



A STUDY OF ACADEMIC ACHIEVEMENT OF STUDENTS PARTICIPATING AND NOT PARTICIPATING IN GAMES IN RELATION TO THEIR PROBLEM SOLVING ABILITY

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ABSTRACT

Academic development of the pupil is the primary concern and the most important goal of education. Problem solving ability plays an important role in the academic achievement of students. Problem solving is related to other terms such as thinking, reasoning, decision making, critical thinking, and creative thinking. The nature and procedure of problem solving varies from person to person. It varies with the difficulty of the problem and its relation to the ability of the learners. Problem solving is a mental process and is a part of the larger problem process that includes problem finding and problem shaping. A pilot study, using descriptive survey method was carried out on 1000 students of class 7th selected by random sampling method in order to know correlation between academic achievement and achievement motivation of students participating and not participating in games. General Classroom Achievement Test (GCAT) developed by A. K. Singh and Sen Gupta and Problem Solving Ability Test PSAT-D (2011) developed and standardized by L.N. Dubey were used for the collection of data. The finding of the study shows that there significant correlation between academic achievement and achievement motivation of the students participating and not participating in games.

KEYWORDS: Academic Achievement, Problem Solving Ability

INTRODUCTION

Education is frequently concerned with the need to improve students' academic achievement. Development of effective personality and efficiency of teaching learning outcomes can be assessed in terms of students' achievement. Problem solving ability plays an important role in the academic achievement of students and has been received broad public interest as an important competency in modern societies. Problem solving is related to other terms such as thinking, reasoning, decision making, critical thinking, and creative thinking. With the advancement in socio-economic and technological fields, the responsibility of school becomes increasingly

important to develop the procedure of overcoming difficulties or problems which interfere with the satisfaction of wants is called problem solving ability. The nature and procedure of problem solving varies from person to person. It varies with the difficulty of the problem and its relation to the ability of the learners. 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. Extracurricular activities such as music, games and sports, all of these have an influence on how children perform academically. In addition to co-curricular or extracurricular activities, “analyses revealed that regardless of students’ background and prior achievement, various parenting, volunteering, and home learning activities positively influenced student grades”.

ACADEMIC ACHIEVEMENT

Academic Achievement means knowledge, understanding or skill acquired after instructions and training in courses or subjects of study. It is generally measured by means of total marks of the students obtained by them in a particular class. Academic achievement depends upon different factors which directly or indirectly influence it. 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. 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. 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. 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.” **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.” According to **Oxford Advance Learning Dictionary** (2000), “Achievement is a thing that some body 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.

PROBLEM SOLVING ABILITY

Problem solving means engaging in a task for which the solution method is not known in advance. In order to find out a solution, students must draw on their knowledge, and through this process, they will often develop new understandings. Solving problem is not only a goal of learning education but also a major means of doing so. Students should have frequent opportunities to formulate, grapple with, and solve complex problems that require a significant amount of effort and should then be encouraged to reflect on their thinking. By learning problem solving in education, students should acquire ways of thinking, habits of persistence and curiosity, and confidence in unfamiliar situations that will serve them well outside the classroom. In everyday life and in the workplace, being a good problem solver can lead to great advantage.

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. Problem solving has a special importance in education. The primary goal of education is to develop the ability to solve a wide variety of complex problems. It is the foundation of all educational activity.

NEED AND SIGNIFICANCE OF THE STUDY

There are positive and negative aspects of games. Playing games socially as part of balanced lifestyle seems to have some positive effects. Playing violent games is linked to several negative problems. Gaming has not only changed the way students learn, but it has also taught them valuable skills on its own. Problem solving ability is generally required in general life as well as in educational matters. In some of the educational subjects like science where the subjects require abstract thinking and reasoning, the problem solving ability of the student is expected to be higher comparatively. One of the major responsibilities of education is to develop the ability of problem solving. The

success, efficiency and happiness in life to a large extent depend upon this ability. A child is not born with this ability but has to develop this ability in course of his life time with the help of his parents, teachers and society at large.

Games play an important role in developing problem solving ability. Games provide opportunity to students to increase their speed and power. Speed and power in education are inseparable. Speed with accuracy is indispensable for effective learning. Precision and accuracy are the important features of education, as a discipline. For developing speed to get solution of problems, first and important thing is confidence which a student gains by taking part in games and sports. A thorough understanding of concepts is essential for solving problems in education. That, is the power in education will help an individual to develop specific skills such critical thinking and a reasoning ability, and these skills are very essential for developing problem solving ability.

Problem solving is the key to success and has been regarded as the most significant aspect of human behaviour. One of the major aims of education is to develop the ability to attain better performance. There are individual differences in the problem solving ability. High problem solving ability among the students makes them psychologically and emotionally stable. Such students become well-adjusted in the society as well as in the school. However, the students who have low problem solving ability become recessive, withdrawn, nervous and prone to anxiety, which ultimately is not desirable for their sufficient positive growth.

The purpose of this study is to determine the correlation between academic achievement and achievement motivation of the students participating and not participating in games. A thorough understanding of concepts is essential for solving problems in academics which is obtained by participating in games. Thus participation in games helps an individual to develop specific skills such critical thinking and a reasoning ability, and these skills are very essential for developing problem solving ability. The students participating in games may have higher level of aspiration and they will also perform better in the examination as compared to other children who do not participate in games. Keeping in view the importance of participation in games and its effect on educational achievement, the investigator carried out a study in order to know correlation between academic achievement and achievement motivation of students participating and not participating in games. The study may be helpful to the teachers, principals and policy

makers in designing the curriculum for students and inclusion of games in education.

STATEMENT OF THE PROBLEM

The title of the study is given as "*A Study of Academic Achievement of Students Participating and Not Participating in Games in Relation to Their Problem Solving Ability*".

OBJECTIVES OF THE STUDY

The study has the following objectives:

1. To study the academic achievement of the students participating and not participating in games.
2. To study the problem solving ability of the students participating in games.
3. To study the problem solving ability of the students not participating in games.
4. To compare the problem solving ability of the students participating and not participating in games.
5. To study correlation between academic achievement and problem solving ability of the students participating and not participating in games.

HYPOTHESES OF THE STUDY

In the present study, based on the objectives and variables the following null hypothesis was tested;

1. There is no significant difference between academic achievement of the students participating and not participating in games.
2. There is no significant difference between problem solving ability of the students participating and not participating in games.
3. There is no significant correlation between academic achievement and problem solving ability of the students participating and not participating in games.

METHODOLOGY

The study is descriptive which co-relational in nature. The descriptive research method has been most widely used by the researchers in educational area. It helps in explaining educational phenomena in terms of conditions or relationships among the variables. The population for the present study comprised of 7th standard students studying in secondary schools located at Faridabad district of Haryana state. The schools were selected on the basis of convenient sampling whereas cluster sampling technique was followed for the selection of the 7th class students.

SAMPLE

The present study has been conducted on a sample of 1000 students of class 7th studying in secondary schools located in Faridabad district of Haryana state. The students participating in games and not participating in games were classified through stratified random sampling technique. The sample comprised of 500 students participating in games and 500 students not participating in games. There were equal number of boys and girls for the study.

RESEARCH TOOLS

Following tools were used for the collection of data:

- ◆ **General Classroom Achievement Test (GCAT)** by A. K. Singh and Sen Gupta
- ◆ **“Problem Solving Ability Test PSAT-D (2011)”** developed and standardized by L.N. Dubey.

STATISTICAL ANALYSIS

Keeping in view the design of the study the statistical technique like percentage, mean, standard deviation, t- test and Pearson correlation coefficient were used for analysis and interpretation of the data.

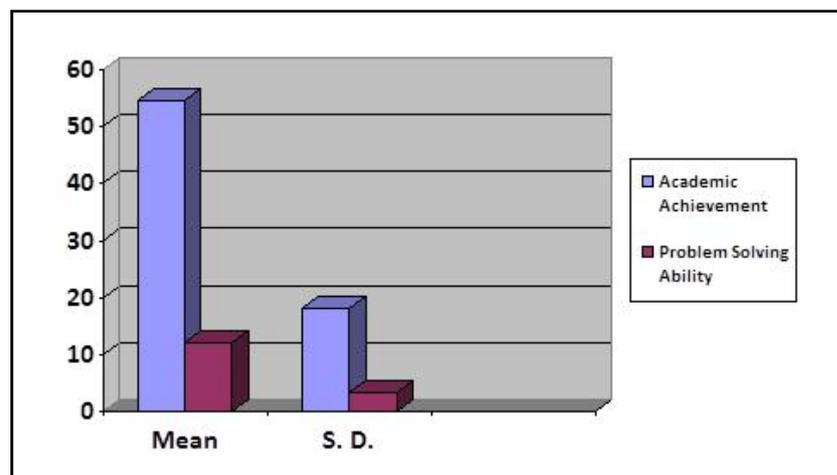
CORRELATION BETWEEN ACADEMIC ACHIEVEMENT AND PROBLEM SOLVING ABILITY OF STUDENTS PARTICIPATING IN GAMES

Table-1 shows the descriptive statistics i.e. number of students, mean, standard deviation and coefficient of correlation between academic achievement and the problem solving ability of the students participating in games.

Variables	N	Mean	S. D.	Correlation Coefficient	Remarks
Academic Achievement	500	54.48	18.13	0.673	Significant
Problem Solving Ability	500	12.06	3.47		

The calculated coefficient of correlation (r) between scores of academic achievement and problem solving ability of the students participating in games was found to be 0.673 which is significant at 0.05 level and 0.01 level

of significance. Thus, it is concluded that there exists a significant correlation between academic achievement and problem solving ability of the students participating in games. So the null hypothesis is rejected



Graph-1: Mean and Standard Deviation of the Scores of Academic Achievement and Problem Solving Ability of the Students Participating in Games

Graph-1 shows the mean score and standard deviation of the academic achievement and Achievement Motivation of the Students Participating in Games. This is clear that the mean of the scores of academic achievement of the students participating in games increases with increase

of achievement motivation of the students participating in games. A significant correlation was found between the academic achievement and achievement of motivation of the students participating in games.

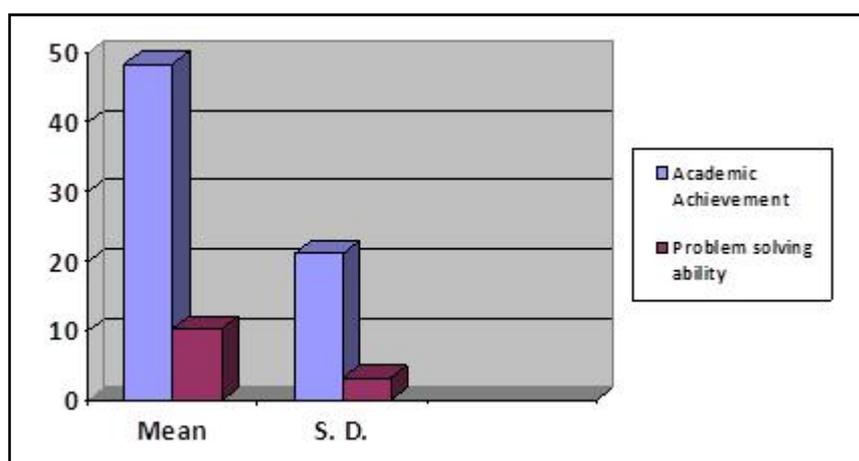
CORRELATION BETWEEN ACADEMIC ACHIEVEMENT AND PROBLEM SOLVING ABILITY OF STUDENTS NOT PARTICIPATING IN GAMES

Table-2 shows the descriptive statistics i.e. number of students, mean, standard deviation and coefficient of correlation between the score of problem solving ability and academic achievement of the students not participating in games.

Variables	N	Mean	S. D.	Coefficient of Correlation	Remarks
Academic Achievement	500	48.29	21.02	0.283	Insignificant
Problem solving ability	500	10.40	3.29		

The calculated coefficient of correlation (r) between scores of problem solving ability and academic achievement of the students not participating in games was found to be 0.283 which is not significant at 0.05 level

and 0.01 level of significance. Thus, it is concluded that there was no significant correlation between academic achievement and problem solving ability of the students not participating in games.



Graph-2: Mean and Standard Deviation of Scores of Academic Achievement and Problem Solving Ability of the Students Not Participating in Games

Graph-2 shows the mean and standard deviation of the academic achievement and problem solving ability of the students not participating in Games. On the basis of the calculation of the scores, it is concluded that there is no significant correlation between academic achievement and problem solving ability the students not participating in games. The students who participate in games are motivated in their studies also thus they are better in academic achievement. Participating in games they develop their power of motivation which enhances their academic achievement.

DELIMITATION OF THE STUDY

1. The study was delimited to Faridabad district of Haryana state only.
2. The study was delimited to 1000 students studying in class 7th only.

MAIN FINDINGS OF THE STUDY

The analysis and interpretation of the data has resulted in the following findings:

- ✧ There exists a significant correlation between academic achievement and problem solving ability of the students participating in games. The students who take part in games may good intrinsic and extrinsic motivation. Games promote the level of critical thinking, reasoning and feeling to compete well to achieve success.
- ✧ The students who participate in games are motivated in their studies also thus they are better in academic achievement. Participating in games they enhance their quality to be motivated which they use in preparing for examination thus they enhance their academic achievement.
- ✧ No significant correlation was found between the academic achievement and achievement motivation of the students not participating in games. The students who do not participate in games are also not motivated in their studies also thus they may lack in getting better academic achievement.

EDUCATIONAL IMPLICATIONS

- ▲ The students participating in games have better problem solving ability. The teachers, parents, policy makers and administrators would like to work out for inclusion of effective games for school children.
- ▲ Gaming attitude plays an integral part in teaching learning to think rationally and logically which can be achieved if students are taught in such a manner that they develop these skills. Hence, it is very much desirable that schools must incorporate games and sports in their curriculum from an early stage.
- ▲ The teachers should motivate students to participate in games. A competitive learning environment has a great role in the growth of cognitive development of students. The teacher needs to know the positive aspect of inclusion of games and sports in curriculum.
- ▲ Parents must grant their wards to participate in games and maintain satisfactory and peaceful atmosphere at home. They should promote their wards to take part in games and sports which may inculcate a feeling of competition and develop their problem solving ability.
- ▲ The students who participate in games are better in problem solving ability, and academic achievement. Participating in games they enhance their logical and reasoning capabilities which they can use in studies and examinations thus they enhance their academic achievement.

SUGGESTIONS FOR FURTHER RESEARCHES

The researcher suggests conducting researches in the areas as given below:

- ◆ The present study was restricted to students of secondary schools of Faridabad district of Haryana state only; a nationwide or state wise study may be undertaken on students from schools.

- ◆ The present study was restricted to school children; the studies may be carried out on students of other age groups.
- ◆ The studies may be conducted by studying the effect of other variables like socio-economic status, locality of schools, medium of instructions, school environment, intelligence quotient of students etc.

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