

INFLUENCE OF DEMOGRAPHIC FACTORS ON CREATIVE PROBLEM SOLVING ABILITY - ELABORATION AMONG HIGH SCHOOL STUDENTS

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Received : 19 April, 2015

Accepted : 15 June, 2015

ABSTRACT

The aim of the study is to identify the creative problem solving ability - elaboration among high school students and to explore the influence of selected demographic factors on creative problem solving ability-elaboration. To achieve the objective sample of 317 students studying class IX were randomly selected from eight schools in Puducherry. Passi Usha test of creative problem solving was used. Mean, Standard Deviation and t-test were used to analyse the data. The Creative Problem Solving ability - elaboration among high school students form a Non-normal Distribution. There is a significant difference between the Parental Qualification of High School students in Creative Problem Solving – Elaboration ability and other factors had no significant differences.

Keywords: *Creative Problem Solving Ability, Originality, Elaboration, Fluency, Appropriateness*

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INTRODUCTION

In the technological world, growth of an individual or nations depends upon the activity. There is no development physically or intellectually happen without efforts of an activity. The activity which brings positive change with new ideas and innovative products are appreciated by others and we call them as creative thinkers. This individual's mode of thinking and the life brings the innate creativity to solve their critical situation and develops open mindedness to learn. Guilford (1977) reports that problem solving and creative thinking were closely related activities show logical connections. Creative thinking produces novel outcomes, and problem solving involves producing a new response to a new situation, which is a novel outcome. Thus, problem solving has creative aspects. From this it has been

found that the person having higher creative thinking can solve complex problems quickly. Also people who have learned effective Creative Problem Solving techniques are able to speak at higher level of complexity than more intelligent people who have not such. Therefore it is necessary to foster creativity and to develop reasoning ability. On the other hand, we try to develop Creative Problem Solving through proper education and training of our young boys and girls to build better perspectives of our nation. So it is necessary to find out Creative Problem Solving ability – elaboration of students as well as the responsible factors which help to foster them.

Concept of Creative Problem Solving

Creative Problem Solving is a methodological framework to assist problem solvers in using creativity to achieve goals, overcome obstacles and

increase the likelihood of enhancing Creative performance (Isaksen et al, 1994). Therefore, its main characteristics includes a general framework consisting of a model of the overall process with its three main components, Understanding the Problem, Generating the Ideas and Planning for Action, and with its six specific stages, Mess, Data, Problem, Idea, Solution and Acceptance -finding. This cognitive, rational and semantic orientation provides the conceptual circumstances within which to differentiate the purposes and outcomes for the problem-solvers' efforts. From an applied perspective, Creative Problem Solving is a methodology, which organizes various techniques for convergent and divergent thinking. From a theoretical standpoint, Creative Problem Solving can be viewed as a bridging or linking construct for the Cognitive Sciences (Sidney, 1991).

Review of Literature

From the review of related literature, studies found relationship between creative Problem Solving, divergent thinking, and demographic variable such as Gender, Parental Qualification, Parental Occupation, Socio-economic status, residence, and academic achievement. Some studies show the positive relationship with academic achievement and Creative Problem Solving. Few among them are Srinivasa (1988) explore the relation between need and creativity and three component of creativity namely, fluency, flexibility and originality among high school pupils. 440 high school pupils formed the sample of the study and revealed in every case of boys and girls belonging to rural and urban locality there exists a difference among the fifteen

needs associated with fluency, flexibility and originality components of creativity at high average and low levels of intelligence. Singh Radha Charan (1992) found urban students were significantly superior and better than the tribe's in fluency, flexibility and originality. Lennon Kathleen Hickey (1994) found Creative Problem Solving skills were successfully learned and applied by students in the experimental group at their field placement and also successfully transferred the application of Creative Problem Solving skills to situations beyond the class and the field placement and demonstrated that instruction which is beneficial part of careers in human services. Wiley Jennifer (1996) remarked that domain knowledge might act as a mental set-promoting fixation in creative Problem Solving. Christensen Jaris Ruth (1997) found higher mean for both student samples on the presented problems than on the discovered problems when fluency was evaluated, both samples generated more original responses to discovered problems but Statistically significant difference in fluency and or between realistic problems and standard problems found gifted students scoring high. Padmavathy(2012) found mean creative problem solving ability – originality are less and poor among the high school students. Creative problem solvers produce responses of based on the different mental set of flexibility, originality, elaboration and appropriateness. Many researchers study the three dimensions of responses expect elaboration. So this made the investigator to study the Creative Problem Solving –elaboration of high school students.

Objectives of the study

- To identify the creative problem solving ability-elaboration among high school students.
- To find out the significant difference between creative problem solving ability - elaboration among of high Schools students and (i) gender (ii) locality of school (iii) type of schools (iv) medium of instruction (v) type of family (vi) Order of birth (vii) parental qualification (viii) parental qualification (ix) parental occupation and (x) family income

Hypothesis of the study

- There will be no significant difference between creative problem solving ability - elaboration among high Schools students and (i) gender (ii) locality of school (iii) type of schools (iv) medium of instruction (v) type of family (vi) Order of birth (vii) parental qualification (viii) parental qualification (ix) parental occupation (x) family income.

Methodology

In this present study normative survey method was adopted to collect the data.

Sample

In this study researcher chooses 317 students studying IX Standard randomly from eight schools in Puducherry.

Statistical Techniques

The collected data were analyzed statistical using Mean, Standard Deviation and t-test techniques to interpret the data.

Delimitations of the study

1. The study was conducted on High School Students of Puducherry.

2. In Creative Problem solving ability- elaboration alone is considered.
3. The responses of Passi - Usha Test of Creative Problem Solving (PUTCPS) were non-verbal or in drawing forms with the elaboration dimension are measured using local norms.
4. The responses of Passi - Usha Test of Creative Problem Solving (PUTCPS) were assessed for its Elaboration dimensions only and not for its total score.

Research Instrument

1. Passi - Usha Test of Creative Problem Solving (PUTCPS) and Personal Data Sheet.

The description and procedure are given below.

The Passi Usha Test of Creative Problem Solving is a standardized test constructed by Passi, B.K. - Usha Kumar (1996) for the purpose of measuring Creative Problem Solving of school children and also adult. It measures development of thinking, skills, creativity, critical and integrative thinking. The respondent is provided with a booklet for this test. It contains seven items. The responses were non-verbal or in the drawing forms. All the items represent both Originality and Elaboration. Here Originality refers to new or novelty of ideas. Elaboration (Ideational Fluency) is the ability to give minute details and work out plans and refinements, implement and sell solutions. The researcher follows local norms for measuring the Creative Problem Solving ability of the High School students. Elaboration was assessed by giving one score to each pertinent detail (Ideational Fluency) added to the original stimulus figure. There was considerable

inter-observer agreement among the experts. The score of each item ranges between 0 and 2. Therefore the score for elaboration ranges between 0 and 14. Individual raw scores show of the Creative Problem Solving ability of the individual. The time limit for this test is 40 minutes.

Reliability and Validity of the scale are given below

Reliability of the PUTCPS was 0.86 significant at 0.01 levels and Concurrent Validity with PTC is 0.40 and for TTCT is 0.56. Both are significant at 0.01 levels. Also Face Validity was established and group of experts approved that the test PUTCPS is a valid test.

Findings of the study

The Creative Problem Solving ability-elaboration among High School students form a Non-normal Distribution. There is no significant difference between the High Schools students in Creative Problem Solving ability - elaboration and (i) gender (ii) locality of school (iii) type of schools (iv) medium of instruction (v) type of family (vi) Order of birth (vii) parental qualification (viii) parental occupation and (ix) family income. But there is a significant difference between the Parental Qualification of High School students in Creative Problem Solving-Elaboration.

1. The creative problem solving ability-elaboration among high school students (N= 317) is found to form a Normal Distribution with Mean of 1.44 and Standard Deviation of 2.10. The Median and the Mode of the distribution are found to be 1.00 and 0.12 respectively. Considering the neutral value of the scale namely 7.00, it is concluded that the mean creative problem solving ability-elaboration is lower than the average.

2. The Mean Creative Problem Solving ability-elaboration of Boys (N=165) is found to be 1.24 with Standard Deviation 1.91. The Mean Creative Problem Solving ability- elaboration of Girls (N=152) is found to be 1.66 with Standard Deviation 2.27. The Mean difference is obtained 0.42. The t-value is 1.78. It is found to be insignificant at 0.05 levels for 315 dfs. Therefore the hypothesis is accepted.
3. The Mean Creative Problem Solving ability-elaboration of Rural students (N=160) is found to be 1.35 with Standard Deviation 1.94. The Mean Creative Problem Solving ability-elaboration of Urban students (N=157) is found to be 1.54 with Standard Deviation 2.26. The Mean difference is obtained 0.19. The t-value is 0.80. It is found to be insignificant at 0.05 levels for 315 dfs. Therefore the hypothesis is accepted.
4. The Mean Creative Problem Solving ability-elaboration of Government students (N=230) is found to be 1.44 with Standard Deviation 2.15. The Mean Creative Problem Solving ability-elaboration of Private students (N=87) is found to be 1.44 with Standard Deviation 1.97. The Mean difference is obtained 0(Zero). The t-value is 0 (Zero). It is found to be insignificant at 0.05 levels for 315 dfs. Therefore the hypothesis is accepted.
5. The Mean Creative Problem Solving ability-elaboration of English medium students (N=122) is found to be 1.71 with Standard Deviation 2.18. The Mean Creative Problem

- Solving ability – elaboration of Tamil medium students (N= 195) is found to be 1.27 with Standard Deviation 2.04. The Mean difference is obtained 0.44. The t-value is 1.79. It is found to be insignificant at 0.05 levels for 315 dfs. Therefore the hypothesis is accepted.
6. The Mean Creative Problem Solving ability- elaboration of students from Joint family (N= 80) is found to be 1.34 with Standard Deviation 2.07. The Mean Creative Problem Solving ability- elaboration of students from Nuclear family (N= 237) is found to be 1.48 with Standard Deviation 2.11. The Mean difference is obtained 0.14. The t-value is 0.52. It is found to be insignificant at 0.05 levels for 315 dfs. Therefore the hypothesis is accepted.
 7. The Mean Creative Problem Solving ability- elaboration of students who born first in the family (N= 133) is found to be 1.62 with Standard Deviation 2.27. The Mean Creative Problem Solving ability- elaboration of students who born other than the first child (N= 184) is found to be 1.32 with Standard Deviation 1.97. The Mean difference is obtained 0.30. The t-value is 1.23. It is found to be insignificant at 0.05 levels for 315 dfs. Therefore the hypothesis is accepted.
 8. The Mean Creative Problem Solving ability- elaboration of students whose Parental Qualification is X Standard and Below (N=212) is found to be 1.19 with Standard Deviation 1.79. The Mean Creative Problem Solving ability- elaboration whose Parental Qualification is above X Standard (N= 195) is found to be 1.95 with Standard Deviation 2.55. The Mean difference is obtained 0.76. The t-value is 2.74. It is found to be significant for 315 dfs at 0.01 levels of freedom. Therefore the hypothesis is rejected.
 9. The Mean Creative Problem Solving ability- elaboration of students whose Parental Occupation is Government (N=46) is found to be 1.48 with Standard Deviation 2.07. The Mean Creative Problem Solving ability elaboration of students whose Parental Occupation is private (N= 271) is found to be 1.44 with Standard Deviation 2.11. The Mean difference is obtained 0.04. The t-value is 0.12. It is found to be insignificant at 0.05 levels for 315 dfs. Therefore the hypothesis is accepted.
 10. The Mean Creative Problem Solving ability- elaboration of students whose family Income below Rs.4, 436/- of students (N=244) is found to be 1.37 with Standard Deviation 2.08. The Mean Creative Problem Solving ability- elaboration of family income Rs.4,436/- and above of students (N= 73) is found to be 1.67 with Standard Deviation 2.16. The Mean difference is obtained 0.30. The t-value is 1.05. It is found to be insignificant at 0.05 levels for 315 dfs. Therefore the hypothesis is accepted.

Conclusion

According to Guilford (1950), Problem solving genuinely finds a solution to be creative, but not all creative thinking is necessarily a Problem Solving. Both are forms of learning. If an individual is always

ready to face and deal with situations then, there is absolutely no problem. But when difficulties arise, every individual tend to solve their problems. A creative person finds novel ways of handling them. Creating a novel situation is the base for stimulating Creativity. The ideas behind teaching creative Problem solving are to develop general cognitive skills, foster creativity, go beyond the mathematical applications and to motivates Students to learn. The competitive and challenged world needs creative problem solvers to face and change the world. Developing such a good creative problem solving elaborative ability innovators come with different ideas and produce harmony between the aspiration and potential to make the innovative world. It is necessary to increase the Creative Problem Solving of students through suitable curriculum and providing necessary training to increase the achievement levels of the students to lead a prosperous life.

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