Problem solving ability is considered as dependent variable

3) Gender is considered as moderate variable.

#### Definition of terms used

#### In the present study following terms were defined.

According to cattle (1970) "A trait is a structure of the personality intered from behavior in different situation".

#### Mathematic problem solving Ability

According John P.Deceeco problem solving as a form of principle learning in which lower order principles are applied in the learning of a higher order principles.

#### Gender

In the present study the term gender refers to both boys and girls studying in first year preuniversity colleges of Bellary district"

#### Tools Used for the Collection of Data:

The following tools were used for the collection of data in the present investigation.

1)Rajan's Personality trait Inventory (1990) developed by Dr. Sathyagiri Rajan.

2)Mathematical Problem Solving Ability test constructed and validated by investigator.

#### **Statistically Techniques used for the analysis of Data: The following statistical techniques used in the present study.** 1)Pearson's product moment co-efficient, co-relation techniques

2)Mean, S.D and Z test were computed for the analysis of data

#### **Testing of Hypotheses:**

#### Hypotheses -1

There is no significant relationship between personality traits and mathematical problem solving ability of science first year students.

# Table:1. Co-efficient of correlation between personality traits and mathematical problem solving ability of first year science students.

Variables	'N'	ʻr'	't'	Theoretical value	Level of significance
Personality traits and mathematical problem solving ability	300	0.283	7.680	2.58	0.01**

't' Significant beyond the 0.01 level of probability

The above table '1' shows that the co-efficient of co-relation between personality traits and mathematical problem solving ability of first year science students is 0.283. This means that there is a positive significant correlation between personality traits and mathematical problem solving ability of science students. The obtained't' value is 7.68 which is greater than theoretical value of 2.58 at 0.01 level of probability. This means that rejection of null hypothesis and framing of alternative hypotheses i.e. "there is a significant relationship between personality traits and mathematical problem solving ability of first year science students from this it concluded that personality traits are most important in solving mathematical problems of day to day life.

#### Hypothesis 2:

There is no significant difference in the mean scores mathematical problem solving ability among high, moderate and low personality traits group of first year science students.

stutents.						
Personality trait	No of	Scores	Mean	S.D		
groups	Students					
High	85	95	13.44	4.02		
Moderate	150	83-94	12.14	3.75		
Low	65	84	9.62	3.13		

Table 2: Mean and S.D for scores of mathematical problem solving ability of first year sciencestudents.

Table -2: Indicates that students were belonging to high moderate, low personality traits groups based on quartile deviation. Mean and standard deviation in mathematical problem solving ability with different groups of personality traits from this it may be concluded that different level groups of personality would tend to associate mathematical problem solving ability of first year science students.

#### Hypothesis-3:

There is no significant difference in the mean scores of mathematical problem solving ability of

first year pre-university science students.

 Table-3

 Mean, Standard and 'Z' value of mathematical problem solving ability of first year science students w.r.t gender.

Gender	N	MPSA Scores		'z' value	'z' theoretical value	Level of significance
		Mean	SD			
Boys	150	11.57	3.83	2.22	1.96	0.05**
Girls	150	12.24	3.89			

\*\*Significant beyond the 0.05 level of probability.

From the above table it is widen that mean, standard deviation and the value 'z' for the scores obtained by boys and girls are 11.57, 12.24, 3.83, and 3.89 respectively.

The value of 'z' is found to be 2.22, which is greater than the theoretical value of 1.96. This value was found to be significant at 0.05 level of probability. This prompted the investigator to reject the null hypothesis and frame alternative hypothesis i.e. there is a significant difference in the mean score of mathematical problem solving ability of boys and girls of first year science students. From this girls possess a better problem solving ability than boys i.e. gender is also important factor for problem solving ability of the students.

#### Hypothesis-4

There is no significant relationship between different dimensions of personality traits and mathematical problem solving ability of first year science students.

Dimensions of	Ν	Pearson's 'r'	Theoretical	't' value	Level of sign
personality traits		value	value of 't'		
Self confidence		0.121	2.58	2.62	0.01
Persistence		0.156	2.58	4.11	0.01
Co-cooperativeness		0.201	2.58	5.34	0.01
Emotional stability		0.093	2.58	2.63	0.01
Emotional control		0.137	2.58	3.60	0.01
Courtesy	200	0.129	2.58	3.39	0.01
Sociability	300	0.086	1.96	2.26	0.05
Leadership		0.174	2.58	4.60	0.01
Initiative		0.039	1.96	1.02	N.5
Attitude towards		0.096	1.96	2.51	0.05
life					
Attitude towards		0.152	2.58	4.00	0.01
self					
Sense of		0.130	2.58	3.41	0.01
responsibility					

 Table -4: The co-efficient of correlation and 't'-value of different dimensions of personality traits and mathematical problem solving ability of first year science students.

Table 4 presents data the co-efficient of co-relation between different dimensions of personality traits with mathematical problem solving ability of science students is significant at various levels i.e 0.01 and 0.05. This motivated the investigator to change the hypothesis and frame alternative hypothesis. i.e. there is a significant relationship between different dimensions of personality traits and problem solving ability among first year pre-university science students.

#### **RESULTS AND DISCUSSION:**

1) In the present investigation there is significant relationship was found between personality traits and mathematical problem solving ability (r = +0.283; P<0.01) among science students. This results generalize intelligent students solve mathematical problems in a effective and easy way and show high competitive skills.

2) However, the obtained mean scores of mathematical problem solving ability with different groups such as high moderate and low personality traits groups have significantly contribute towards to solve mathematical problem in a systematic way.

3) Girls posses better problem solving ability than boys because they work hard and good study habits and significant gender difference was found in the present investigation.

4) Different dimensions of personality traits were significantly related with mathematical problem solving ability of first year science students.

#### **EDUCATIONALIMPLICATIONS:**

1. Schools and colleges should adopt Yoga, leadership programmes like NSS, Scouts, NCC, Performance games.

2. Try to orient the students towards to solve puzzle problems in their day to day life.

3. Curriculum should be modified in according to needs of the students.

#### **CONCLUSION:**

Linearization, globalization and Privatization have brought in their wake intense competition. Personality factors and problem solving ability are most important among the students. School, home and society should set such organizational climate to enhance their talents. Curriculum should be flexible and dynamic one.

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