

# STUDY OF ACADEMIC ACHIEVEMENT IN RELATION TO PROBLEM SOLVING ABILITY

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## ABSTRACT

*The present study is done to explore the relation between problem solving ability and achievement in academic. Generally it is seen that some students perform very well in academic where as others may not. This study will be helpful to teachers and parents to plan remedial measures to enhance problem solving ability and achievements thereafter. In this study a sample of 200 students from classes VI to X was taken from government schools in urban area. A problem solving ability test was administered and academic achievements of only those students were recorded from school records. It was found that those students having better problem solving ability were the better performers.*

## INTRODUCTION

Human life which is the best creation of God has two aspects, the Biological and the Sociological or Cultural. While the former is maintained and transmitted by reproduction and food, the latter is preserved and transmitted by education. Biological aspect is found in both plants and animals' life. But the sociological and cultural aspect is the rare distinction of human life alone. It is only man who is capable of being educated. Through education he tries to see ideas and new ways of life. It is again through education he adds to his knowledge with which he can move the world for good or for evil according to his wishes. Throughout the ages, the occupation of the family was encouraged and taught so that the growing members of the family may adapt well to the society and be able to inherit the work of their forefathers and develop it effectively. Aims and ideals of any particular society determine the aims and ideals of the educational system which it maintains. Leitner expressed that "respect for learning has always been the redeeming feature of the East. To this province of Punjab formed no exception, torn by invasions and civil war it was ever preserved and added to education endowment." There was never a mosque, a temple and a dharmshala that had no school attached to it to which the youth of the village flocked chiefly for religious education. There were also thousands of secular schools in which Persian and Lande were taught. There was not a single village who did not take part in devoting his produce to the respect teacher."

### 1.1 ACADEMIC ACHIEVEMENT

Academia is a collective term for the scientific and cultural community engaged in higher education and research taken as a whole. The word comes from the 'academia' just outside ancient Athens, where the gymnasium was made famous by Plato as a centre of learning the

sacred space dedicated to the goddess of wisdom, Athens has formerly been an Olive grove, hence the expression "the Groves of Academe." The term scholar is sometimes used in equivalent meaning to that of "Academic" and describes in general those who attain mastery in a research proficiency in the performance of an individual in given skill or body of knowledge. Academic achievement is the criterion for selection, promotion or recognition in various walks of life and the importance of academic achievement cannot be ignored. Academic Achievement means the amount of knowledge gained by the student to work hard and learn more. Academic Achievement is generally taken to mean the aggregate of marks scored by a child in all the subjects of his class because the various process involved in academic achievement are such as observing more effectively, memorizing and solving problems. Acquiring appropriate forms of emotional expression control and developing interests, attitudes and ideas are brought out in different subject areas in a particular grade and the general purpose.

The term achievement is defined by **Freeman** "as test designed to measure knowledge, understanding and skills in a specified subjects or group of subjects."

Achievement can be measured with the help of tests, verbal or written of different kinds. According to **Baron and Bernard**, "the concept of academic achievement involves the interaction of three factors i.e. aptitude for learning, readiness for learning and opportunity for learning. Besides these factors the concept involves health and physical fitness, motivation and special aptitude, emotional balances and unbalances. To help the child to get high level of academic achievement, his parents, teachers, his own intelligence and school plays a significant role. Similarly all the social classes play a vital role on the academic achievement of students. The Academic Achievement is unique, prime and perennial responsibility of a school or any other educational institution established by the society to promote a wholesome scholastic growth and development of a child Its worth and success. Some definitions of academic achievement are as under:

**GOOD** (1941) in his book '**Dictionary of Education**' has defined "Academic achievement as knowledge attained or skill developed in the school subjects usually designed by test scores or by marks assigned by the teacher or both."

**ROBINSON AND FURLOCK** (1941) have defined "An achievement is as status of level of person's learning and his ability to apply what he has learnt."

**THROW** (1950) defines Academic Achievement as "the attained ability or degree of competence in school tasks usually as measured by standardized and expressed in terms of age or grade units based on norms derived from a wide sampling of pupil's performances." In other words, achievement may be defined as the competence they actually show in the school subjects in which they have received instructions.

**CROW AND CROW** (1962) "Achievement means the extent to which learner is profiting and acquires from instructions in a given areas of learning." In other words achievement is reflected either by extent to which skill or achievement is reflected or by extent to which skill or knowledge has been acquired by a person from training imparted to him. It is the outcome of general and specific learning experiences.

According to **OXFORD ADVANCE LEARNING DICTIONARY** (2000), "Achievement is a thing that somebody successfully attains especially using his or her efforts and skills.

Thus from the above definitions Academic achievement assumes primary importance in the context of an education system aimed at progressing scholastic development at the macro level. The scientific rearing and education of a child is monitored on the basis of his academic achievement. Academic achievement has always been the centre of educational research despite many varied statements about the aims of education. The academic development of the child continues to be primary and is the most important role of education. It is the unique responsibility of all educational institutions, established by the society to promote a wholesome scholastic development of the child. Consequently, the study of academic achievement assures a great significance in the scientific rearing of the child at the macro levels and forms the basis of human resource development.

### **1.2 PROBLEM SOLVING ABILITY**

Life is full of problems and we all want that the solution to our problem should be readily available to us. For this purpose, definite goals or aims are set. In an attempt for their realization one, experiences obstacles and interferences in one's attempt to achieve them. This creates problems and deliberate efforts have to be made to overcome these impediments.

The productive work involved in the evaluation of the situation and the strategy worked out to reach one's set goals is collectively termed as problem solving. This is an essential exercise for individual advancement and the advancement of society. A child is not born with these abilities, but has to develop these abilities through course of his life time with the help of his parents, teachers and society at large. Therefore it is very important for the parents and teachers to understand the psychology of problem solving. The meaning and nature of problem solving is further clarified by the following definitions.

According to **WOODWORTH AND MARQUIS** (1948), "Problem solving occurs when there is an obstruction of some sort in the attainment of an objective. If the path towards the goal is straight and open then there is no problem."

According to **SKINNER** (1968), "Problem solving is the frame work or pattern within which creative thinking and reasoning takes place."

According to **RISK**, "Problem solving may be defined as a process of raising a problem in the minds of students in such a way as to stimulate purposeful, reflective thinking for arriving at a rational solution.

In the light of above definitions, we can say that problem solving can be defined as a process of removing obstacles that appear to interfere with the attainment of goals. It is attempted to make adjustment to a new situation.

### **1.3 OBJECTIVES OF THE STUDY**

1. To study the academic achievement of previous class.

2. To study the academic achievement in relation to problem solving ability.

#### 1.4 HYPOTHESIS

- I. There will be positive relationship between the academic achievement and problem solving ability.
- II. The students with high problem solving ability will differ significantly in the academic advancement as compared to those with low problem solving ability.

#### 1.5 SAMPLE

A sample of 200 students of classes VI to X was taken for the purpose of study from Govt. schools in urban area of Punjab.

#### 1.6 RESEARCH TOOLS AND THEIR ADMINISTRATION

- 1) L.N. DUBEY'S PROBLEM SOLVING ABILITY TEST WAS USED TO STUDY THE PROBLEM SOLVING ABILITY OF STUDENTS.
- 2) The Mean and Standard Deviation (S.D) were carried out to study the general nature of sample in relation to dependent variable i.e. Academic Achievement and independent variables i.e. Problem Solving Ability.
- 3) Pearson's co-efficient of correlation was calculated for finding out relationship of academic achievement with problem solving ability.

#### RELATIONSHIP BETWEEN ACADEMIC ACHIEVEMENT AND PROBLEM SOLVING ABILITY

**Table 1**

coefficient of Correlation (=r)	Number of Students	(N-2) Degree of Freedom	Table Value at 0.05 level	Table Value at 0.01 level	Significance level
.607	200	198	.159	.208	significant at 0.05 and 0.01 level

Table 1 shows relationship between academic achievement and problem solving ability. Karl Pearson's product moment coefficient of correlation (=r) is computed in order to ascertain the relationship of academic achievement towards problem solving ability.

Coefficient of correlation calculated as 0.607. Table value of r at 198 degree of freedom (df) at 0.05 level is 0.159 and 0.01 level of significance is 0.208.

Hence calculated value( $r=0.607$ ) exceeds the above-mentioned values at given degree of freedom. So it can be concluded that there is a marked or substantial correlation, between academic achievement and problem solving ability. The result of the table reveals that there is positive and significant relationship between academic achievement and problem solving ability. Therefore the hypotheses i.e. there will be positive relationship between academic achievement and problem solving ability is accepted.

#### **ANALYSIS OF ACADEMIC ACHIEVEMENT OF STUDENTS WITH HIGH PROBLEM SOLVING ABILITY AND LOW PROBLEM SOLVING ABILITY**

T.S. Kelley criterion was applied in which top 27% of subjects are included in higher group and 27% of the subjects are taken from lower group.

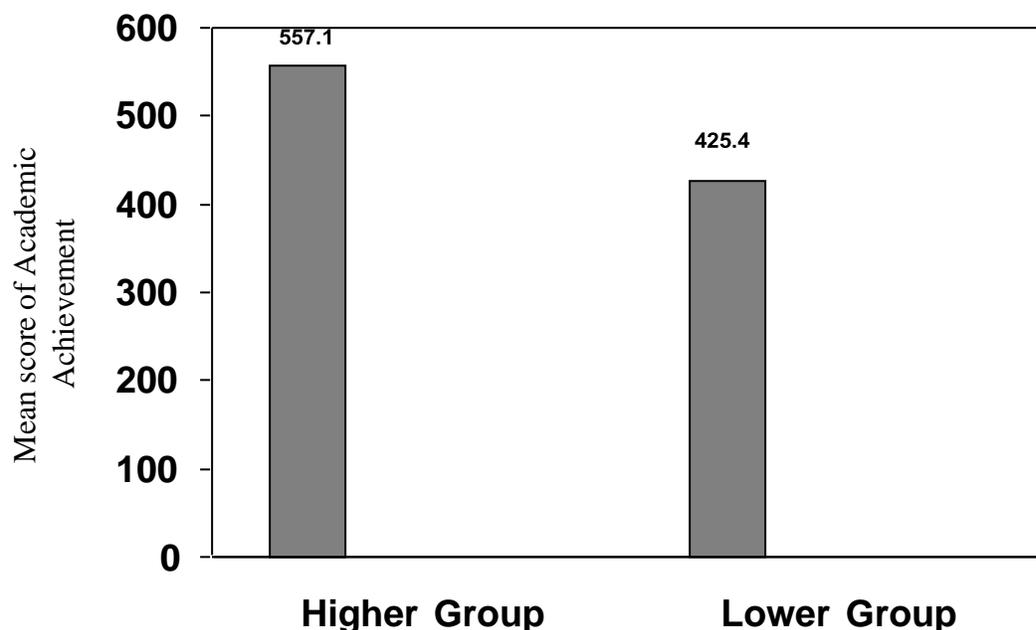
Now 27% of 100 =27

i.e. 27 students selected from higher group and lower group each.

**Table 4.10**

Group	Number of Students	Mean	Standard Deviation	Mean Difference	Standard Error	t-value	Significance level
Higher Group	27	557.15	39.90	131.69	12.15	10.84	Significant difference at 0.05 and 0.01 level
Lower Group	27	425.46	66.77				

**GRAPH-4**



The table 4.10 shows the mean and standard deviation of higher group i.e. students with higher problem solving ability and lower group i.e. students with low problem solving ability.

The mean score of higher group is found to be 557.15 and standard deviation as 39.90 and mean score of lower group is found to be 425.46 and standard deviation as 66.77. To test the difference between the two means, t-value is calculated which is found to be 10.84.

Table value of t at 80 degree of freedom (df) at 0.05 level is 1.99 and at 0.01 level of significance is 2.64. Hence calculated value ( $t=10.84$ ) exceeds the t values at give degree of freedom. Hence it is interpreted that there will be significant difference between the high problem solving ability and low problem ability in respect to academic achievement. The students with high academic achievement have high problem solving ability than the students with low academic achievement. Therefore the hypothesis the students with high problem solving ability will differ significant in their academic compare to those from low problem solving is accepted.

## MAIN FINDINGS

- 1) These exists positive relations between the academic achievement and problem solving ability. It was also found that high problem solving leads to better academic achievement.
- 2) The students having higher problem solving ability are high achievers in academic performance than the students having low problem solving ability.

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