

EXPLORING THE INFLUENCE OF CREATIVE PROBLEM SOLVING ABILITY ON ACADEMIC PERFORMANCE

***Dr. Babitha Ann Joseph
ann.babitha@rediffmail.com***

ABSTRACT

This research paper investigated the influence of creative problem solving ability on academic performance of secondary school students of northern Kerala. Creative problem-solving, a type of problem solving, is the mental process of searching for a new and novel creative solution to a problem, a solution which is novel, original and not obvious. The sample of the study consisted of ninety five (95) students of class nine drawn from the five districts of Northern Kerala. The tools used for the study are Passi – Usha Test of Creative Problem Solving and Achievement Test constructed by KSTA and administered by the school authorities for students of Class Nine. The descriptive statistics like measures of Arithmetic mean, median, mode, skewness and kurtosis were included and inferential statistics used were ‘t’ test of significance and product moment correlation ‘r’ for finding the relationship between Creative Problem Solving Ability and academic performance. The results of the study revealed a positive significant correlation between creative problem solving ability and academic performance of students of class nine. A Significant difference was found in scores of creative problem solving ability among students of class nine based on gender. Girls scored higher than boys of class nine in their scores on creative problem solving ability and Girls scored higher than boys of class nine in their scores on academic performance. Since the study deals with a serious issue of education the outcome would be a immense support to various clusters of the public – scholars, parents, and teachers, policy implementing agencies, academics, and people as a whole. Since there was a positive influence

of creative problem solving ability on academic performance, teachers may aim at providing guidance services to promote students creative problem solving ability. The study would provide relevant information to help in formulating various intervention programs for adolescents.

INTRODUCTION

“Creative problem solving is looking at the same thing as everyone else and thinking something different.”

Albert Szent-Gyorgi

In this fast moving era, to get tailored with the modernization and challenges in all phases of life, creativity can facilitate for becoming accustomed to alterations and act as an energizer in the generation of knowledge. Creativity is a decisive feature of a person’s life starting from embryonic existence onward through adulthood. Skinner (1984) states that the term “problem-solving” is defined as the frame work or pattern within which creative thinking and learning takes place. Creative problem-solving, a type of problem solving, is the mental process of searching for a new and novel creative solution to a problem, a solution which is novel, original and not obvious.

Academic Performance is the imperative concern of educators, psychologists, learners as well as parents. A wide review of research considers creativity as the key factor for the development of personal, academic and social competencies (European Commission, 2008). Creative

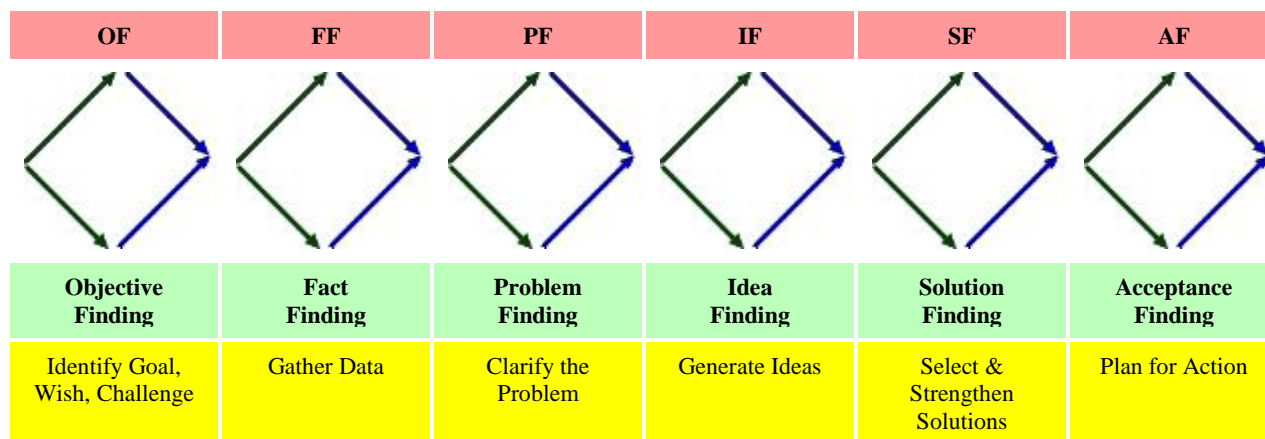
individuals are as achievement-oriented as their less creative counterparts. Creative Problem Solving emerged through several decades of work by a number of writers, developers, researchers, and trainers (Treffinger, 2000).

In 1963 Osborn presented his modified conception of Creative Problem Solving. There are six stages in this model which guide the creative process. They tell you what to do at each immediate step in order to eventually produce one or more creative, workable solutions. A unique feature is that each step first involves a Divergent thinking phase in which one generates lots of ideas (facts, problem definitions, ideas, evaluation criteria, implementation strategies), and then a convergent phase in which only the most promising ideas are selected for further exploration.

Stages of the CPS Model

1. Mess-Finding (Looking at the “mess” of interrelated issues, challenges, problems, and opportunities to find an area on which to focus).
2. Fact-Finding (exploring knowns, unknowns, issues, challenges, missing or needed information to expand understanding of the mess).
3. Problem-Finding (Discovering a suitably “fuzzy” problem, rife with opportunity or need for unusual and novel solutions and approaches).
4. Idea-Finding (Generating a large number of diverse and novel ideas relating to the problem).
5. Solution-Finding (Converging on a subset of ideas, synthesizing and refining them into potentially useful solutions, and exploring barriers and approaches to acceptance).
6. Action-Finding (Generating and refining potential action steps to move the solutions through acceptance and into implementation).

Fig 1.1 The Osborne-Parnes Creative Problem Solving Process



Although CPS can be applied individually, problems are often most effectively solved in a team, where brainstorming allows for more ideas to be generated. Thinking of many ideas is critical to effective problem solving using the Osborn-Parnes model.

Creativity is considered as the key factor for the development of personal, academic and social competencies. (European Commission, 2008). Akinboye (2002) assembled the following definitions of creativity from the literature:

- Creativity describes the production of new ideas;
- Creativity described the reconstruction of new ideas from the old;
- Creativity is insight;
- Creativity involves the active search for alternatives; and
- Creativity describes special ways of handling information.

The quality of one’s life is very much depended on his/her level of educational attainment. It is the level of educational accomplishment which helps us to function effectively in

our personal and social life. Also creative problem solving ability helps us to deal effectively in solving our daily problems, taking appropriate decisions etc. A person with a sound creative problem solving ability will be enriched with

- confidence in all the endeavors of life
- capacity to deal with challenges
- ability to fulfill the ambitions of one's life
- excellent self esteem
- clear thinking skills
- increased power of concentration
- positive attitude towards life
- emotional intelligence
- social skills

Realizing the significance and role of creative problem solving ability in the educational attainment of adolescence, the investigator decided to find whether there exists a relationship between creative problem solving ability and academic performance of secondary school students of Malappuram district. The statement of the present study is presented below.

STATEMENT OF THE PROBLEM

The present study is entitled as “Creative Problem Solving Ability and academic performance of Secondary School Students of Malappuram District”.

OPERATIONAL DEFINITIONS OF THE TERMS

Creative Problem Solving Ability

Creative problem solving ability is the ability to solve problems in an innovative way which gives novel and original solutions.

Academic Performance

Academic Performance is defined as the test scores obtained by the students in the curricular subjects.

Variables of the study

In the present study, there are two variables. The Creative Problem Solving Ability is taken as the independent variable and academic performance is the dependent variable of the study.

Objectives of the study

The objectives of the study are presented below:

- To explore the nature of the distribution of scores on creative problem solving ability among students of class nine
- To explore the nature of the distribution of scores on academic performance among students of class nine
- To study the differences in creative problem solving ability and academic performance of students of class nine based on gender.
- To find out the relationship between creative problem solving ability and academic performance of students of class nine

Hypotheses of the Study

The hypotheses formulated for the study is given below:

- There is a significant difference among ninth standard students in their creative problem solving ability and academic performance based on gender
- There is a significant relationship between creative problem solving ability and academic performance of students of class nine

Methodology

The investigator selected Normative Survey as the method keeping in view the nature of the problem for the present study. The methodology of the present investigation can be described under three heads; viz. population and sample, tools and statistical techniques.

Population and Sample of the study

The population of the study consists of ninth standard students studying in the government schools of Malappuram district.

The sample of the study consisted of ninety five (95) students of class nine drawn from two schools of Malappuram district. Purposive sampling method was used. The details of the total sample are presented in the following Table 1.1.

Sample

Table 1.1 Details of the Total Sample

Sl.No	Name of the schools	Number of boys	Number of girls	Total
1	GHSS Malappuram	27	25	52
2	GHSS Perinthalmanna	19	24	43

Tools used for the study

The details of the tools used for the study are presented in the following sections.

- Passi – Usha Test of Creative Problem Solving (PUTCPS) for assessing the Creative Problem Solving Ability.
- The marks of the final examination of class nine from the school records. The school authorities conducted the test and the question paper was prepared by the Kerala State Teachers Association (KSTA).
- Personal Information Schedule prepared by the Investigator

- ‘t’ test of significance was used to find out the significant difference between the scores on Creative Problem Solving Ability and academic performance based on gender.
- The investigator used product moment correlation ‘r’ for finding the relationship between Creative Problem Solving Ability and academic performance.

Analysis and interpretation of creative problem solving ability

The second objective of the study was to explore the nature of the distribution of scores on creative problem solving ability among students of class nine. Table 1.2 shows the descriptive analysis for the scores on creative problem solving ability.

Statistical techniques used for the study

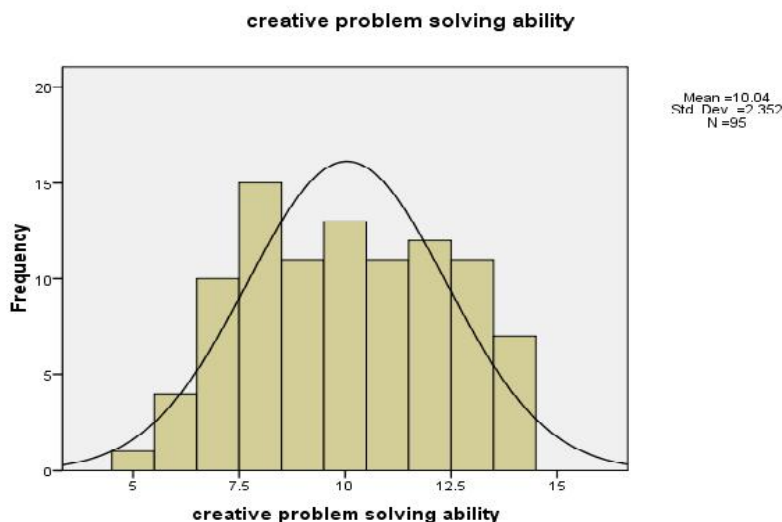
The descriptive statistics like measures of Arithmetic mean, median, mode, skewness and kurtosis were included. The inferential statistics used were

Table 1.2 Descriptive statistics for the scores on creative problem solving ability for the whole sample N=95
Maximum value-615
Minimum value -204

Variable	Mean	Median	Mode	Standard Deviation	Skewness	Kurtosis
Creative Problem Solving Ability	10.04	10.00	8.00	2.35	0.004	-1.36

The graphical representation of the frequency of the scores in creative problem solving ability for the whole sample is presented below.

FIGURE 1.2 Graphical representation of the frequency of the scores on creative problem solving ability for the whole sample



Analysis and interpretation of Academic Performance

Table 1.3 shows the descriptive analysis for the scores on academic performance.

Table 1.3 Descriptive statistics for the scores on academic performance for the whole sample

N=95
Maximum value-08
Minimum value -39

Variable	Mean	Median	Mode	Standard Deviation	Skewness	Kurtosis
Academic Performance	18.99	19.00	19.00	5.43	0.74	1.55

The graphical representation of the frequency of the scores in academic performance for the whole sample is presented below.

Analysis and interpretation of the relationship between creative problem solving ability and academic performance of students of class nine

The third objective was to find out the relationship of creative problem solving ability and academic performance of students of class nine. In order to analyze the above hypothesis it was restated into hypotheses in null form as:

- There is no significant relationship between creative problem solving ability academic performance of students of class nine.

The above hypotheses were tested using Karl Pearson's Product Moment Correlation. The details of the results are given in the Table1.4

Analysis and interpretation of the significant difference between creative problem solving ability of students of class nine based on gender

The details of the 't' test is given on Table 1.4 and Table 1.5

Table 1.4 N, Mean, SD and 't' values for creative problem solving ability among students of class nine based on gender

Group	N	Mean	SD	't' value
Boys	46	9.46	2.18	2.29
Girls	49	10.54	2.39	

Table 1.5 N, Mean, SD and 't' values for academic performance among students of class nine based on gender

Group	N	Mean	SD	't' value
Boys	46	17.04	4.40	3.59
Girls	49	20.82	5.70	

From the above Table 1.4 and 1.5, it is evident that the null hypothesis stating that there is no significant difference in creative problem solving ability and academic performance among students of class nine based on gender is rejected and the hypothesis stating that there is a significant difference in creative problem solving ability and academic performance among students of class nine based on gender is upheld.

Table 1.6 Correlation between creative problem solving ability and academic performance of students of class nine

Variable pairs	Correlation Coefficient	Level of Significance
Creative Problem Solving Ability and Academic Performance	0.52	0.01

Table 1.6 shows that the null hypothesis stating that there is no significant relationship between creative problem solving ability and academic performance of students of class nine was not accepted, and the hypothesis stating that there is a significant relationship between creative problem solving ability and academic performance of students of class nine is upheld. Thus it could be concluded that there is a significant relationship between creative problem solving ability and academic performance of students of class nine.

Findings of the study

- There was a significant difference among boys and girls of class nine in their creative problem solving ability
- Girls scored higher than boys of class nine in their scores on creative problem solving ability.
- There was a significant difference among boys and girls of class nine in their academic performance

- Girls scored higher than boys of class nine in their scores on academic performance.
- There is a positive and significant relationship between creative problem solving ability academic performance of students of class nine.

Implications of the study

The present study regarding classroom guidance has important practical implications. On the basis of the major findings of the study, the following suggestions were made.

- Since there was a positive influence of creative problem solving ability on academic performance, teachers may aim at providing guidance services to promote students creative problem solving ability.
- The study would provide relevant information to help in formulating various intervention programs for adolescents.
- Discussions, seminars, debates, brain storming sessions etc can be included to increase the creative problem solving potentialities of the learners.
- The assistance received from classrooms are essential in the social and personal improvement of the students
- Classroom interventions on stress reducing techniques, study skill practices, adjustment strategies are necessary for the students.
- Teachers can be creative to provide structured programmes for student's goal setting and problem solving.
- Life skill training programme modules can be prepared for each classroom students to prepare them for future work and life.

Conclusion

In conclusion, the result of the study put forward the significance of classroom guidance in the empowerment of adolescence. The present study is expected to be instrumental, in showing the role of each teacher in the overall development of their students. The study also highlights the fact of providing professional guidance and counseling training programmes to teachers. It is also anticipated that further more studies related to these issues will be forthcoming which benefit the development of adolescence.

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